Initial Environment Examination

Project Number: 38272-023
January 2018

IND: Uttarakhand Urban Sector Development Investment Program - Tranche 1

Subproject : Nainital Water Supply Subproject and Procurement of Supply, Installation, Testing and Commissioning of DG-sets for Pumping Station in Nainital

Submitted by

Urban Development Department, Government of Uttarakhand, Dehradun

Asian Development Bank

Uttarakhand Urban Sector Development Investment Program
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Ref: UUSDIP/ENV/ 1363

Dated: 08/12/2017

To,

The Country Director
Indian Resident Mission, ADB
4, Sain Martin Marg, Chanakyapuri
New Delhi-110021

Subject: Submission of Updated Initial Environmental Examination report of Nainital water supply sub-projects and procurement of supply, installation, testing and commissioning of DG- sets for pumping station in Nainital under Tranche-I.

Sir,

Please find enclosed the Updated Initial Environmental Examination report of Nainital water supply sub-projects and procurement of supply, installation, testing and commissioning of DG- sets for pumping station in Nainital under Tranche-I for your perusal and approval please.

Enclosed: As above.

Yours sincerely,

(Jharna Kamthan)
Additional Program Director

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Updated Initial Environmental Examination

Loan No.- 2410-IND

December 2017

IND: Uttrakhand Urban Sector Development Investment Program- Nainital Water Supply Subproject and Procurement of Supply, Installation, Testing and Commissioning of DG-sets for pumping station in Nainital under Tranche I

Prepared by Government of Uttrakhand for the Asian Development Bank

ABBREVIATIONS

AARS	Asian Association on Remote Sensing
ADB	Asian Development Bank
ASI	Archaeological Survey of India
BOD	Bio Chemical Oxygen Demand
CO	Carbon Mono Oxide
CTE	Consent to Establishment
CTO	Consent to Operation
CH4	Methane
CITES	Convention on International Trade in Endangered species of wild Fauna and flora
CMS	Convention on Migratory Species
CPCB	Centre Pollution Control Board
DO	Dissolved Oxygen
dB(A)	Decibel
DSC	Design and Supervision Consultants
EMP	Environment Management Plan
EIA	Environmental Impact Assessment
EAC	Expert Appraisal Committee
EC	Environmental Clearance
GoI	Government of India
GOU	Government of Uttarakhand
Ha	Hectare
H_2S	Hydrogen Sulphide
HDPE	High Density Poly Ethylene
HFL	High Flood level
IEE	Initial Environment Examination
IPIU	Investment Project Implementation Unit
IPMU	Investment Project Management Unit
IUCN	International Union for conservation of Nature and Natural Resources
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
Km	Kilometre
Leq	Sound level
Mg	Milligram
MFF	Multitranche Financing Facility
MOEFCCCC	Ministry of Environment, Forests and Climate Change
MLD	Million Litter Per day

Mn	Million
M	Meter
mm	Millimeter
mg/l	Milligram per Litre
m^3	Cubic meter
NA	Not Applicable
NAAQM	National Ambient Air Quality Monitoring
NGO	Nongovernmental organizations
NOx	Oxides of Nitrogen
NRDMS	Natural Resources Data Management System
OUR	Oxygen Uptake Rate
O&M	Operation and Maintenance
PM	Particulate Matter
PMU	Project Management Unit
PVC	Poly Vinyl Chloride
PWD	Public works Division
PIU	Project Implementation Units
RCC	Reinforced Cement Concrete
RoW	Right of Way
RP	Rehabilitation Plan
SEIAA	State Environment Impact Assessment Authority
SBR	Sequential Batch Reactor
SC	Scheduled Castes
SIPMIU	State Investment Program Management Implementation Unit
SOP	Standard Operational Procedures
SO2	Sulphur Dioxides
SPCB	State Pollution Control Board
SS	Suspended Solids
ST	Scheduled Tribes
TOR	Term of reference
UDD	Urban Development Department
UEPPCB	Uttaranchal Environmental Protection and Pollution Control Board
UJS	Uttaranchal Jal Sansthan
UP	Uttar Pradesh
UPJN	Uttaranchal Pay Jal Nigam
UPCL	Uttaranchal Power Corporation Limited
$\mu g/m^3$	Micro Gram per Cubic Meter
%	Percentage

CURRENCY EQUIVALENTS

(As of Nov 2017)

Currency Unit	=	Indian rupee/s (Re/Rs)
Rs1.00	=	$0.0155
$1.00	=	Rs64.47

NOTES

(i) The fiscal year (FY) of the Government of India ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2008 ends on 31 March 2008.

(ii) In this report, "$" refers to US dollars unless otherwise stated.

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EXECUTIVE SUMMARY

1. Uttarakhand Urban Sector Development Investment Program is intended to support the Government of India and State Government of Uttarakhand (GoU) in their policy of balanced regional socio-economic development and poverty reduction throughout the urban sector in Uttarakhand. This is being achieved through investments in the areas of infrastructure and service provision, institutional development and capacity building. Directly, the investment program will result in improved living conditions in the urban areas of Uttarakhand as a result of rehabilitation, upgrading and extension of key infrastructure, strengthened operations and maintenance, and improved local governance practices and locally-led pro-poor planning and project identification. The investment program will also improve the prospects for accelerated economic growth from the tourism and manufacturing industries and help create conditions for improved long-term service sustainability and greater private sector investment in infrastructure and service provision.

2. The investment program is funded by Asian Development Bank (ADB) through multi tranche financing facility and also by Jawaharlal Nehru National Urban Renewal Mission. The executing agency is the GoU Urban Development Department, which has set up a state-level urban sector investment program management unit (IPMU) to execute the investment program. The implementation agencies are the respective urban local bodies (ULBs), Uttarakhand Peya Jal Nigam (UPJN), Uttarakhand Jal Sansthan (UJS) and Public Works Department (PWD), which in collaboration with IPMU will set-up 13 project implementation units (PIU). The towns of Dehradun, Haridwar and Nainital are chosen for investment under the investment program Tranche-I.

3. ADB requires the consideration of environmental issues in all aspects of its operations, and the requirements for environmental assessment are described in ADB's Safeguard Policy Statement, 2009. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, and loans involving financial intermediaries, and private sector loans.

4. This updated Initial Environmental Examination (IEE) has been prepared for Nainital Water Supply Distribution Subproject which covers: (i) Provision of distribution mains; (ii) Construction of chambers and distribution boxes; (iii) provision of house connections; and (iv) Supply and installation of water meters covering all domestic and commercial connections; (v) Procurement of Supply, Installation, testing and commissioning of DG sets for pumping station at Nainital under contract packages WSSDG01N. Construction work is likely to commence December 2016 and will end up December 2017.

5. The subproject sites are located in existing right of ways, government-owned land and are clear of human habitation. There are no wetlands, mangroves or estuaries. However, Nainital is a hilly area surrounded by forests; and there are forest areas within the municipal limits. Some of the water supply tanks are located in forest lands,[1] and the distribution lines

[1] Forest lands are areas under Government control notified or recorded as forests under any Act for the conservation and management of ecological and biological resources, livelihood-support and/or social resource. Such forests will include areas with trees, scrubland, grasslands, wetlands, water bodies, deserts, glaciers,

originating from these tanks will have to pass through the forest lands. However, anticipated impacts are not significant, localized and can be easily mitigated.

6. Locations and siting of the proposed infrastructures were considered to further reduce impacts. These include (i) locating all facilities on government-owned land to avoid the need for land acquisition and relocation of people; (ii) pipelines in the right-of-way alongside a main road, to reduce the acquisition of land and impacts on livelihoods; and (iii) laying of pipes above ground to minimize disturbance in hilly areas/forest lands. Laying of the distribution lines through forest lands will require permission from Forest Department.

7. Regardless of these and various other actions taken during the IEE process and in developing the subproject, there will still be impacts on the environment when the infrastructure is built and when it is operating. This is mainly because of the invasive nature of trenching and other excavation and because the distribution network is located in an inhabited town where there are densely populated areas but the impact will be of short duration, localized and not much significant.

8. During the construction phase, impacts mainly arise from: (i) the need to dispose significant quantities of waste soil and import a similar amount of sand for construction of foundation, trenches, drains; (ii) wastewater created by the construction workers (iii) Dust generation due to movement of transport and construction vehicles, (iv) Solid waste generated during construction for installation of generators (v) the disturbance of residents, businesses, traffic and important buildings by the construction work; and (vi) disturbance and inconvenience to tourists, as Nainital is a major hill station that attracts tourists. These are common impacts of construction in urban areas, and there are well developed methods for their mitigation. Measures such as conducting work near tourist areas in the lean season and minimizing inconvenience by best construction method will be employed (vii) the installation of DG sets will regularize the water supply in Nainital town and minimize the impedance created during interruption in electric supply.

9. There were limited opportunities to provide environmental enhancements, but certain measures were included. For example it is proposed that the subproject will: (i) employing local workforce to the extent possible, people who live in the vicinity of construction sites to provide them with a short-term economic gain; and (ii) ensure that people employed in the longer term to maintain and operate the new facilities are residents of nearby communities.

10. Once the system is operating, most facilities will operate with routine maintenance, which should not affect the environment. Leaks in the pipelines will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only.

Although DG sets will be installed in existing Pump houses, noise and air pollution from operation of these DG sets could also be an issue during operation. To minimise these impacts, the Project will installed DG Sets which comply with CPCB standards for noise as well as air pollution. Safe handing, storage and disposal of fuel, oil residue, lubricating oil and used batteries will be an issue during operation phase. All these impacts are manageable by implementing mitigation measures proposed in the environmental management plan.

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geomorphic features or any other area that is necessary to maintain ecological security or fulfilling the functions of a forest.

11. An Environmental Management Plan is proposed as part of this updated IEE which includes: (i) mitigation measures for significant environmental impacts during implementation, (ii) environmental monitoring program, and the responsible entities for mitigation, monitoring, and reporting; (iii) public consultation and information disclosure; and (iv) grievance redressal mechanism. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. A number of impacts and their significance have already been reduced by amending the designs.

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

13. The stakeholders were involved in developing the IEE through discussions on site and public consultation after which views expressed were incorporated into the updated IEE and the planning and development of the project. The updated IEE will be made available at public locations in the city and will be disclosed to a wider audience via the ADB website. The consultation process will be continued and expanded during project implementation to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation.

14. Therefore, the proposed Nainital Water Supply Subproject including installation of DG sets are unlikely to cause significant adverse impacts. Few impacts were identified attributable to the proposed subproject, all of which are localized and temporary in nature. 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.

15. Based on the findings of the updated 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 Safeguards Policy Statement, 2009 or the government’s EIA Notification (2006).

Although the project site are falling within the already existed Uttarakhand Jal Sansthan Campus. The Consent to Establish (CTE) for installation of 4 D.G. Sets at different locations at Nainital has been already obtained from Uttarakhand Environment Protection and Pollution Control Board (UEPPCB). **(Reference Appendix-7)**

I. INTRODUCTION

A. Overview

1. Uttarakhand Urban Sector Development Program (UUSDIP) is intended to support the GoI and GoU in their policy of balanced regional socio-economic development and poverty reduction throughout the urban sector in Uttarakhand. This will be achieved through investments in the areas of infrastructure and service provision, institutional development and capacity building. Directly the UUSDIP will result in improved living conditions in the urban areas of Uttarakhand as a result of rehabilitation, upgrading and extension of key infrastructure, strengthened operation and maintenance, and improved local governance practices and locally-led pro-poor planning and project identification. The program will also improve the prospects for accelerated economic growth from the tourism and manufacturing industries and help create conditions for improved long-term service sustainability and greater private sector investment in infrastructure and service provision.

2. UUSDIP will be implemented in 31 selected towns in the State, particularly district headquarters and towns with tourism, administration and economic growth importance. The emphasis of this priority investment is placed on: (i) addressing the backlog in infrastructure and service provision, and (ii) rehabilitating and renewing existing dilapidated, degraded or overloaded assets, in the selected program towns. In addition to 31 selected program towns, 7 more towns, which are environmentally critical, have been included for priority investment under the Program, where new assets such as sewerage treatment plants, sanitary landfills, etc, are considered necessary to support environmental protection.

3. The UUSDIP will be funded by ADB through Multitranche Financing Facility (MFF) and also by the central-sponsored Jawaharlal Nehru National Urban Renewal Mission (JNNURM) of the Government of India. This Program will be implemented over a period of 10 years, beginning in late 2007. The Executing Agency (EA) is the Urban Development Department (UDD) of Government of Uttarakhand (GoU), which will set up a state-level urban sector Project Management Unit (PMU) to execute the UUSDIP. Implementation Agencies (IA) will be the respective urban local bodies, UPJN, UJS and PWD, which in collaboration with PMU will set-up 13 Project Implementation Units (PIU) for implementing the Program. Dehradun, Haridwar and Nainital are the towns chosen for investment under first Tranche of UUSDIP.

4. The Optimization of water supply in Nainital is one of the sample sub-projects assessed during project preparation It was prepared based on the ADB Environmental Assessment Guidelines, 2003 . The approved report is further updated in line with the requirements of ADB SPS 2009 due to addition of sub-projects in tranche -1 in Nainital.

5. ADB classified the investment program as environment Category B and accordingly initial environmental examination (IEE) is required for all subprojects. This updated Initial Environmental Examination (IEE) of the subproject has been prepared for Optimization of water supply in Nainital which covers: (i) Provision of distribution mains; (ii) Construction of chambers and distribution boxes; (iii) provision of house connections; and (iv) Supply and installation of water meters covering all domestic and commercial connections; (v) Procurement of Supply, Installation, testing and commissioning of DG sets for pumping station at Nainital .

B. Environmental Compliance Requirements

6. Government of India (GoI) Policies/Acts and ADB policy require that negative environmental impacts of development projects are to be identified and assessed as part of planning and design stage, and that necessary action is to be taken to minimize those impacts to acceptable levels.

1. Government Regulations

7. The country's comprehensive environmental legislation dates back to the introduction of the Water (Prevention and Control of Pollution) Act in 1974. Subsequently several other legislations came into existence for the protection and conservation of the environmental resources of the country. The comprehensive act, Environment (Protection) Act was promulgated in 1986. The regulations under this omnibus act impose certain restrictions on new developments including infrastructure developments to mitigate their impacts on the environment to the minimum possible.

8. The new EIA Notification of 2006 of GoI (superseding the EIA Notification of 1994), requires environmental clearance for certain defined activities/projects. This Notification classifies the projects/activities that require environmental clearance (EC) into 'A' and 'B' categories depending on the impact potential and/or scale of project. For both category projects, prior environmental clearance is mandatory before any construction work, or preparation of land except for securing the land, is started on such project or activity. Clearance provisions are as follows.

(i) The project/activities falling under Category 'A' require prior environmental clearance from the MoEFCC, Government of India[1].

(ii) Category 'B' projects require prior environmental clearance from the State level the State Environment Impact Assessment Authority (SEIAA)[2].

(iii) This Notification provides 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 protected areas, notified areas and inter-state and international boundaries[3].

9. **Forest Clearances.** Forest legislation in India dates back to enactment of the Indian Forest Act, 1927. This Act empowers the State Government to declare "any forest land or waste-land, which is the property of Government or over which the Government has proprietary rights or to the whole or any part of the forest-product of which the Government is entitled", a reserved forest or protected forest. The State Government may assign to any village-community the rights of Government over a reserved forest – those are called village-forests. Act also allows Government control over forest and lands not being the property of Government (see Appendix-2a).

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[1] For Category A projects, based on the preliminary details provided by the project proponent as per Notification, the Expert Appraisal Committee (EAC) of MoEFCC, determine comprehensive TOR for EIA studies. This TOR will be finalized within 60 days. On the recommendation of the EAC based on EIA studies, MoEFCC provides the EC.

[2] The B category projects will be further divided by State Level EAC into B1 – that require EIA studies and B2 – no EIA studies. The State Level EAC will determine TOR for EIA studies for B1 projects within 60 days. On the recommendation of the State level EAC based on EIA studies, SEIAA provides the EC.

[3] (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.

10. Acts like clearing or break up of any land for cultivation or for any other purpose, damage to vegetation/trees and quarrying or removing any forest produce from reserved forest is prohibited. All these are also applicable to village-forests. For protected forests, with the provision of the Act, the State Government makes rules to regulate activities like: cutting of trees and removal of forest produce; clearing or breaking up of land for cultivation or any other purpose; and for protection and management of any portion of protected forest.

11. Forest (Conservation) Act, 1980 (amended in 1988) enacted by Government of India, restricts the dereservation of forests for use of non-forest purposes (see Appendix 2b). According to the Act, State Government requires prior approval of GoI for the use of forest land for non-forest purposes (means the breaking up or clearing of any forest land) or for assigning least to any private person or agency not controlled by government. The Forest (Conservation) Rules, 2003 issued under this Act, provide specific procedures to be followed for conversion of forest land for non-forest purposes (see Appendix 2c).

12 Air (Prevention and Control of Pollution) Act of 1981, Rules of 1982 and amendments. The subprojects having potential to emit air pollutants into the atmosphere have to obtain CTE under Section 21 of the Air (Prevention and Control of Pollution) Act of 1981 from SPCB before starting implementation and CTO before commissioning the project. The occupier of the project/facility has the responsibility to adopt necessary air pollution control measures for abating air pollution. The following require CTE and CTO from SPCB:

(i) Diesel generators; and
(ii) Hot mix plants, wet mix plants, stone crushers, etc., if installed for construction.

13. Noise Pollution (Regulation and Control) Rules, 2000 The Rules state that the State Government of Uttrakhand shall take measures for abatement of noise including noise emanating from vehicular movements and ensure that the existing noise levels do not exceed the Noise standards specified under the Rules. All development authorities, local bodies, and other concerned authorities while planning developmental activity or carrying out functions relating to town and country planning shall take into consideration all aspects of noise pollution as a parameter of quality of life to avoid noise menace and to achieve the objective of maintaining the Noise quality standards . Based on the Rules, an area comprising not less than 100 meters around hospitals, educational institutions and courts may be declared as silence areas/zones.

14. Water (Prevention and Control of Pollution) Act (1974): Any component of urban infrastructure project under UUSDIP having potential to generate sewage or trade effluent will come under the purview of the Water (Prevention and Control of Pollution) Act, 1974. Such projects have to obtain Consent to Establishment (CTE) under Section 25 of the Act from Uttaranchal Environmental Protection and Pollution Control Board before starting implementation and Consent to Operate (CTO) before commissioning. The Water Act also requires the occupier of such subprojects to take measures for abating the possible pollution of receiving water bodies. The following subprojects require CTE and CTO from SPCB:

(i) New or augmentation of water treatment plants; and
(ii) New or augmentation of sewage treatment plants.

15 Emissions and discharges shall comply with standards notified by the CPCB. Appendix 3 provides applicable standards for effluents, receiving water bodies, air quality, water quality and noise levels.

2. ADB Policy

16. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for Environmental Assessment are described in ADB SPS 2009. The ADB guidelines stipulate addressing environmental concerns, if any, of a proposed activity in the initial stages of Investment Program preparation. For this, the ADB Guidelines categorizes the proposed components into varies categories (A, B, C or FI) to determine the level of environmental assessment required to address the potential impacts. Level of environmental assessment required for each category of Investment Program, based on ADB's SPS 2009 is presented below.

(i) **Category A.** Sub-project components with potential for significant adverse environmental impacts. An environmental impact assessment (EIA) is required to address significant impacts.

(ii) **Category B.** Sub-project components judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for Category A projects. An initial environmental examination (IEE) is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report. A category B sub-project is categorized as Category B Sensitive, if that sub-project has environmentally sensitive components. The projects that are near to environmentally sensitive areas, or that involve deforestation, loss of bio-diversity, involuntary resettlement, processing, handling or disposal of hazardous substances or activities that may be of concern of wide group of external stakeholders are categorized as B Sensitive. These projects require IEE including EMP with budget and are subject to ADB 120 day rule.

(iii) **Category C.** Components of sub-projects unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications of the sub-project are still reviewed.

(iv) **Category FI.** Projects are classified as Category FI if they involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all no sub-projects will result in significant environmental impacts.

17 **Environmental Management Plan**. An EMP which addresses the potential impacts and risks identified by the environmental assessment shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

18. **Public Disclosure.** ADB will post the following safeguard documents on its website so affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

(i) For environmental category A projects, draft EIA report at least 120 days before Board consideration;
(ii) Final or updated EIA and/or IEE upon receipt; and
(iii) Environmental Monitoring Reports submitted by SIPMIU during project implementation upon receipt.

19. The legal framework of the country consists of several acts, notifications, rules and regulations to protect environment and wildlife. In 1976, the 42nd Constitutional Amendment created Article 48A and 51A, placing an obligation on every citizen of the country to attempt to conserve the environment. Specifically for the UUSDIP (Uttarakhand Urban Sector Development Investment Program), the following environmental laws and regulations are applicable for sub-projects and require clearance or permission as applicable. The details are given in **Table 1**:

Table 1 - Applicable Environmental National and State Requirements for UUSDIP

S. No.	Clearances	Acts/Rules/Notifications/ Guidelines and Application to proposed project	Concerned Agency	Applicable to Contract package	Responsibility
1	Environmental Clearance	EIA Notification, 2006 amended till date, promulgated under Environment (Protection) Act 1986 This states that Environmental Clearance (EC) is required for specified activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts. Categories A projects require Environmental Clearance from the National Ministry of Environment and Forests (MoEF). Category B projects require environmental clearance from the State Environment Impact Assessment Authority (SEIAA).	State Environmental Impact Assessment Authority (SEIAA). If not constituted then MoEF.	No The sub-project is not included in schedule of environmental impact assessment notification 2006 and its subsequent amendments till date, so it is not categories as either Category A or Category B. As a result, environmental clearance is not required, either from the state or the central Government.	IPMU / IPU
2.	Ground Water (Regulation, Development and Management) Rules, 2007	For withdrawal of ground water	Central Ground Water Board	Yes	IPMU / IPIU

S. No.	Clearances	Acts/Rules/Notifications/ Guidelines and Application to proposed project	Concerned Agency	Applicable to Contract package	Responsibility
3	Forest Clearance for felling of trees and acquisition of forest land for widening.	**Forest Conservation Act (1980) and Rules 2003 & 2004:** 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. i) If the forest land exceeds 20 hectare then prior permission of Central Government is required; ii) if the forest land is between 5 to 20 hectare, then permission form the Regional Office of Chief Conservator is required; iii) If the forest land is below or equal to 5 hectare the State Government can give permission. If the construction area is more than 40% forest, permission to undertake any work is needed from the Central Government, irrespective of the size of the area. MoEF issued specific guidelines in July 2013 for state of Uttarakhand for expediting forest clearances to carry out the emergency work in forest areas (excluding works in national parks and sanctuaries) vide no 11-298/2013-FC Dated 24.07.2013	District Level Committee constituted by the State Govt.	Yes (Although No felling of trees is required but Pipe laying activities through the protected forest require clearance from the State Forest Department.)	IPMU / IPIU

S. No.	Clearances	Acts/Rules/Notifications/ Guidelines and Application to proposed project	Concerned Agency	Applicable to Contract package	Responsibility
4	Wildlife department clearances	**The Indian Wildlife (Protection)** **Act, 1972, as amended till 2006** This Act provides guidelines for protection of [Wild animals, birds and plants] and for matters connected therewith or ancillary or incidental thereto. It also states the norms for hunting of wild animals, prohibition of picking, uprooting, etc., of specified plants. The Act deals with the declaration of area as Sanctuary, National Park, and closed area and also states the restriction of entries in the sanctuary. The 2002 Amendment Act which came into force in January, 2003 have made punishment and penalty for offences under the Act more stringent.	National Board for Wildlife	Not Applicable to contract package (The wildlife protection act is not applicable to the proposed subproject. All activities of project are well outside from the boundary fence of the wildlife sanctuary.	IPMU / IPIU
5	Clearances required for using biological resources	**Biodiversity Act 2002 and** **Biodiversity Rules 2004:** The Act essentially controls access to indigenous biodiversity resources. No agency/person shall, without previous approval of the National Bio-diversity Authority, obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio-survey and bio-utilization.	Uttarakhand Biodiversity Board.	Not Applicable for the subproject	IPMU / IPIU
6	Permission to carry out construction activities in the	The Ancient Monuments and	State Level Committee constituted by	Not Applicable	IPMU / IPIU

S. No.	Clearances	Acts/Rules/Notifications/ Guidelines and Application to proposed project	Concerned Agency	Applicable to Contract package	Responsibility
	sites of Archaeological Importance	Archaeological Sites and Remains Act, 1958, and the rules, 1959: The Act provides guidance for carrying out activities, including conservation, construction and reuse in and around the protected monuments Permission from the Archaeological Survey of India for carrying out any construction activities within the prohibited and regulated areas of the ancient monuments and archaeologically protected sites.	the Central Govt.	for the subproject	
7	Permission for Sand Mining from river bed	Mines and Minerals (Regulation and Development) Act, 1957 as amended in 1972	River Board Authorities/ Department of Mining Govt. of Uttarakhand	Yes	Contractor
8	Consent to Establish (CTE) and Consent to Operate (CTO) from the UEPPCB is required for setting up WTP	Water (Prevention and control of pollution) Act, 1974, as amended Air (prevention and control of pollution) Act, 1981, as amended	UEPPCB	Yes, it is applicable for Installation of DG set. (CTE obtained and enclosed in Appendix 7)	IPMU/ IPIU
	Consent to Establish (CTE) and Consent to Operate (CTO) from the UEPPCB for setting up hot mix plants, wet mix plants, stone crushers, quarries and diesel generators (if installed for construction)				

S. No.	Clearances	Acts/Rules/Notifications/ Guidelines and Application to proposed project	Concerned Agency	Applicable to Contract package	Responsibility
9	Authorization for Disposal of Hazardous Waste	Hazardous Wastes (Management, Handling and Transboundary movement) Rules, 2008 and Hazardous Waste (Management, Handling and Transboundary Movement) Fourth Amendments Rules, 2010	Uttarakhand Environmental Protection and Pollution Control Board – Dehradun	Yes	Contractor
10.	Batteries waste	The Batteries (Management and Handling) Rule, 2001 and amendments thereof •	Uttarakhand Environmental Protection and Pollution Control Board – Dehradun	Yes	Contractor
11	Pollution Under Control Certificate for construction vehicles	Central Motor and Vehicle Act 1988 and Central Motor and Vehicle Rules,1989 amended till 2013	Department of Transport, Govt. of Uttarakhand	Yes	Contractor
12	Employing Labours/ workers - Labours license and Workmen's Insurance and labour permits	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 & The Building and Other Construction Workers Related Laws (Amendment) Bill, 2013	District Labour Commissioner	Yes	Contractor
13	License for Storing Diesel and other explosives	Petroleum Rules, 2011. Hazardous Wastes (Management, Handling and Transboundary movement) Rules, 2008 and Hazardous Waste (Management, Handling and Transboundary Movement) Fourth Amendments Rules, 2010	Commissioner of Explosives and Uttarakhand Environmental Protection and Pollution Control Board – Dehradun	Yes	Contractor
14	Child Labors	Child Labour Act 1986	-	Applicable	Contractor

C. Extent of the IEE Study

20. This IEE report has been updated on the basis of detailed screening and analysis of all environmental parameters, field investigations and stakeholder consultations to meet the requirements for environmental assessment process and documentation per ADB's Safeguard Policy Statement (SPS, 2009) and Government of India Environmental Impact Assessment (EIA) Notification of 2006. Since, EIA Notification, 2006, does not attract this sub-project therefore no GoI/GoU approvals are necessary for this IEE Report. The EA will ensure permission of Forest Department to replace the pipelines in the forest areas, during detailed design stage.

D. Scope of IEE

21. This is updated IEE for the sub-project "Optimization of Water Supply System in Nainital" including Procurement of Supply, Installation, testing and commissioning of DG sets for pumping station at Nainital under contract packages WSSDG01N. Construction work is commenced in December 2016 and will likely to end up December 2017. It discusses the environmental impacts and mitigation measures relating to the location, design, construction and operation of all physical works proposed under this sub-project. It is one of the documents describing the environmental impacts and mitigation measures of all sample sub-projects proposed in Tranche 1. The updated IEE is based mainly on secondary sources of information and field reconnaissance surveys. Stakeholder consultation is an integral part of the updated IEE.

E. Report Structure

22. This IEE report was prepared in accordance with the ADB Environmental Assessment Guidelines, 2003 and is documented accordingly. This is further updated as per ADB SPS 2009 due to addition of subproject in Tranche 1 in Nainital. This Report contains Ten (10) sections including this introductory section: (i) introduction; (ii) description of the subproject; (iii) description of the environment; (iv) screening of potential environmental impacts and mitigation measures; (v) institutional requirements (vi) Grievance redressal Mechanism; (vii) public consultation and information disclosure; (viii) Environmental Management Plan (ix) Environmental due diligence; (x) finding and recommendation; and (xi) conclusion.

II. DESCRIPTION OF SUB-PROJECT

A. Need for the Sub-project

23. Nainital is the headquarters of Nainital District in the Kumaon foothills of the outer Himalaya in the State of Uttarakhand. Nainital is geographically located in the southern part of the state at 29° 24' N and 79° 28' E (Figure.1). Piped water supply was introduced in Nainital in 1898 from Pardadhara spring situated inside the town. Later on, water was tapped through bore wells and infiltration well located at the periphery of Nainital Lake. These tube wells are now the main sources of water for Nainital City from which it meets about 93% of its total supply; the rest 7% or about 1 million liters per day (MLD) is drawn from the surface source.

24. The quality of ground water from tube wells is good and does not need filtration. It is directly distributed after disinfection. The quality of water from the Pardadhara stream is also good but in rainy season the turbidity increases for some period. The surface water from the stream and water from the infiltration well is filtered through a rapid sand filter of 3.54 MLD capacity. Only 2.94 MLD is being filtered at present. It is expected that cleaning of the infiltration well may increase its yield, which has decreased from 5.34 MLD to 1.94 MLD at present.

25. Nainital is known as the lake district of Uttarakhand due to the predominance of lakes in the area. Good quality of water is available from tube wells and an infiltration well. But the supply depends on pumping. The old pipeline in the City is dilapidated. Due to urban growth and high tourist growth, water demand is rising steadily.

26. From an analysis of the current water supply situation, the likely scenario of water supply with respect to water demand, resources, system requirements and related aspects, the following emerge as the key issues facing the water supply system to be addressed by the sub-project:

(i) Lack of adequate database and maps on the transmission and distribution system network.

(ii) Zones being open (water of one zone freely travel to other zones).

(iii) Unequal distribution of water resulting in acute shortage in several localities.

(iv) Excessive difference of pressures in a single zone.

(v) Deterioration in water quality at times.

(vi) Inefficient network hydraulics with respect to tapping, pumping and balancing storage tanks causing lack of pressure/very high pressure.

(vii) In the intermittent supply system the tendency of the consumer is to keep the taps open throughout the day increasing the peak factor and raising the chances of wastage of water.

(viii) The old and dilapidated network develops leakages most of which are buried under roads and remain undetected. This results in entry of polluted water into the pipes when supply is closed.

(ix) Lack of standby power generation system at tube well head works as interruptions in power supply happen quite often

(x) Low efficiency of old pumping plants.

(xi) Many rising mains are tapped and used as distribution mains leading to large scale drops in pressure, wastage of energy and disruption in supply. Growth in demand in high density areas with which the existing diameters of pipe line cannot cope.

B. Description of Sub-project

27. Table 2 presents the summary of components proposed under the sub-project "Optimization of water supply system in Nainital" including subprojects of procurement and installation of 4 D.G. sets. Figure 1 and Figure 2 presents the location of subproject components in Nainital. The descriptions shown in the Table are based on the present proposals, although certain details may change as development of the subproject progresses, particularly in the detailed design stage. It should also be noted that at this preliminary design stage certain aspects (such as exact location of distribution pipes to be replaced, etc) have not yet been finalized.

Table 2: Summary of Sub- Project Components

No.	Sub-project Component	Description	Location
1	Installation of SCADA system	No physical/construction works	SCADA system will be installed at 47 tube wells
2	Replacement of damaged/old pumps	16 pumps of 50 - 100 HP	Within the existing pumping station sites
3	Development of system control rooms	4 control rooms	Control rooms will be constructed within the existing facility premises such as treatment plants, pumping stations etc.
4	Leak detection and water audit	No major physical/construction work	
5	Supply and installation of bulk water meters	104 bulk water meters of 150 to 200 mm dia including valves	Bulk meters will be installed in the Pipelines
6	Renovation of old treatment plant of 8 MLD	Change of filter media, change of valve and gauges, other equipment and building repairs	Works will be carried out within the existing treatment plant premises only
7	Establishment of water testing lab	A fully equipped lab for water quality analysis with necessary equipment and apparatus	Within the existing water treatment plant
8	Replacement of old/damaged distribution mains	50 km of 40 - 150 mm GI pipes	Replacement works will be carried out in the Old City area. Pipes will be buried along the roads within the available ROW.
9	Replacement of pipelines under roads	10 km of 40 to 150 mm GI pipes	These works will be carried out at various locations in the city. The existing pipeline under the roads will be left as it is, and a new pipeline will be laid at that stretch along the road within the ROW. New pipeline will be buried along the road.

No.	Sub-project Component	Description	Location
10	Reorganization of distribution system	15 km of 65 - 150 mm GI pipes	This will be carried out in the newly included areas where previously water supply was made @ 40-70 lpcd
11	Replacement of rising main	17.5 km of 200 mm GI pipes	These pipes feed supply reservoir from sources. The rising mains proposed for replacement are Polytechnic rising main; Interchina rising main; Tonchy rising main; Birla rising main; Rata Cottage rising main; and Zilla Parishad rising main.
12	Development and repair of old tube wells and cleaning of an infiltration well	This will cover seven existing tube wells and an infiltration well. Development and repairs for tube well include change of filter pipe and removal of silt. Cleaning of infiltration well include removal of silt accumulated around the well and gravel bed development.	Tube wells are located in the periphery of the Naini Lake and infiltration well is located in the lake
13	Replacement of Old Steel CWRs	4 existing steel CWRs of total capacity 1.5 ML will be replaced with RCC Overhead tank of same capacity	Existing steel CWRs at Tonchy, Inter china and Ayarpata will be dismantled and the new RCC tanks will be constructed within the existing tank areas.
14.	Reconstruction of old pump house at old WTP	The existing old and damaged pump house will be reconstructed with a new Pumping station to house 17 pump sets.	This building of brick walls and RCC roof will be constructed within the treatment plant Compound.
15.	GIS based pipeline network mapping	Involve no physical works	
16.	Four D.G.Sets	Four assembled D.G.sets with specifications of 160 KVA, 250 KVA, 380 KVA, 625 KVA will be installed with acoustic enclosures as per CPCB norms	Four assembled D.G sets with specifications of 160 KVA, 250 KVA, 380 KVA and 625 KVA at different locations i.e. at Phansi Gadhera, Sukhatal, old water works and children parks respectively and installation of all will be within the premises of Uttarakhand Jal Sansthan Campus.

CWR = clear water reservoir, GI = galvanized iron, HP = Horse Power, km = kilometer, lpcd = liters per capita per day, ML = million liters, MLD = million liters per day, mm = millimeters, RCC = reinforced cement concrete, RoW = right of way, SCADA = supervisory control and data acquisition, WTP = water treatment plant.

28. The optimization of water supply system involves (i) improving the existing system to reduce the system losses (which are currently at 30%), (ii) reorganizing the water supply system in areas where present distribution network is insufficient for the supply rate of 135 liters per capita per day (lpcd), and (iii), improving the system efficiency with various interventions, (iv) procurement and installation of 4 D.G. sets at different pump houses locations to provide uninterrupted water supply at different reservoirs, OHT's and local public services levels.

29. Physical works in loss reduction program involves replacing old and damaged distribution lines of 40–150 millimeter (mm) diameter of cast iron (CI) pipes with the same diameter of galvanized iron (GI) pipes over a length of 50 kilometers (km). Owing to the hilly topography

most of the pipelines will be laid over ground (Appendix-1-Photo 1a), in plain stretches depending on the gradient pipes will be buried in a trench (around 1 meter deep) within the Right of Way (RoW), adjacent to the road (Appendix-1-Photo 2). Exact pipes requiring replacement will be identified through a leak detection study proposed under the sub-project during the detailed design stage. The program to reduce losses will also include the provision of bulk meters to monitor flow in the network and installation of SCADA systems at the tube wells.

30. Under the reorganization of the system component, pipelines will be replaced with bigger (65 to 150 mm) GI pipes where the existing network is insufficient to accommodate water supply rates of 135 lpcd. Exact location of these pipelines totaling to 15 km will be identified during detailed design stage. Pipes will be buried in a trench along the road. Similarly, 10 km of pipeline (40-50 mm), presently buried under the roads, will be replaced with similar size GI pipes.

31. Existing pumping mains (these are the feeder mains connecting sources with the supply tanks), of 200 mm for 17.5 km, which are also being utilized as distribution mains, will be replaced with the same diameter GI pipes (Figure 2). Although pipelines were originally aligned through government lands, they are currently encroached upon, and now pipelines pass through private lands at many locations. It is therefore proposed to realign the pipeline along the edge of the road within the right of way (RoW). About 500 m of the rising main is in the forest areas (200 m in Tonchy and 300 m in Birla rising mains). Pipeline in the forest stretches will be laid over ground and will involve no tree cuttings.

32. The existing water treatment plant (WTP) of 8 MLD will be rehabilitated by change of filter media, valves and gauges, and building repairs. These works will be carried out within the WTP premises.

33. The perforated filter pipe of seven existing tube wells, which is heavily silted resulting in very low yield, will be replaced with the new pipes. Similarly, the existing infiltration well is also heavily silted. The silted gravel bed around the well will be replaced. The existing steel clear water reservoirs (CWRs) at Tonchy, Inter china and Ayarpatha (refer to Appendix-1-Photo-3) will be dismantled and replaced with reinforced cement concrete (RCC) over head tanks at the same location.

34. Other components proposed under this sub-project include the construction of 4 control rooms for water supply operation within the pumping stations and treatment plant premises, installation of mechanical bulk water meters for flow measurement in pipelines, procurement of pumps for replacement, installation of SCADA system at existing tube wells and GIS mapping of the water supply systems.

35. Besides above other proposed subproject is Procurement of Supply, Installation, testing and commissioning of DG sets for pumping station at Nainital. It covers installation, testing, commissioning of 4 D.G.sets at Children parks, old water Works, Sukhatal and Phansi Gadhera at Nainital within the premises of Uttarakhand Jal Sansthan Campus in order to uninterrupted supply of electricity to pump houses.

36. The Factory assembled D.G. sets are comprising of Oil Engines reputed make diesel engines directly coupled to alternator mounted on common base frame, complete with fuel tank and battery wit battery chargers, AVM pads and exhaust system, acoustic enclosure as per CPCB norms. The D.G. sets shall be provided with manual power control panel to regulate the AC power. The present work of supply, erection, testing and commissioning of D.G.sets is considered to execute the work under tranche-1 as an additional work to the ongoing contract

package and is being tendered under the contract package WSSDG01N. The detail of the sub-project is provided as below in Table no. 3. Location of installation of 4 DG sets in Nainital is shown in Fig 3.

Table 3 - Detail of the sub-project of 4 D.G sets

Site	KVA rating	Current Amp.	Max. Current Required (A)	Dimension of DG Set Lx W x H	Space Requirement L x W (H=Open to air)	Weight (MT)	Tank capacity (Lit)	Fuel Consumption Lit / hr 75% & 100% Load (Approximate)
Children Park	625	870	861	6.6m x 2.1 m x 2.75	8 m x 4m	10.5	990	99.79/134.95
Old Water Works	380	529	533 (Load being adjusted)	5.3 m x 1.5 m x 2.02 m	7 m 3 m	6.15	850	60.66/81.87
Sukha tal	250	348	326	4.65 m 1.7 m x 2.06m	6 m x 3 m	4.6	480	41.58/54.43
Phansi Gadhera	160	223	202	4.5 m x 1.5m x 1.85m	6 m x 3m	3.4	330	20.5/25.9

37. The sub- project has been implemented by the Investment Program Implementation Unit (IPIU) under direct administrative and financial control of Investment Program management Unit (IPMU) which is the executing agency.

C. Status of Subprojects:

38. Installation, testing and commissioning works of 4 DG sets of 625 KVA at Children Park, 380 KVA at Old water works, 250 KVA at Sukha Taal pumping station and 160 KVA at Phasi Gadhera pumping Station in Nainital are under progress. The overall progress of works is approx. 95%.

* *All photographs are attached at the end of this report.

Figure 1: Location of the sub-project

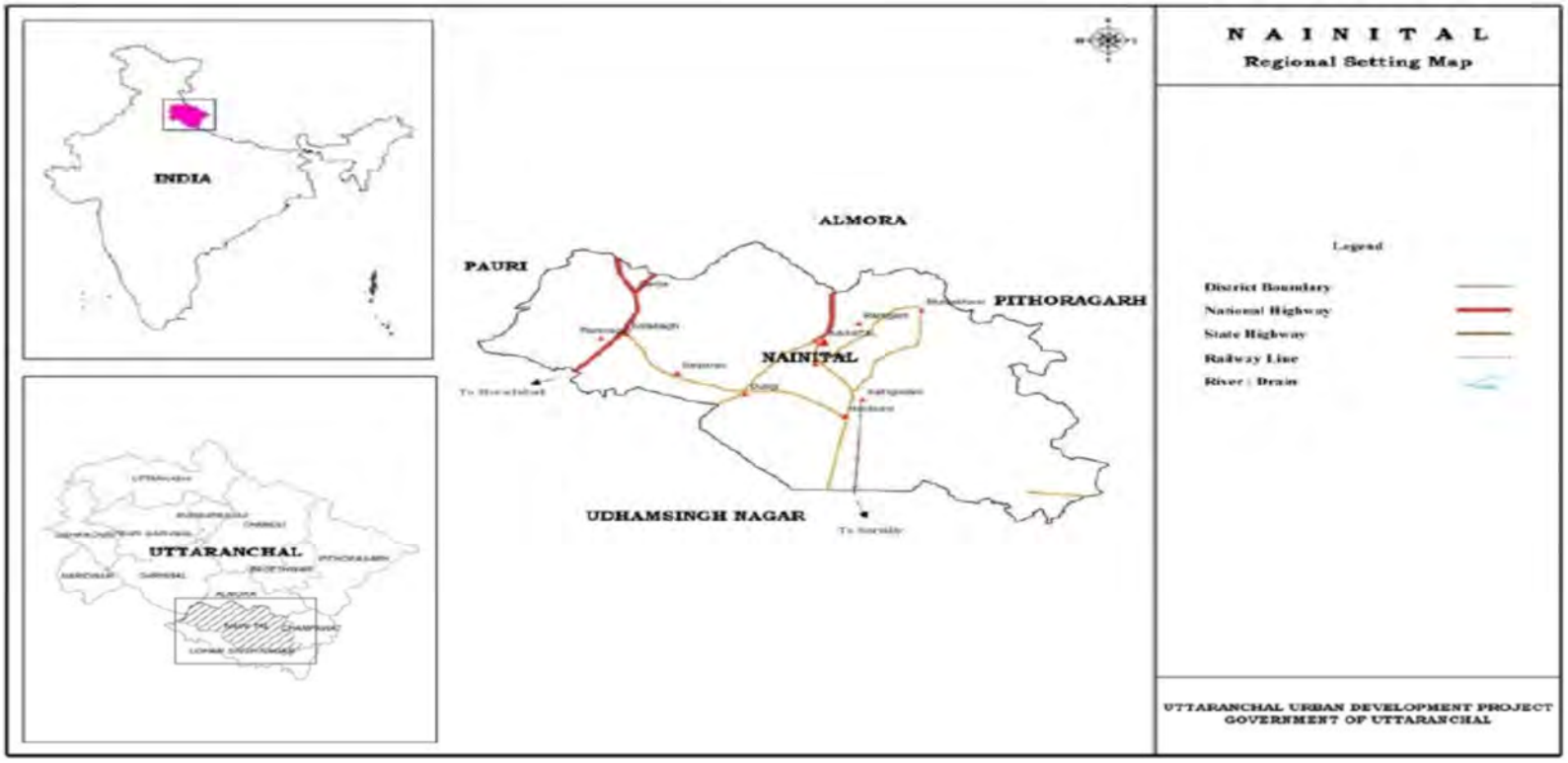

Figure 2: Location of Sub-project Components

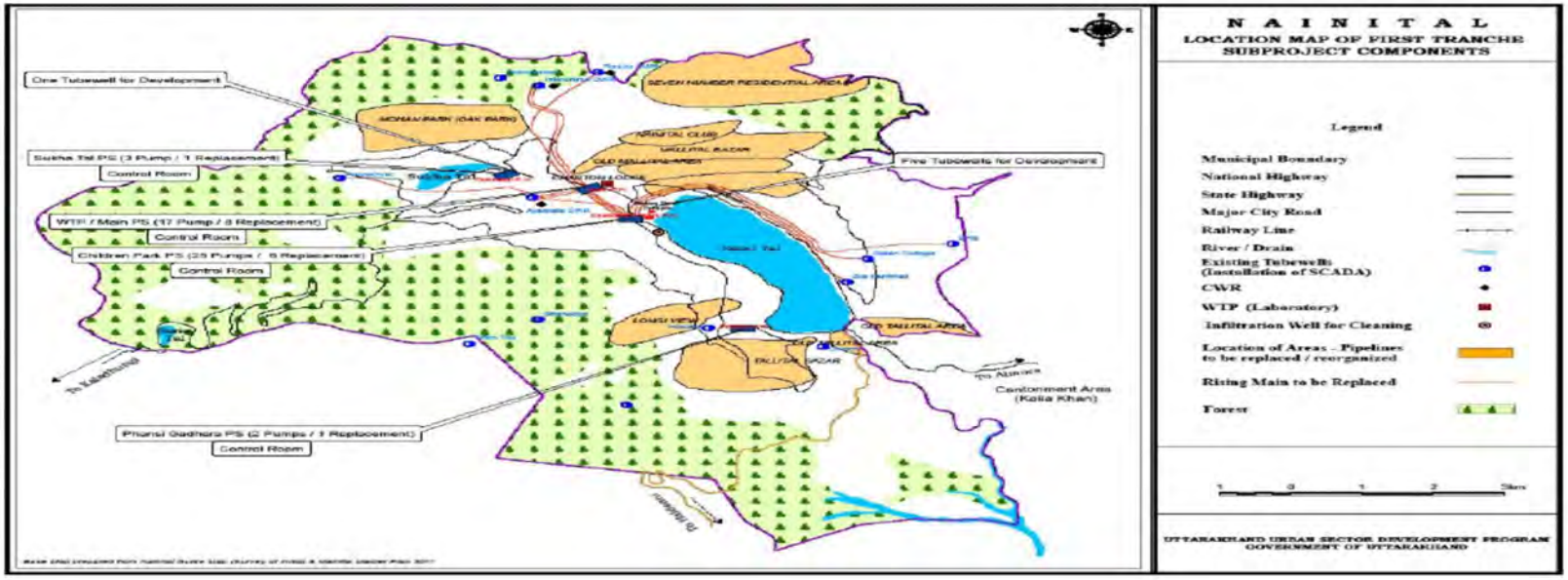

Figure 3: Location of 4 DG Sets in Nainital

III. DESCRIPTION OF THE ENVIRONMENT

A. Physical Features

1. Location

39. Nainital is the headquarters of Nainital District in the Kumaon foothills of the outer Himalaya in the State of Uttarakhand. Nainital is geographically located in the southern part of the State at 29° 24' N and 79° 28' E. Nainital is known as the Lake District of Uttarakhand due to predominance of lakes in the area. The presence of more than a hundred lakes has been recorded. The district boasts of some of the most scenic lakes in India. Nainital town is spread over an area of 11.73 square kilometer of which Naini Lake covers 0.54 sq km.

40. Known for its salubrious climate and scenic beauty, the town is a popular destination in the northern tourist circuit. It attracts thousands of tourists year round. Nainital is also an important administrative town in the State having the High Court and well-known institutions such as Academy of Administration, Aryabhatta Research Institute of Observational Sciences (ARIES) and Kumaon University.

2. Topography, Geology and Soils

41. Situated at an altitude of 1,938 m above sea-level, Nainital is set in a valley containing a pear-shaped lake, approximately 3.5 km in circumference, and surrounded by mountains, of which the highest are Naina (2,615 m) on the north, Deopatha (2,438 m) on the west, and Ayarpatha (2,278 m) on the south (Appendix-1-Photo 5).

42. The soils in the City are alluvial, riverine, non-calcareous to moderate calcareous soils and have been carved out by the fast flowing rivers draining the Himalayas. Forest soils, which occur under coniferous and deciduous forest are found rich in organic matter. Mountain/hill soils is the collective terminology used for various types of soils occurring at very high elevations, under a wide range of forest types trees.

43. According to the hazard zoning in the Vulnerability Atlas of India, the whole of Uttarakhand falls under either ‘very high’ or ‘high’ categories. Nainital lies in high seismic zone and has continued threat from landslides from the surrounding hills

3. Climate

44. Nainital, owing to its location, is colder than the rest of the hilly tract of Kumaon region. During monsoon, it gets heavy rainfall. The neighboring areas of Almora and Ranikhet are warmer than Nainital. The monthly maximum and minimum temperature in the town ranges between 28 0C and 7 0C. The rainy season begins earlier than in the plains and continues up to the end of September. The heaviest rainfall is observed on the outer slopes of the hills. Based on the 1999 records, total average rainfall of district was 1,338 mm. During winter, rains create a considerable drop in temperature.

4. Air Quality

45. Air quality is mainly influenced by the heavy traffic in the City during the tourist season. Since no major industries are situated within the City limits, it is unlikely that serious impact on air quality is caused by tourism activities. The Baseline condition of Air Quality is given in Table No 4

Date of Sampling –Oct 2017

Table 4 Quality of Air of Nainital

PARAMETERS	UNIT	LOCATION				Permissible Limits	Test Methods
		Phansi Gadhera Pump House	Children Park Pump House	Old Waterworks UJS Campus	Sukhaa Tal Pump House		
$PM_{2.5}$	$\mu g/m^3$	42.18	52.53	49.7	37.05	60	SOP-(AAL/SOP/ENV/002)/ CPCB Guidelines
PM_{10}	$\mu g/m^3$	77.4	86.42	93.11	74.97	100	IS-5182 (P-23)-2006
SO_2	$\mu g/m^3$	21.16	27.78	19.52	18.22	80	IS-5182 (P-2)-2001
NO_2	$\mu g/m^3$	36.39	48.54	35.66	32.57	80	IS-5182 (P-6)-2006
CO	mg/m^3	<0.2	0.5	<0.2	<0.2	2 (8hr)	IS-5182 (P-10)-1999 Reaff 2003
Benzene (as C_6H_6)	$\mu g/m^3$	<1.0	<1.0	<1.0	<1.0	5	NISOH 6015-2005
Hydrocarbon (as HC)	mg/m^3	<0.1	<0.1	<0.1	<0.1	-	By GC

5. Noise

46. The noise in the City is high during the tourist season during daytime. The noise due to the various tourists' activities and vehicular movement is of concern in some areas like bus stand, mall road and taxi stand. The Baseline condition of Noise quality is given in Table No 5

Date of Sampling –Oct 2017

Table 5 Quality of Noise of Nainital

PARAMETERS	UNIT	LOCATION				Permissible Limits (Commercial Area)	Test Methods
		Phansi Gadhera Pump House	Children Park Pump House	Old Waterworks UJS Campus	Sukhaa Tal Pump House		
Leq- Day	dB (A)	52.5	64.1	58.9	53.6	65 (Commercial Area)	By Noise Meter
Leq- Night	dB (A)	46.3	51.6	48.3	44.5	55 (Commercial Area)	By Noise Meter

6. Surface Water

47. Naini Lake is the most important water body in Nainital (Appendix-1-Photo 6) both in terms of environment and tourist attraction. It receives storm water from large catchment areas. The Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) monitor the lake water quality. The GoU, with financial assistance from GoI is implementing "the Nainital Lake

Conservation Action Plan" to control water pollution in Nainital and five other lakes in the region. The monitoring results of the lake water suggest very low level of dissolved oxygen.

A summary of the lake water quality analysis is presented in Table 6.

Table 6: Water Quality of Nainital Lake

S. No	Parameter	Unit	Observed Value	
			Minimum Value	Maximum Value
1	Color		CL	CL
2	Odor		OL	OL
3	TDS	mg/l	320	390
4	EC	µmhos/cm	498	596
5	pH	mg/l	7.49	8.94
6	DO	mg/l	3	10.8
7	BOD	mg/l	1.4	3.6
8	Hardness as (CaCo3)	mg/l	202	316
9	Calcium (as Ca)	mg/l	21.6	52
10	Magnesium (as Mg)	mg/l	34.0	53.0
11	Alkanity (as CaCo3)	mg/l	164	225
12	Chloride	mg/l	16.0	23.0

7. Groundwater

48. Due to the presence of the lake, ground water is available around the periphery of the lake. The water supply system of the City depends mainly on groundwater, which is abstracted through tube wells and infiltration wells located in the lake periphery. The A study conducted by the Indian Institute of Technology (IIT), Roorkee (Table 7) shows that the groundwater quality in Nainital is well within the drinking water standards (IS 10500).

Table 7: Ground Water Quality in Nainital

S. No.	Parameter/Test	Unit	Standard		Observed value
			Desirable Limit	Permissible limit in the absence of alternate sources	
1	Colour	Hazen unit	5	25	ND
2	Odour		Unobjectionable	NS	Odour less
3	Turbidity	NTU	5	10	0.20
4	Total Dissolved Solids	mg/l	500	2000	528
5	pH		6.5-8.55	No Relaxation	7.7
6	Chloride (asCl)	mg/l	250.0	1000.0	12.0
7	Total Hardness (as CaC3)	mg/l	300	600	374
8	Calcium Hardness (as Ca)	mg/l	75.0	200.0	59.80
9	Magnesium Hardness (as Mg)	mg/l	30.0	100	54.4
10	Sodium	mg/l	250.0		18.9
11	Sulphate (as SO4)	mg/l	200.0	400.0	158. 4

S. No.	Parameter/Test	Unit	Standard		Observed value
			Desirable Limit	Permissible limit in the absence of alternate sources	
12	Nitrate (as NO3)	mg/l	45.0	100.0	3.4
13	Fluoride (SPADNS)	mg/l	1.0	1.5	0.16
14	Total Alkalinity (as CaCO3)	mg/l	200.0	600.0	299.0
15	Chromium (as Cr)	mg/l	.05	No Relaxation	0.019
16	Copper (as cu)	mg/l	0.05	1.5	0.001
17	Iron (as Fe)	mg/l	0.3	1.0	0.047
18	Lead (as Pb)	mg/l	0.05	No Relaxation	0.045
19	Zinc (as Zn)		5.0	15.0	o>o22

mg/l = milligram per liter, ND = Not Detectable, NS = Not Specified, NTU = Nephlo Turbidity Unit.

B. Ecological Resources

49. Of the total geographical area of 6,794 sq. km, the forest cover in the Nainital District is 3574 sq. km. vast expanse of forests exist within the City limit (Appendix-1-Photo 7). Part of the water supply distribution system for the city is in the forest. The Corbett National Park, located 30 km from the town, is a prime forest reserve situated in Nainital District, but no sub-project component site is near this protected area.

50. The hilly region of Nainital is covered with Sal, Pine, Oak, Buruns, Kaphal, and other trees growing up to 1,830 m above sea-level, along with Deodar, Surai etc. at higher altitudes. There are small tracts of cultivated lands and fruit orchards etc. in between the forests in this region. The following important trees and bushes grow in Nainital.

Botanical Name	Common Name
Quercus incana	Oak (Banj)
Aesculus indica	Pangar
Junglans regia	Akhrot
Populous ciliate	Hill Pipal
Fraxinus miscrantha	Angu
Platanus orientalis	Chinar
Rubus lasiocarpus	Hisalu
Rosa moschata	Kunj
Berberis asiatica	Kilmora
Cupressus torulosa	Surai
Cedrus Deodara	Deodar
Salix acmophylla	Weeping Willow
Pinus roxburghi	Pine

(Source: PPTA IEE Revised Report , 2007)

C. Economic Development

1. Land Use

51. A study was conducted by Mr. Jiwan Rawat, Mr Vivekananda Biswas and Mr. Manish Kumar of Centre of Excellence for NRDMS in Uttarakhand, Department of Geography, Kumaun University, Almora and found that in 1990, about 19.97% (2.43 km^2) area of Nainital town was under built-up land, 65.07% (7.92 km^2) under vegetation, 9.37% (1.14 km^2) under agricultural land, 3.94% (0.48 km^2) under water body and 1.65% (0.20 km^2) area was covered by open space. In 2010, the area under these land categories was found 35.93% (4.38 km^2) under built-up land, 49.71% (6.06km^2) under vegetation, 8.62% (1.05 km^2) under agricultural land, 3.94% (0.48 km^2) under water body and 1.80% (0.22 km^2) under open space. The land use distribution in the Nainital Town area is shown in Table 8.

Table 8: Land Use Pattern in the Nainital Town area during 1990 to 2010

Land Use / Cover Categories	1990		2010	
	Km^2	%	Km^2	%
Built up Area	2.43	19.97	4.38	35.93
Vegetation	7.92	65.07	6.06	49.71
Agricultural Land	1.14	9.37	1.05	8.62
Water Body	0.48	3.94	0.48	3.94
Open Space	0.20	1.65	0.22	1.80
Total	12.19	100	12.19	100

Source: "*Quantifying Land Use/Cover Dynamics of Nainital Town (India) Using Remote Sensing and GIS Techniques*" by Jiwan Rawat, Vivekananda Biswas and Manish Kumar; 2013, AARS.

2. Industry and Agriculture

52. Industries of Nainital are basically agro-based. Being a hilly district the industrial growth is very low. The Government is giving priority to khadi, village, and cottage industries. The non-availability of cultivable land due to the hilly terrain is the greatest restricting factor in the development of agriculture in Nainital. The land is low in fertility except in the valleys. Therefore, the agro-industries do not contribute largely to the economic growth in the district. Sheep rearing for the production of wool and other cottage industries etc. offer much scope for the industrialization of the district. The cultivation in Nainital is carried through terracing the hillside. Crops are cultivated during both Kharif (April – September) and Rabi (October to March) seasons. The predominant are paddy, small millet, and potato in Kharif, and wheat, and barley in Rabi. In plain areas sugar cane is cultivated.

3. Infrastructure

53. **Water Supply.** Piped water supply was introduced in Nainital in 1898 from the Pardadhara spring situated inside the town. As the City is expanded, water is also tapped through bore wells and an infiltration well located at the periphery of Nainital Lake. These tube

wells are now the main sources of water for the City from which it meets about 93% of its total supply; the rest (7% or about 1 MLD) is drawn from surface water. The quality of ground water from tube wells is good therefore it is directly distributed after disinfection. Surface water is subjected to filtration and chlorination before supply. Water supply in the town is satisfactory with a per capita supply of 130 litres per day.

54. **Sewerage.** A skeleton sewerage system was laid in Nainital in the beginning of the 19th century. During 1940-1950, a 300 mm main sewer on Mall road and a 300 mm outfall sewer on Nainital-Haldwani road were laid. The sewage was disposed into ravines near Rusi village about 3 km from Talli Tal (Lake), in a valley on the southern side of the main road Ghati. Some branch sewers were laid in different parts of the City during the period 1940-1960. The growth of the urban population and an inadequate sewer system led to overflowing sewage in storm water drains ultimately discharging into Nainital Lake. Under the Nainital Lake Conservation Project, sponsored by GoI, two sewage treatment plants of 5 MLD are proposed, of which a 5 MLD plant at Rusi near Nainital is under construction.

55. **Storm Water Drainage.** Average annual rainfall in Nainital is 1,583.3 mm. The hills are unstable and many landslides occur. New construction in most of the hills is prohibited yet unauthorized commercial and domestic construction continue posing danger to the natural drainage system and the slope stability. Storm water drains carrying rainwater from the top of hills with very steep slopes develop very high velocities. Due to conversion of vegetated land to built–up areas the run off has also increased substantially. The connection of sewers and storm water drains all over the town is one of the main causes of pollution in Nainital Lake.

56. **Solid Waste Management.** According to the Nainital Nagar Palika Parishad estimates, municipal solid waste generation in City ranges between 12 metric tons (MT) to 18 MT during non-peak and peak tourist seasons, respectively. There is no primary collection system in the town and waste is collected through community bin/containers and open collection points or by street sweeping. The present collection and transportation system involves multiple handling of solid waste. The existing solid waste disposal site is located at Hanumangarh, about 2 km from the city of Nainital-Haldwani road, where waste is openly dumped.

57. **Transportation.** Nainital is well connected with other parts of the State by road network. A National Highway (NH 87) and a State Highway (SH 13) connect the City with Haridwar, Dehradun, and other towns. Nainital City has 85.09 km of roads of which 25.94 km are maintained by NNPP and 59.15 km including 4 km of National Highway are maintained by the Public Works Department (PWD). The traffic carrying capacities are low due to limited widths, intense land use, and encroachments. In most of the areas, roads are very narrow and due to the hilly topography, roads have very steep slopes.

D. Social and Cultural Resources

1. Demography

58. The population of the Nainital Nagarpalika parishad from 1941 to 2011 is presented in Table 9. While in the decade 1961-1971 the decadal growth rate was a high 71%, in the next decade it recorded a 4% low. The 4% decadal growth rate (i.e. less than 0.5 % per annum) is much lower than the natural growth rate of population in India In the decade 1981-91 the growth rate shot up to 20%, and in 1991-2001 decade it recorded 26.67% and in 2001-2011 it recorded 8.88% growth.

Table 9: Population Growth of Nainital Municipal Area (1941-2011)

Year	Population	Decadal Change (%)
1941	10,000	0.00
1951	12,000	20.00
1961	14,000	16.67
1971	24,000	71.43
1981	25,000	4.17
1991	30,000	20.00
2001	38,000	26.67
2011	41,377	8.88

Source: Nainital City Development Plan, 2007 and Census 2011

2. History, Culture and Tourism

59. Nainital has an important mythological reference as one of 64 'Shakti Peeths'. These centers were created wherever parts of the charred body of Sati (Goddess Parvathi) fell when Lord Shiva was carrying around her corpse in grief. According to a legend, the left eye (Nain) of Sati dropped in the lake while her body was being carried by Lord Shiva to Kailash Parvat. Hence, the lake was given the name of Nainital, from where the City derives its name. Naina Devi is worshipped as the patron deity of the City. Naina Devi temple is located at the northern end of the lake (Appendix-1-Photo 8).

60. Nainital had become a popular hill resort by 1847. The Nainital Municipal Board was formally constituted in 1845. It was the second Municipal Board of the North Western Provinces. In 1862, Nainital became the summer seat of North Western Provinces. The town also became the summer seat of the Uttar Pradesh Government, after independence.

61. There has been a steady growth in the number of tourists arriving in Nainital. During the year, tourist influx is reported to be high in the months of May and June. Tourist arrival, both domestic and international, in Nainital is given in the Table 10. Tourism saw a huge boom beginning around 1905 and continuing even more aggressively today. This saw the mushrooming of hotels to cater to the ever-increasing tourist population of the City. Construction of hotels is primarily responsible for the change in Nainital. There are about 3,000 rooms for tourist accommodation in Nainital.

Table 10: Tourist Arrival in Nainital (2003-05)

Year	Indian tourist	Foreigners	Total tourist	% growth
2003	420016	4537	424553	
2004	478133	66277	484410	14.09
2005	510959	6789	517748	6.88

(Source: PPTA IEE Revised Report, 2007)

IV. SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. Introduction

62. The main purpose of the sub-project is to provide better municipal water supply service in the City to improve the living conditions of the people, including the urban poor. As such, there are many benefits that will result from the proposed investment. This section focuses on the identification of potential adverse environmental impacts, short term and long term, direct and indirect, temporary (reversible) and permanent (irreversible), cumulative and induced and local or regional. Mitigation measures are proposed to minimize the adverse environmental impacts identified. Recommendations for monitoring to be conducted during the design, implementation and operation phases of the sub-project, with agencies responsible for monitoring, are also identified.

63. ADB Environmental Assessment Guidelines 2003 and ADB SPS 2009 require that an IEE should evaluate impacts due to the location, design, construction, and operation of the project. These impacts are identified and assessed in the following sections. The majority of impacts of the urban infrastructure projects are from the construction activities. The following components, which have no or very minimal physical/construction works, are unlikely to have any negative impacts, and therefore they are not considered further in the analysis:

(i) Installation of SCADA system
(ii) Replacement of damaged/old pumps
(iii) Leak detection and water audit
(iv) Supply and installation of bulk water meters
(v) GIS based pipeline network mapping

64. The ADB Rapid Environmental Assessment Checklist for Water Supply in http://www.adb.org/documents/guidelines/environmental_assessment/eaguidelines002.asp was used to screen the subproject for environmental impacts and to determine the scope of the IEE investigation. The completed Checklist is found in Appendix 4. Only proposed water supply network subproject will interact physically with the environment.

65. In the case of this subproject (i) most of the individual elements are relatively small and involve straightforward construction and operation, so impacts will be mainly localized and not greatly significant; and (ii) most of the predicted impacts are associated with the construction process, and are produced because that process involves excavation and earth movements, (iii) mostly being located in the built-up area of Nainital town, will not cause direct impact on biodiversity values. The subproject will be in properties owned and acquired by the local government and access to the subproject locations is through public Right of Way and existing roads hence, land acquisition and encroachment on private property will not occur.

B. Location Impacts

66. These Impacts are associated with planning particularly on the site selection. They include impacts due to encroaching on sensitive areas and impacts on the people who might lose their homes or livelihoods due to the development of the proposed site.

67. **Impact-L1**: **Encroachment of private property, forestland, cutting of trees, and damage to vegetation.** Most sub-project components involve simple construction and low operation and maintenance, so it is unlikely that there will be major impacts. The pipeline replacement works, the only component that involves considerable construction works, are located in the City area where there are no sensitive natural habitats. Pipelines are aligned in the vacant spaces adjacent to the roads within the RoW. In narrow roads, where there is no vacant RoW, the pipeline will be buried within the roadway. However, there could be temporary impacts in narrow roads[4].

68. About 500 m of the 17.5 km rising mains proposed to be replaced passes through protected forests (Appendix-1-Photo 9). Pipe laying activities through the protected forest require clearance from the State Forest Department. Since only replacement of existing pipeline is proposed, no major impacts envisaged. Further, the pipelines are mostly laid over the ground (mainly due to the hill topography) and will involve no clearance of trees and important vegetation.

69. As the location of installation of DG sets are mainly within the existing premises of pump house, no encroachments/ impact either directly or indirectly will occur on adjacent environment. It is also not interfere the livelihood of local people directly or indirectly.

Also there will be no sites of any archaeological importance in and around the project facilities.

70. The following measures are to be implemented to minimize the impacts:

(i) Livelihood and resettlement impacts, including temporary impacts, have been identified through the resettlement planning process. Implement measures as recommended by the Resettlement Plan (RP).

(ii) Avoid work on alignments in forest areas. Where unavoidable, align pipeline in such a way that there will be minimum encroachment into forest land. An environmental management plan (EMP) has been prepared for work in forest areas .

   (a) No work shall be carried in reserved forests

   (b) As far as possible realign the pipeline to avoid other forests (protected, municipal/village, and private). If unavoidable, align pipeline in such a way that there will be minimum encroachment into forest land.

   (c) Obtain prior permission of the Forest Department for carrying out the work according to the Forest (Conservation) Act, 1980. Incorporate suggestions of forest department, if any, in implementation.

   (d) The pipeline should be laid above the ground in the forest.

   (e) There shall be no excavations or cutting/filling. Unstable and slide prone areas to be avoided.

   (f) No trees/important vegetation damaged

   (g) Materials required for the work should be stored outside the forest area and transported to the site as and when required manually

   (h) No equipment generating sound shall be used for construction

[4] A resettlement plan (RP) has been prepared to address involuntary resettlement impacts.

(i) Materials required for the work should be stored outside the forest area and transported to the site as and when required manually

(j) Except actual pipe laying, no construction related miscellaneous activities (like cutting of pipes, material storage, mixing of mortar etc.) shall be carried out in the forest

(k) No equipment generating sound/vibrations shall be used for construction

(l) Construction workgroup shall be limited to a maximum of 5 persons at a time.

(m) Continue same group of workers and supervisors to work in the forest stretches

(n) An Environmental Monitoring Specialist (EMS) of PMU shall directly supervise the works in the forest areas throughout the construction phase. The EMS shall interact closely with the Forest Department Staff monitoring the work.

(o) The EMS shall brief the workers about the precautions to be taken and "do and don'ts" during construction.

(p) Implemented suggested EMP (available in Table-13) during work in forest stretches

(iii) Avoid tree cutting by proper siting. If unavoidable, obtain Forest Department permission. Plant two trees for each tree.

C. Design Impacts

71. These impacts arise from the design of the project including the technology used, scale of operation/throughput, waste production, discharge specification, pollution sources, and ancillary services. Since this is only a rehabilitation project, no design impacts are envisaged.

The new diesel generators will be procured and installed by the Project will comply with CPCB standards for noise as well as air pollution. Therefore impacts associated with project design on surrounding environment will be negligible

D. Construction Impacts

72. Construction and operation are the two activities in which the project interacts physically with the environment, so they are the two activities during which the environmental impacts occur. Construction impacts are associated with site cleaning, earth works, physical construction related materials movements and works, machinery, vehicles and workers. It also includes the erosion, dust, noise, traffic congestion and waste production associated with the construction activities.

1. Construction Method

73. About 75 km of pipeline ranging between 65–150 mm and 17.5 km of 200 mm are proposed for replacement under this sub-project. Most of these are located in the old City areas, except for a few pumping mains, which are located in outer areas. The old City area is characterized with narrow roads, high-density population and traffic congestion.

As earlier stated, the existing pipelines that are traversing private properties/built up areas will be realigned adjacent to roads in the un-used area within the RoW. In narrower roads where there is no land available, the trenches will be dug into the edge of the road.

74. Owing to the hilly topography, most of the water distribution lines are laid above ground. The new pipeline will also be above ground in the hilly areas. In plain areas and where pipes needs to be underground for various technical reasons, the proposed pipes will be buried in trenches 1 to 1.5 m deep with widths 300 mm for 65 mm pipes to 500 mm for 200 mm pipes.

75. The trench will be excavated manually. Excavation in hard surfaces like cement concrete (CC) roads will be supplemented by pneumatic drill. Excavated soil will be placed nearby and a bed of sand or gravel - obtained from local quarries, will be prepared at the bottom of the trench. Pipes (brought to site on trucks and stored on unused land nearby) will be placed in the trench over the sand/gravel bed using a small rig. Pipes will be joined by hand, after which excavated soil will be replaced around and on top of the pipe manually.

76. Considering that about 40-50% of the pipes are laid over ground, the earthwork involved in the sub-project will be in the tune of about 28,000 m3. Further, about 30 % of the pipes will be replaced at the same location, and therefore surplus soil generation will be very minimal. The remaining will be of laying of new pipes, and an estimate shows that this will generate about 5,000 m3 of surplus soil which needs to be disposed.

77. The old pipes which are mainly of cast iron (CI) and rest of mild steel (MS) will be removed immediately from the site and transported to UPJN premises or disposed as scrap for recycling/reuse. In locations where pipes are realigned due to encroachments, existing pipeline will be left as it is in the ground.

78. The works in development of old tube wells include replacement of perforated tube well pipes. The existing pipe will be removed from the well using a rig and new pipe will be fitted. Similarly the existing infiltration well will be desilted manually or mechanically pumped out. The existing gravel filter media around the infiltration well will be excavated manually and refilled with suitable gravel (acquired from nearest quarries) manually.

79. The existing MS CWRs will be dismantled and new RCC tanks will be constructed above ground. Tanks will be of typical RCC construction. The new pumps will be placed within the existing pumping stations. The old pumps will be transported to UPJN premises and disposed off as scrap for recycling. Filter media sand from the water treatment plant will be removed and new media (brought from the nearest queries) will be placed manually. Most of the old media will be suitable for reuse after washing. The leftover sand will be disposed. The proposed water testing lab will be installed within the WTP facility and the control rooms will be developed within the pumping station/water treatment plant premises.

80. The sub-projects installation of 4 DG sets comprises (1) Supply, installation, testing and commissioning of silent DG sets complete in all respect comprising of Diesel engine directly couple alternator including standard control panel, manual change over switch, fuel tank, battery, acoustic enclosures etc. (ii) Supply, installation, testing and commissioning of Four Wheel Trolly mounted silent DG sets complete in all respect comprising of Diesel engine directly couple alternator including standard control panel, manual change over switch, fuel tank, battery, acoustic enclosures etc. (iii) Supply, Installation, testing and commissioning of Exhaust system (iv) installation and commissioning of Cable termination kit with single type compression glands at site; (v) Provisions of Earthing for static DG sets complete with copper earth conductor, copper earth electrode, copper earth plate, earth pits etc;
These will involve only minor civil works such as clearing of site, earth work and foundation for DG sets. The site preparation will not significantly change the drainage pattern of the area.

2. Construction Impacts

81. **Impact-C1: Landslides and erosion due to construction in the hills, and silting of water courses and damage to water quality.** Nainital receives high intensity rains during the monsoon and there are a number of natural and man-made drainage channels criss-crossing the City to carry the runoff safely. Runoff from the excavated areas and material and waste soil stocks are likely to contain silt, and this silt runoff will cause deterioration of the water bodies. Large-scale silting can lead to flooding. This impact will occur only if excavation is undertaken during the rainy season. Tube well development and infiltration well cleaning activities will generate heavily silted water/silt, which needs to be disposed off properly.

The following measures are suggested to mitigate the impact.

(i) Lay out (topography) of the land shall be followed as far as possible. Avoid heavy cutting and filling.

(ii) Avoid unstable/slide prone areas

(iii) Use no explosives for rock cutting

(iv) Implement erosion control measures like stabilization of top soil and vegetative turfing on refilled areas in slopes. Develop vegetative cover of fast growing shrubs/plants in the disturbed hill slopes.

(v) Do not undertake excavation activities during the monsoon. Ensure that works are completed before the onset of the monsoon

(vi) Minimize on-site storage of waste soil/material

(vii) Provide interception drains to avoid submergence of trenches and dispose runoff quickly

(viii) Silt water generated from the tube wells/infiltration wells should not be disposed directly to the drainage channels or water bodies. Create retaining ponds (earthen) at the site to store this water for a sufficient time to allow the silt to settle. The clear water can then be disposed to the natural drainage. Silt shall be disposed along with waste soil.

(ix) Do not undertake Infiltration well works during the monsoon

82. **Impact-C2: Dust generation during construction.** It is most certain that work will be conducted during the dry season, so there is potential for creating dust from the excavation of dry soil, backfilling, transportation to disposal, and from the import and storage of sand/gravel for bedding. Therefore it is important that soil be handled and disposed without causing further impacts on air quality. This impact needs to be mitigated as specified below:

(i) Prevent/minimize dust generation by removing the waste soil immediately from the site

(ii) Bring construction material, particularly sand/gravel for trench bedding as and when required. Minimize on-site storage

(iii) Ensure regular wetting to mitigate dust generation due to winds and traffic. Also dampen and cover material during transport

83. **Impact –C3: Impacts due to disposal of surplus soil/spoil.** Surplus soil will be generated during pipe laying work. Improper disposal may further affect topography, water quality, soil quality, and sensitive areas. This impact needs to be mitigated properly with the following measures:

(i) Find beneficial uses of surplus earth, like using it for filling low-laying areas, quarries or using for road construction etc. In unavoidable cases, Identify suitable site before start of construction

(ii) Do not dispose in locations that will disturb natural drainage, affect forests and other productive and sensitive areas

(iii) Stabilize top layer to avoid erosion

84. **Impact-C4: Noise and air emissions from construction activity.** Activities like trench construction and pipeline laying have potential to generate noise. Since activities are to be carried out in populated areas, impact may be significant. Air emissions from equipment such as digger and rig and from transport vehicles may deteriorate the air quality. Following measures will minimize this impact:

(i) Schedule high noise generating activities during the day

(ii) Take special precautions to minimize sound (by minimizing the use of equipment/vehicles) when working near hospitals, schools and other sensitive areas

(iii) Ensure that all equipment and vehicles operation comply with applicable emission standards. Ensure regular maintenance to control emission.

(iv) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly

(v) Air Quality and Noise Quality monitoring will be done at proposed sites on quarterly basis except monsoon. This will be done by the contractor through approved environmental monitoring agency.

85. **Impact-C5: Blockage of access to houses/commercial buildings and traffic and public safety.** Water supply network replacements and transportation of Heavy DG sets can obstruct access to residences/commercial buildings adjacent to the construction sites. Hauling of DG sets with associated equipment and construction machinery/ equipment and materials can cause traffic problems . Disruption of access to commercial establishments may affect livelihood. Since many of the roads are narrow, construction activities may also obstruct traffic. Potential impacts is negative but short term and reversible by mitigation measures. Following mitigation measures should be implemented:

(i) Leave space for access between mounds of excavated soil

(ii) Provide footbridges for pedestrians and metal sheets for vehicles to allow access across trenches to premises where required

(iii) Increasing the workforce in these areas to ensure that work is completed quickly;

(iv) Consult affected businesspeople to inform them in advance when work will occur.

(v) Address livelihood issues; implement the resettlement plan (RP) to address these issues

(vi) Minimize disturbance through proper traffic diversions. Ensure sign boards, prior public intimation

(vii) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;

(viii) Schedule transport and hauling activities during non-peak hours;

(ix) Locate entry and exit points in areas where there is low potential for traffic congestion;

(x) Keep the site free from all unnecessary obstructions;

(xi) Drive vehicles in a considerate manner; and

(xii) Coordinate with government's traffic department for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours;

86. **Impact-C6: Damage and disturbance to other infrastructure.** Excavation activities in the City may disrupt the existing power supply, sewerage, water supply, drainage, and communication infrastructure. This can be significant as most of the roads are narrow. Implementing the following mitigation measures will mitigate impacts:

(i) Collate the information on infrastructure from respective agencies prior to alignment finalization

(ii) Inform agencies about the construction work and ensure co-ordination with respective agencies to identify the actual location of underground infrastructure

(iii) Realign the infrastructure if required with prior permission. Ensure prior public information in case of service disruptions

87. **Impact-C7: Disturbance to the natural resources adjacent to the project site due to movement of vehicles and other construction activities.** Except pumping main replacement, all activities are located in an urban area where there are no remaining sensitive natural areas, this impact is considered insignificant. In pumping mains proposed in the forest area. Implementing the mitigation measures provided for L1 impact above will be sufficient to mitigate this impact.

88. **Impact-C8: Soil contamination by construction wastes, fuel etc.** The nature of the construction works indicates that no toxic or hazardous materials will be used, apart from fuel oils for vehicles, which will be properly stored. The soil at the work site may be contaminated with oil and other materials used the construction machineries and equipment. Wastes generated due to construction activity will be properly disposed off . Following measures will mitigate the impacts:

(i) Minimize oil and fuel spills from equipment by good O&M practices

(ii) Provide spill trays and do not conduct vehicle maintenance at the site.

(iii) Prepare a contingency plan to include actions to be done in case of any accidental spillages.

(iv) Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized agency.

(v) Unavoidable waste shall be stored at the designated place prior to disposal. To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided.

89. **Occupational Health and Safety.** Workers need to be mindful of the occupational hazards which can arise from working in height and excavation works. Potential impacts are negative and long-term but reversible by mitigation measures. The construction contractor will be required to:

(i) Develop and implement site-specific health and safety plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use Personal Protective Equipment; (c) health and safety training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;
(ii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;
(iii) Provide medical insurance coverage for workers;
(iv) Secure all installations from unauthorized intrusion and accident risks;
(v) Provide supplies of potable drinking water;
(vi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances;
(vii) Provide health and safety orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;
(viii) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;
(ix) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
(x) Ensure moving equipment is outfitted with audible back-up alarms;
(xi) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and
(xii) Disallow worker exposure to noise level greater than 85 decibels for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.

90. **Impact-C9: Social conflicts arising from employment generation.** This water supply sub-project has potential to generate employment for skilled and non-skilled workforce. This will benefit local people. However, it may lead to a conflict if the contractor brings workers from other areas, which will lead to project delays. Therefore the following clause shall be part of contract:

(i) To the extent possible semi-skilled and un-skilled labor force must be drawn from the local community., Prioritize vulnerable APs, if any

91. **Impact-C10: Contamination due waste disposal from labor camps.**

Implementing the previous contract clause should mean that there will be no requirement of labor camps. Discussion with the engineering team indicates that there is unlikely to be one. In case the contractor proposes to provide workers camp at the site, a condition will be included in the contract to provide proper sanitation facilities to such labor quarters/ settlement.

E. O& M Impacts

92. The main O&M activities of the refurbished infrastructure will be detection and repair of leaks and, pipe bursts. These are however likely to be minimal as proper design selection and good quality pipe material should mean that leaks are minimal. The bulk meters that are provided as part of this sub-project will be of great use in detecting leaks in network. Leak repair work will be similar to the pipe laying work. Trenches will be dug to reveal the leaking area and the faulty connection will be re-fitted, or the pipe will be removed and replaced if necessary.

93. Operation of DG sets must be done as per operational manual and guidelines of CPCB and recommended schedule maintenance checks will carry out as per O&M manual of DG set.

94. Although DG sets will be installed in existing pump houses, noise and air pollution from operation of these DG sets could also be an issue during operation but these DG sets are only used as a supplement to the main power supply and will be used for a few hours each year. To minimise these impacts, the Project will installed Gensets which comply with CPCB standards for noise as well as air pollution. Thus No significant impact will be envisaged.

95. Issues of safe handing, storage and disposal of fuel, oil residue and lubricating oil will be an issue during operation phase. Fuel spillage poses an additional risk of contaminated soil, groundwater and possibly waterways. These will be taking care by taking effective mitigation measures at site.

96. During operation phase batteries of DG set will have to be replaced after a specified life cycle. Improper disposal of these batteries will impact on surrounding environment which will be minimized by the selection of authorized agency for disposal. The handiling, storage and disposal of used batteries shall be done in compliance with The Batteries (Management and Handling) Rule, 2001 and amendments thereof.

97. **Impact-OM 1: Recurrence of blockage and leakage problems.** Although the impact is likely to be minimal due to new and well design efficient system, it should be ensured that leak detection and restoration time is minimized to the extent possible.

V. INSTITUTIONAL REQUIREMENTS

98. The Urban Development Department (UDD) is the Executing Agency (EA) of the Investment Program. The EA will set up a state-level Investment Program Management Unit (PMU).5 The Implementing Agencies (IAs) for the Investment Program are: the Uttarakhand Peya Jal Nigam (UPJN) for water supply and sewerage sub-projects, and the Public Works Department (PWD) for roads and traffic management sub-projects. A special cell within the PMU, with assistance from Urban Local Bodies (ULBs), will be the IA for solid waste management and slum improvement sub-projects. The IAs will set-up district-level Investment Program Implementation Units (PIUs) to manage implementation of sub-projects in their districts. The PMU will be assisted by Investment Program Management Consultants (PMC) who will provide program management support, assure the technical quality of design and construction, and provide advice on policy reforms. PIUs will be assisted by Design and Supervision Consultants (DSC), who will design the infrastructure, manage tendering of Contractors and supervise the construction process.

Construction Contractors (CC) will be appointed to build elements of the infrastructure. The CCs will be managed by the PIUs, and construction will be supervised by the DSC.

99. An Environment and Social Management Cell (EMSC) will be set up within the PMU to address environmental and social issues of UUSDIP, and will be staffed by an Environmental Specialist and a Social Development Specialist. The EMSC will be assisted by the PMC (staffed with an International Environment Specialist and an Environmental Monitoring Specialists). The DSC through their environment specialists will conduct environmental assessments including the preparation of IEEs or EIAs and other assessments required for clearances. The DSC will also be responsible for: incorporation of mitigation measures in design and construction; and environmental quality monitoring.

100. The PMC will review and approve IEEs, oversee disclosure and consultations, and will monitor the implementation of environmental monitoring plan and environmental management plan where required. The CC will implement mitigation measures in construction. Implementation of mitigation and monitoring measures during the operation and maintenance (O&M) will be the responsibility of the respective IAs, which are also the O&M agencies. Government regulatory agencies such as the Uttarakhand Environmental Protection and Pollution Control Board (UEPPCB) will also monitor the environmental performance according to government regulations.

101. This IEE (including all IEEs prepared for Tranche 1 sub-projects) was reviewed and approved by the ADB. This is further updated as per ADB SPS 2009 due to addition of subproject “installation of 4 DG sets” in Tranche 1 in Nainital.

[5] The PMU will function under a General Body (GB) and an Executive Committee (EC). Town Level Committees (TLCs) will be set up in each of the program towns to ensure public participation in the Program.

VI GRIEVANCE REDRESS MECHANISM

102. As the work is being done in inhabited areas, most of the impacts are construction-related, and therefore it is anticipated that improper or inadequate implementation of EMP may lead to disturbance and inconvenience to local people. In order to provide a direct channel to the affected persons for approaching project authorities and have their grievance recorded and redressed in an appropriate time frame, IPMU will establish a Grievance Redress Mechanism, which will be functioned throughout the construction period.

103. A Complaint receiving system will be put in place at each site with the help of Community Awareness & Public Participation (CAPP) NGO. A Complaint Register and Complaint Forms will be made available at the site office of each contractor, with a display board indicating availability of such facility. This will accept complaints regarding the environment safeguard issues in implementation of the subproject. The grievances received and actions taken will be included into the environmental monitoring reports submitted to ADB. The following 4-stage process will be followed in grievance redress:

104. **Stage 1:** Complaints received (written or oral communication) will be registered in Complaint Register assigning complaint number with date of receipt

(i) The DSC/IPIU will review the complaint and direct the Contractor for necessary action; depending on the type/nature of complaint the Contractor will be given reasonable time for corrective action;
(ii) CAPP NGO will inform the complainant, within 24 hours, the time frame in which the corrective action will be taken by e-mail or telephonically; if the grievance referred will not fall under the purview of the subproject/program, the same will be intimated to the complainant;
(iii) Contractor will take corrective action or as directed by DSC;
(iv) The CAPP NGO in coordination with DSC will conduct the site visit to check the action taken and its appropriateness
(v) The action taken will be documented in the Complaint Register, and the complaint will be closed if it is satisfactorily addressed, and the complainant will be informed through e-mail/telephonically

105. **Stage 2:** In case of no satisfactory action in Stage-1, the complainant can approach

IPMU/IPMC for necessary action; CAPP NGO will assist the complainant in this

(i) IPMU with the assistance of IPMC will initiate action and take the corrective measures as required, and CAPP NGO will intimate the complainant about the action taken; and
(ii) Upon satisfaction of complainant, the case will be closed and marked as resolved

106. **Stage 3:** if non-satisfied stage-2, the complainant can approach the Grievance Redress Committee (see below).

107. **Stage 4:** If it is not resolved at GRC, the complainant can approach Court of Law. However, as none of the impacts are complex, long-term or significant, it is unlikely that there will be any unresolved issues after the first three stages.

108. **Grievance Redress Committee.** The City Level Committee (CLC) will act as a grievance redress committee (GRC) for both environment & social safeguard issues. The CLC is chaired by Mayor of Nainital Nagar Palika Parishad and has member from civil society, elected representatives and government officials. Grievances related to environmental safeguards will be handling by CLC in its regular meetings. The IPMU Environment Officer and CAPP NGO will assist the CLC in these matters.

The Grievance redressal Committee (GRC) for subprojects in Nainital has been constituted vide Office order no UUSDIP/ENV/1206 dated 11.11.2017 (refer to Appendix- 5).

VII PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Public Consultation

109. A series of consultations were conducted during the project preparation phase, employing various methods to understand the need, preferences of basic infrastructure facilities and to draw up plans to improve the quality of life in various urban areas. Environment issues were also discussed during the consultations.

110. Further consultations were made by the PPTA Consultants on 16th November 2006 during their visits to the sub-project sites. A safeguard disclosure and public consultation meeting was also conducted in Nainital on 8th June 2007 . No major environmental issues were raised during the consultation process. The people are most supportive of the subproject stating that due to old pipes leaks at present are very frequent, which often disrupts and reduces the water supply. Stakeholders were of the view that the proposed project will improve the environmental quality through improved water supply. However there was a concern that water supply network rehabilitation may cause significant inconvenience due to narrow roads in the city. These concerns have been included in the IEE and resettlement planning documents.

111. The major issues raised during public consultation which need attention are summarized as follows:

(i) Proposed water supply project should ensure enough supply of drinking water in all wards of the city;
(ii) Executive agency should give preference to engage reputed contractor as people do not have faith in the local contractors in respect of quality of works as well as timely completion of work;
(iii) Efforts should be made by the government to maintain the drinking water supply round the clock;
(iv) Livelihood affected households should be given adequate assistance in the mode of cash compensation;
(v) Local people should be employed by the contractor during construction work;
(vi) Adequate safety measures should be taken during construction work;
(vii) Proper arrangements should be made for access to houses and shops during construction throughout the construction period;
(viii) There is severe landslide and subsidence problem which should be addressed properly in design. Proper sewer line and drainage should be provided in this area; and
(ix) Mobile kiosks/vendors/hawkers have shown willingness to shift in nearby places without taking any compensation and assistance from the executing agency.

[6] Testing laboratories (for water, sewage) are part of the sub-project design and therefore no additional costs are included

Table 11: Summary of Consultations

Sl No	Consultation Details	Schedule	Participants	Nos. of Participants
1	Socio- economic Survey - Field Group Discussions with Urban Poor – Verification of Slums	15th June-15th July 2006	Town population with focus on urban poor	500
2	First consultation workshop for the project	30th May	Citizens, business community, Nagar Nigam Councilors, CBO's and NGO's, Elected representatives, Senior Officers of Nagar Nigam and parastatals e.g. PWD, UJS, UPJN etc.	70
3	Second Workshop to formulate and agree on a City Vision	11th August	Primary , secondary and Tertiary stakeholders	47
4	Group Discussions and Consultation with Working Groups	Mid-August	7 groups - a) Urban Planning and Land Management, (b) Water and Sanitation, (c) Roads and Transport, (d) Solid Waste Management, (e) Basic, (f) Urban Services to the Poor, (g) Governance and Finance	47
5	Series of Consultation with line departments		Nagar Nigam, SUDA, UPJN, PWD, UJS, Irrigation Department and such other organizations	-
6	Discussion on Identified infrastructure projects	17th August	All Secondary Stakeholders and UDD of GoU	72
7	Safeguards disclosure meeting .	8th June 2007 and 20th Nov. 2017	Citizens, business community, Nagar Nigam Councilors, CBO's and NGO's, Elected representatives, Senior Officers of Nagar Nigam and parastatals e.g. PWD, UJS, UPJN etc	25

112. **Public Consultation for Installation of 4 DG Sets in Nainital**: The Public consultation has been organised in Nainital on 20th Nov 2017 to discuss the proposed sub-projects of DG sets. The details of public consultation including attendance sheet and photographs are given in **Appendix 6.** People did not raise any objection of installation of DG sets and appreciate the proposed subproject. The draft IEE was disclosed to the local community. The description of proposed installation of DG Sets was explained during the public consultation. The details of public consultation conducted by IPMU/IPIU are given in Table 12.

Table 12: Details of public consultation by IPMU/IPIU for proposed Installation of DG sets in Nainital

Consultation Details	Schedule	Participants	No. of participants
Public Consultation for Installation of DG sets in Nainital	20 Nov 2017	People of Nainital	23

B. Future Consultation and Disclosure

113. The public consultation shall be a continuous process and will continue in the future. The IPMU will extend and expand the consultation and disclosure process during implementation. An experienced NGO will be appointed to handle this key aspect of the programme, who will conduct a wide range of activities in relation to all subprojects in each town, to ensure that the needs and concerns of stakeholders are registered, and are addressed in project design, construction or operation where appropriate. The programme of activities will be developed during the detailed design stage, and is likely to include the following:

C. Consultation during construction

(i) Public meetings with affected communities to discuss and plan work programmes and allow issues to be raised and addressed once construction has started; and

(ii) Smaller-scale meetings to discuss and plan construction work with individual communities to reduce disturbance and other impacts, and provide a mechanism through which stakeholders can participate in subproject monitoring and evaluation.

D. Project disclosure

(i) Public information campaigns to explain the project to the wider city population and prepare them for disruption they may experience once the construction programme is underway;

(ii) Public disclosure meetings at key project stages to inform the public of progress and future plans, and to provide copies of summary documents in Hindi;

(iii) Formal disclosure of completed project reports by making copies available at convenient locations in the study towns, informing the public of their availability;

(iv) Providing a mechanism through which comments can be made.

VIII. ENVIRONMENTAL MANAGEMENT PLAN

A. Summary of Environmental impact and Mitigation Measures

114. This environmental management plan (EMP) is developed for implementation specifically for the component of pipeline (distribution and rising mains) replacement and installation of DG sets under the water supply optimization subproject in Nainital. Although the subproject is of category B (which normally does not require an EMP) this EMP is suggested because certain sections of the raising mains proposed for replacement are located in protected forests. About 0.5 km of total 20 km rising main is located in forest areas: 300 m of Birla rising main, and 200 m of Tonchy rising main7.

115. This EMP contains: (i) implementation schedule for mitigation measures; (ii) environmental management and monitoring plan, (iii) training and capacity building needs, and (iv) EMP costs. Responsibility of implementation of this EMP lies with the PMU of UUSDIP.

116. Detailed design of this water supply optimisation subproject will start in the beginning of 2008 and should be completed by the middle of the year, after which construction will start. The construction is expected to complete by the end of 2017.

117. Specific to the pipe replacement activities in forest, the construction work is expected to take a day per 100 m, i.e. (5 days per 500 m). It is suggested in the EMP that work group shall be limited (maximum of 5 persons) and the same group shall be continued to work at all pipe replacement works in forests. Table 13 presents the environmental management plan and Table 14 presents the environmental monitoring plan.

118. The potential impacts identified and assessed and the mitigation measures formulated to minimize those impacts to acceptable levels identified in the earlier sections are summarized in the Table 13.

Table 13: ENVIRONMENTAL MANAGEMENT PLAN

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
Location Impacts				
Temporary resettlement impacts	Temporary-low	• Implement resettlement plan	PMU	Part of RP cost
Encroachment into sensitive areas	Temporary-low	• No work shall be carried out in reserved forests • Realign the pipeline to avoid other forests also. • If unavoidable, ensure minimum encroachment in forest land • Obtain prior permission of the Forest Department according to the Forest (Conservation) Act, 1980. Incorporate suggestions of forest department, if any, in design and construction • Conduct a joint site inspection (team consisting Forest Department, Revenue Department, PIU (UPJN) and Environmental Specialists of PMU and DSC) of proposed site to establish: o That there is no non-forest land available o Siting ensures minimum forest land involvement o Proposed site is a protected forest/private forest/village forest but not a reserved forest/sanctuary/national park or core zone of biosphere reserve o There are no socio-cultural, heritage and community resources in the site o It requires no tree cutting and clearing of important vegetation, and it will not damage any forest resource or wildlife • The pipeline through forest should be laid above the ground • There shall be no excavations or cutting/filling. Unstable and slide prone areas to be avoided • No trees/important vegetation shall be damaged • Materials required for the work should be stored outside the forest area and transported to the site as and when required manually	DSC/PMU	Part of sub-Project cost

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
		• No equipment generating sound shall be used for construction • Construction workgroup shall be limited to a maximum of 5 persons at a time. • Continue same group of workers and supervisors to work in forest stretches • An Environmental Monitoring Specialist (EMS) of PMU shall directly supervise the works in the forest areas throughout the construction phase. The EMS shall interact closely with the Forest Department Staff monitoring the work. The EMS shall brief the workers about the precautions to be taken and "do and don'ts" during construction.		
Tree cutting and damage to vegetation		Avoid tree cutting by proper siting. If unavoidable, Obtain Forest Department permission. Plant two trees for each tree.	DSC/PIU	
Social and Cultural Resources		(i) Consult ASI or concerned department of Nainital government to obtain an expert assessment of the archaeological potential of the site; (ii) Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved. (iii) Stop work immediately to allow further investigation if any finds are suspected; and (iv) Inform IPIU/DSC if a find is suspected, and take any action they require ensuring its removal or protection in situ.	IPIU & DSC	
Design impacts				
Installation of DG set		• Procure DG set that meets CPCB emission standards • Installation must be done as per guidelines of CPCB/MOEFCC • The height of stack of DG set shall be provided as per the following norms fixed by the CPCB: Ht of Stack(in mts)= Ht of building*+0.2(KVA)$^{0.5}$ *in which DG set has been installed Where KVA is the rating of the DG set • Gensets be installed with stand-alone or isolated foundation with proper anti-vibration packing/pad, etc;	IPIU	Part of construction cost

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
		• Smoke of a DG set be channelized/emitted in a manner that it is not a nuisance in the neighborhoods;		
Construction Stage				
Land slides and erosion due to construction in the hills , and silting of water courses and damage to water quality	Temporary-low	• Lay out (topography) of the land shall be followed as far as possible. Avoid heavy cutting and filling. • Avoid unstable/slide prone areas • Use no explosives for rock cutting • Implement erosion control measures like stabilization of top soil and vegetative turfing on refilled areas in slopes. Develop vegetative cover of fast growing shrubs/plants in the disturbed hill slopes. • Do not undertake excavation activities during the monsoon. Ensure that works are completed before the onset of the monsoon • Minimize on-site storage of waste soil/material • Provide interception drains to avoid submergence of trenches and dispose runoff quickly • Silt water generated from the tube wells/infiltration wells should not be disposed directly to the drainage channels or water bodies. Create retaining ponds (earthen) at the site to store this water for a sufficient time to allow the silt to settle. The clear water can then be disposed to the natural drainage. Silt shall be disposed along with waste soil. • Do not undertake Infiltration well works during the monsoon	CC	Part of construction cost
Disturbance to the natural resources adjacent to the project site due to movement of vehicles and other construction activities.		Implement mitigation measures suggested for location impact during construction in forest areas	CC	
Dust generation	Temporary-medium	• Prevent/minimize dust generation by removing the waste soil immediately from the site • Bring construction material, particularly sand/gravel for trench bedding as and when required. Minimize on-site storage	CC	Part of construction cost

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
		• Ensure regular wetting to mitigate dust generation due to winds and traffic. Also dampen and cover material during transport		
Impacts due to soil disposal	Temporary-medium	• Find beneficial uses of surplus earth, like using it for filling low-laying areas, quarries or using for road construction etc. In unavoidable cases, Identify suitable site before start of construction • Do not dispose in locations that will disturb natural drainage, affect forests and other productive and sensitive areas • Stabilize top layer to avoid erosion	CC	Part of construction cost
Noise and air emissions from construction	Temporary-low	• Fit all heavy equipment and machinery with air pollution control devices which are operating correctly. • Ensure all vehicle, equipment and machineries used for the project shall strictly conform to the MOEFCC /CPCB Air and Noise standards. • Schedule high noise generating activities during the day • Take special precautions to minimize sound (by minimizing the use of equipment/vehicles) when working near hospitals, schools and other sensitive areas • Ensure that all equipment and vehicles operation comply with applicable emission standards. Ensure regular maintenance to control Air and Noise emission.	CC	Part of construction cost
Access blockage to residential /commercial buildings, traffic disruption and public safety	Temporary-medium	• Leave space for access between mounds of excavated soil • Provide footbridges for pedestrians and metal sheets for vehicles to allow access across trenches • Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; • Schedule transport and hauling activities during non-peak hours; • Ensure work completion on time. In very narrow lanes speed-up construction by increasing the workforce • Minimize disturbance to traffic. Ensure traffic diversions where required. Provide signboards. • Consult affected business people to inform them in advance when work will occur • Provide signboards and barrier nets to ensure public safety • Address livelihood issues; Implement resettlement plan to address these issues	CC	Part of construction cost

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
Occupational Health and Safety	Temporary-Medium	• Develop and implement site-specific health and safety plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use Personal Protective Equipment like helmet, gumboot, safety belt, gloves, nose musk and ear plugs; (c) health and safety training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; • Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; • Provide medical insurance coverage for workers; • Secure all installations from unauthorized intrusion and accident risks; • Provide supplies of potable drinking water; • Provide clean eating areas where workers are not exposed to hazardous or noxious substances; • Provide health and safety orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; • Provide visitor orientation, if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; • Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; • Ensure moving equipment is outfitted with audible back-up alarms; • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.	CC	Part of construction Cost

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
		• Proper care must be taken during loading and unloading of DG set.		
Impacts due to silt runoff from construction site	Temporary-Low	• Avoid construction activities during monsoon • Minimize on-site soil storage • Dispose excess soil immediately • Provide temporary interception drains to avoid submergence of trenches and drain runoff quickly	CC	Part of construction cost
Damage and disturbance to other infrastructure in the construction site	Temporary-medium	• Collate the information on infrastructure from respective agencies (BSNL, UPCL, NNPP) prior to alignment finalization • Inform agencies about the construction work and ensure co-ordination with respective agencies to identify the actual location of underground infrastructure • Realign the infrastructure if required with prior permission. Ensure prior public information in case of service disruptions	CC	Part of construction cost
Soil contamination by construction wastes, fuel etc	Temporary-low	• Minimize oil and fuel spills from equipment by good O&M practices • Provide spill trays and do not conduct vehicle maintenance at the site. • Prepare a contingency plan to include actions to be done in case of any accidental spillage • Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized agency. • Unavoidable waste shall be stored at the designated place prior to disposal. To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided.	CC	Part of construction cost
Social conflicts from employment generation	Temporary-low	• Employ workforce, especially unskilled, from local community only. Prioritize vulnerable APs, if any.	CC	NA
Contamination due to waste disposal from labor camps	Temporary-low	• Avoid construction camps by drawing workforce from local community • If unavoidable, provide with proper water supply and sanitation facilities in labor • Camps	CC	Part of construction cost

Description of Impact	Magnitude of Impact	Mitigation Measures Proposed	Responsibility	Preliminary Cost
All above impacts	Temporary	Prepare and implement a construction site management plan (to cover site preparation, construction and site clearance after construction) incorporating all the above mitigation measures	DSC	Part of construction cost
O&M Stage				
Recurrence of blockage and leakage problems	Permanent -low	Test all pipelines according to relevant code of practice Minimize leak detection and restoration time.	CC	Part of O&M cost
Noise and air emissions from DG Set	Permanent –low	• Maintenance of all the equipment and strict adherence to the CPCB norms • Carryout recommended schedule maintenance checks as per O&M manual of DG sets	IPIU	Part of O&M cost
Safe handing, storage and disposal of fuel, oil residue and lubricating oil	Permanent -Low	• Fuel and lubricants shall be stored at the predefined storage location. The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils • Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized vendors.	IPIU	Part of O&M cost
Disposal of waste Battery	Permanent -Low	• Disposal of battery waste via authorized vendors as per The Batteries (Management and Handling) Rule, 2001 and amendments thereof	IPIU	Part of O&M cost

B. Environmental Monitoring Plan

119. The environmental impacts identified are mainly due to siting and construction. Mitigation measures have been formulated and responsibility is assigned to various agencies for implementation. To monitor mitigation measures implementation and its effectiveness in mitigating the impacts an environmental monitoring plan (Table 14) is suggested delegating the responsibility.

Table 14: Environmental Monitoring Plan

Project stage	Parameters to be Monitored	Location	Measurement	Frequency	Responsibility	Preliminary Costing
Pre-construction	Incorporation of mitigation measures in design and site identification	NA	Design check	One-off before Design approval	PMU	Part of project management (PM) costs
	Best siting to avoid forests	All Construction sites	Site visit and interaction with design engineers	One-off before approval	PMU in coordination with PIU	Part of PM Costs
	Incorporation of construction stage mitigation measures in contract documents	NA	Inspection of contract documents	One off before Finalization of contract	PMU	Part of PM Costs
Construction stage	Preparation Of construction site Management plan	NA	Inspection of plan based on the EMP recommendations	One-off before start of construction	PMU	Part of PM Costs
	Implementation of mitigation measures	Construction sites	Site visits Consultation with local people, workers inspection of construction records	Weekly	PIU/PMU	Part of PM Costs
	Implementation of EMP	In forest stretches	Direct supervision	Throughout construction	PMU	Part of PM Costs
	Ambient air quality	All Construction Sites	PM_{10}, $PM_{2.5}$, NO_2, SO_2 CO	Once in 4 month (4 monitoring stations)	DSC	Part of PM Cost
	Noise	Construction Site	Sound level, Leq	Same as above	DSC	Part of PM costs

DSC = design and supervision consultant, PIU = Investment Program Implementation Unit, PM = Program Management, PMU = Investment rogram Management Unit.

C. Environmental Management and Monitoring Costs

120. The sub-project is assessed to have no design or location impacts, except replacement of pumping mains passing through forest areas. Mitigation measures identified are of best siting and construction practices, and monitoring by a specialist.

121. There are construction stage impacts but these are typical for the construction activity and mitigation provided is mainly in terms of good construction practices like water sprinkling to arrest dust generation, clearing of excess soil, which will be incorporated into the construction contractor's contractual agreements, which will be binding for implementation.

Therefore there will be no additional costs for environmental management. The operation phase mitigation measures are again of good operating practices, which will be the responsibility of the operating agency, therefore there are no additional costs.

122. The monitoring proposed mainly includes site inspections and informal discussions with workers and local people and this will be the responsibility of PMU, costs of which are part of project management. The air quality and noise level monitoring of construction phase will be conducted by the DSC, this is an additional cost, and needs to be part of sub-project cost.

123. As part of the EMP , awareness campaigns, and on site briefings are proposed for technical staff and construction workers. These activities will be conducted by PMC at the office of PIU and construction sites and therefore no additional cost incurred.

124. This IEE and EMP need to be updated and finalized reflecting sub-project modifications, if any during detailed design stage. The DSC will carry out this task.

The environmental management and monitoring costs are summarized in the table below.

Table 15: Environmental management and monitoring costs

Item	Quantity	Frequency	Unit Cost INR	Total Cost INR	Source of Fund
Implementation of EMP (12 months)					
A. Installation of 4 DG sets- Environmental and Safety engineer	One	12 months	1,25,000	15,00,000	Contractor
Total (A)	**15,00,000**				
B. Installation of 4 Dg sets - 12 months – Construction Stage					
I Ambient air quality during construction	(4 samples each in 3 seasons at DG set sites) Total Number of Samples – 12		12,000	1,44,000	Contractor
II. Noise quality during construction	(4 samples each in 3 seasons DG set sites) Total Number of Samples – 12		4,000	48,000	Contractor
III.Training	One	Once	1,00,000	1,00,000	IPIU
Total (B)	**2,92,000**				
Grand Total (A+B)	**1,792,000**				

D. Training and Capacity Building

125. The impacts identified due to pipeline replacement activities in the protected forest are simple and mitigable by appropriate measures as suggested in the Environmental Management Plan (EMP). These measures are straightforward and simple to implement.

The following on-site and offsite training shall be conducted. An Environmental Monitoring Specialist (EMS) of the PMC will directly supervise the work in the forest area and therefore no major training or capacity building activities are proposed.

126. The EMS along with the concerned Forest Ranger of Forest Department will brief the workers involved in construction activity in protected forest about the precautions to be taken and various do's and don'ts during construction activity. He will also regularly interact with the Forest Guards and Rangers to improve the effectiveness of suggested mitigation measures, if required.

Table 16: Training and Capacity Building

Training Activity	Description	Participants	Trainer	Duration	Location	Schedule
Awareness campaign	campaign is to create awareness in technical staff involved in design, implementation and monitoring of pipeline replacement activities about the environmental impacts, mitigation and monitoring measures proposed and the government clearances required	PIU, DSC staff involved in supervision and CC	Environmental specialist of PMU/PMC	1 session of 2 hours	Office of the PIU in Nainital	Before start of construction
On-site Briefing	To brief the workers involved in construction activity in forest about the precautions to be taken and various do's and don'ts during construction activity	Construction workers, supervisors and engineers involved in construction	Environmental specialist of PMC, and Forest Range Officer	1 session of an hour	Construction site	Day of construction in forest (1st hour)

DSC-design and supervision consultant; PIU-Investment Program Implementation Unit; PMU-Investment Program Management Unit; and PMC-Program Management Consultant.

IX. ENVIRONMENTAL DUE DILIGENCE

127. This chapter confirms that there is no residual environmental impacts due to addition of subprojects “Procurements of Supply, installation , testing and commissioning of 4 DG sets” in tranche-1 in Nainital and the supporting details are given in subsequent paragraphs:

128. **Compliance Status during Pre-construction, Construction and Operation Stage of the Sub-project:**

1. **Status of statutory permission due to sub-project:**

(i) No statutory permission due to sub-project implementation is required. Only consent to establish (CTE) is required from State Pollution Control Board, which has been obtained (refer appendix 7).

(ii) The proposed sites land belong to Jal sansthan and permission obtained from Uttrakhand Jal Sansthan, Nainital vide the letter no 2391/ ADB/19 dated 03.09.2016 (refer appendix 8).

129. **Status on EMP implementation and environmental monitoring of ambient air quality and ambient noise levels along the sub-project:**

1. The overall implementation of EMP during project execution has been found satisfactory and no safety concerns raised during project implementation.
2. The Contractor has conducted the environmental monitoring of Air quality and Noise Quality during project implementation. The results are found to be well within the permissible limits (copy enclosed as appendix 9).
3. As part of the pre-construction activity, it was ensured that encumbrance free construction site was handover to the Contractor.

130. **Residual environmental impact, if any with corrective measures:**

(i) There is no residual impact is seen at the project site.

(ii) The location of installation of DG sets are mainly within the existing premises of Jal Sansthan, and it is not interfere the livelihood of local people directly or indirectly.

(iii) As the construction activity involves only minor civil works such as clearing of site, earth work and foundation for DG sets, generation of construction waste is not significant.

(iv) The subprojects requires very few nos of labors and No labour camp has been established for the sub-projects as only local are being employed.

(v) The impact on ambient air quality and noise quality during installation of DG sets is insignificant, localized and temporary in nature However, proper mitigation measures are being taken to minimize such impacts.

(vi) No oil spills were observed at site and no oil is being stored at site.

(vii) The work at the sub-project site has been restricted during day time only causing minimum disturbance to the local people

(viii) The potential environmental impacts associated with transportation of DG sets have been avoided or minimised through careful route selection and scheduling of transportation.

131. **Public consultation during project implementation/Operation stage:**

The Public consultation has been organised in Nainital on 20th Nov 2017 to discuss the proposed sub-projects of DG sets. People did not raise any objection of installation of DG sets and appreciate the proposed subproject. The draft IEE was disclosed to the local community. The description of proposed installation of DG Sets was explained during the public consultation The details of public consultation including attendance sheet and photographs are given in **Appendix 6.**

132. **Status of grievance, if any due to the sub-project**

So far, no grievance has been registered related to the sub-project implementation.

X. FINDINGS AND RECOMMENDATIONS

133. The updated initial environmental examination process described in the earlier sections of this report assessed the environmental impacts of all components proposed under the optimization of water supply system for Nainital City. Potential negative impacts were identified related to design, location, construction, and operation of the sub-project. Negative impacts due to the design and location are assessed to be minimal, and due to minimal operational and maintenance activities, there are also no major negative impacts of operation.

134. Most impacts are due to construction activities. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. Of the components, only pipeline replacement activities are identified to have most negative impacts during construction. Repairs and development of existing tube wells and cleaning of infiltration well are likely to have small impacts during construction. Other components like rehabilitation of existing water treatment plants, provision of bulk water meters, which will be constructed within the existing facilities and involving no major construction works are found to have very minimal construction impacts.

135. As stated above, most impacts are due to construction, this is because (i) construction work is to be carried out within the City including densely populated areas, and (ii) some works have to be carried out in protected forest area. The important impacts identified are: damage and disturbance to forest areas; generation of dust and noise from construction activities; impacts due to disposal of large quantities of construction waste soil; disturbance and inconvenience to local people due to trenching along the road; effect on road side hawkers and vendors; public safety; interference and damage to other infrastructure facilities, and, social conflicts due to drawing of labour from outside areas.

136. These impacts are temporary. Appropriate mitigation measures have been developed to address these impact: evaluating realignment options; laying of pipelines over ground to avoid excavation and cutting of trees; minimizing the construction area, wetting soil and construction area to reduce dust; immediate transport of excess soil; beneficial use of excess soil; scheduling of activities to reduce noise impacts; special precaution near sensitive areas like schools and hospitals; and traffic diversions and public information to reduce the impact.

137. An environmental monitoring plan is also developed to assess the environmental performance of sub-project implementation. The mitigation measures proposed in the management plan will be incorporated in project design and implemented as part of the sub-projects.

138. This updated IEE identifies that, of the 17.5 km of rising main proposed for replacement, about 500 m (0.5 km) pass through forest areas. Although work is only replacement and the pipes will be laid over ground with no anticipated major impacts, this updated IEE recommends an environmental management plan for implementation of sub-project components in forest stretches to ensure that it is implemented without causing any impacts.

139. No significant impact of Noise and Air pollution will be envisaged during operation of DG sets because new CPCB complied DG sets will be installed in existing Jal Sansthan Premises and will be used for very short duration for the supplement of main power supply. Issue of safe handling , storage and disposal of fuel, oil residue, lubricants and waste battery during operation phase, will be taking care by effective mitigation measures specified in Environmental Management Plan prepared for this sub projects.

140. The important recommendation of this updated IEE is that this water supply optimization sub-project can proceed for implementation provided all impacts are addressed through the suggested mitigation measures, and the EMP. The other important recommendation is that the involuntary resettlement issues, which are identified through a parallel process of resettlement planning, needs to be addressed in RP implementation

XI. CONCLUSIONS

141. The main objective of this water supply optimization sub-project in Nainital is to improve the water supply service in terms of water quality and quantity through leak reduction and treatment plant rehabilitation works and minimize the impedance created during interruption in electric supply and regularize the water supply in Nainital. Thus ultimately this subproject aims to improve overall living conditions in the city. This updated initial environmental examination has been conducted to identify and assess negative impacts.

142. All components proposed under this sub-project including installation of 4 DG sets in Nainital involve straightforward construction and simple operation. Not many environmental issues were noted during this initial environmental examination. In most cases, environmental issues identified are typical for the type of component construction, and a range of proven mitigation strategies exists to address them.

143. This updated IEE has assessed all potential environmental impacts associated with the sub-project. There are no impacts, which are significant or complex or which needs an in depth study to assess the impact or to develop the mitigation measures. The environmental impacts identified are manageable, and the PMU will implement the mitigation measures as stated in this updated IEE. An environmental management plan is also developed for implementation of sub-project components to ensure that it will result no negative impacts on environment. No further study such as an environmental impact assessment (EIA) is required.

Appendix 1-Photographs of existing features in Nainital:

Photo 1a : Pipelines laid above ground

Photo 3 : Existing CWR

Photo 1b: Pipelines along the drain

Photo 4 : Existing CWR in private property

Photo 2 : Pipeline work with in RoW

Photo 5a : Hilly topography of Nainital

Photo 5b : View of Nainital hill development

Photo 8 : Naina Devi Temple

Photo 6 : Naini Lake

Photo 9a : Existing pipelines in the forest

Photo 7 : Dense forests within city limits

Photo 9b : Existing pipeline in the forest

Appendix 2a: The Indian Forest Act, 1927

CHAPTER II

OF RESERVED FORESTS

3. Power to reserve forests.–The State Government may constitute any forest-land or waste-land which is the property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest-produce of which the Government is entitled, a reserved forest in the manner hereinafter provided.

4. Notification by State Government.-(1) whenever it has been decided to constitute any land a reserved forest, the State Government shall issue a notification in the Official Gazette–

(a) Declaring that it has been decided to constitute such land a reserved forest;
(b) Specifying, as nearly as possible, the situation and limits of such land; and
(c) Appointing an officer (hereinafter called "the Forest Settlement-officer") to inquire into and determine the existence, nature and extent of any rights alleged to exist in favour of any person in or over any land comprised within such limits or in or over any forest-produce, and to deal with the same as provided in this Chapter.

Explanation.–For the purpose of clause (b), it shall be sufficient to describe the limits of the forest by roads, rivers, ridges or other well-known or readily intelligible boundaries.

(2) The officer appointed under clause (c) of sub-section (1) shall ordinarily be a person not holding any forest office except that of Forest Settlement-officer.

(3) Nothing in this section shall prevent the State Government from appointing any number of officers not exceeding three, not more than one of whom shall be a person holding any forest-office except as aforesaid, to perform the duties of a Forest Settlement-officer under this Act.

5. Bar of accrual of forest-rights.–After the issue of a notification under section 4, no right shall be acquired in or over the land comprised in such notification, except by succession or under a grant or contract in writing made or entered into by or on behalf of the Government or some person in whom such right was vested when the notification was issued; and no fresh clearings for cultivation or for any other purpose shall be made in such land except in accordance with such rules as may be made by the State Government in this behalf.

6. Proclamation by Forest Settlement-officer.–When a notification has been issued under section 4, the Forest Settlement-officer shall publish in the local vernacular in every town and village in the neighborhood of the land comprised therein, a proclamation

(a) specifying, as nearly as possible, the situation and limits of the proposed forest;

(b) explaining the consequences which, as hereinafter provided, will ensue on the reservation of such forest; and

(c) fixing a period of not less than three months from the date of such proclamation, and requiring every person claiming any right mentioned in section 4 or section, 5 within such period either to present to the Forest Settlement officer a written notice specifying or to appear before him and state, the nature of such right and the amount and particulars of the compensation (if any) claimed in respect thereof.

7. Inquiry by Forest Settlement-officer.–The Forest Settlement-officer shall take down in writing all statements made under section 6, and shall at some convenient place inquire into all claims duly preferred under that section, and the existence of any rights mentioned in section 4 or section 5 and not claimed under section 6 so far as the same may be ascertainable from the records of Government and the evidence of any persons likely to be acquainted with the same.

8. Powers of Forest Settlement-officers.-For the purpose of such inquiry, the Forest Settlement-officer may exercise the following powers, that is to say:

(a) power to enter, by himself or any officer authorised by him for the purpose, upon any land, and to survey, demarcate and make a map of the same; and

(b) the powers of a Civil Court in the trial of suits.

9. Extinction of rights.-Rights in respect of which no claim has been preferred under section 6, and of the existence of which no knowledge has been acquired by inquiry under section 7, shall be extinguished, unless before the notification under section 20 is published, the person claiming them satisfies the Forest Settlement-officer that he had sufficient cause for not prefer-ring such claim within the period fixed under section 6.

10. Treatment of claims relating to practice of shifting cultivation.—(1) In the case of a claim relating to the practice of shifting cultivation, the Forest Settlement-officer shall record a statement setting forth the particulars of the claim and of any local rule or order under which the practice is allowed or regulated, and submit the statement to the State Government, together with his opinion as to whether the practice should be permitted or prohibited wholly or in part.

(2) On receipt of the statement and opinion, the State Government may make an order permitting or prohibiting the practice wholly or in part.

(3) If such practice is permitted wholly or in part, the Forest Settlement-officer may arrange for its exercise

(a) by altering the limits of the land under settlement so as to exclude land of sufficient extent, of a suitable kind, and in a locality reasonably convenient for the purposes of the claimants, or

(b) by causing certain portions of the land under settlement to be separately demarcated, and giving permission to the claimants to practise shifting cultivation therein under such conditions as he may prescribe.
(4) All arrangements made under sub-section (3) shall be subject to the previous sanction of the State Government.
(5) The practice of shifting cultivation shall in all cases be deemed a privilege subject to control, restriction and abolition by the State Government.
11. Power to acquire land over which right is claimed.–(1) In the case of a claim to a right in or over any land, other than a right of way or right of pasture, or a right to forest produce or a water-course, the Forest Settlement officer shall pass an order admitting or rejecting the same in whole or in part.
(2) If such claim is admitted in whole or in part, the Forest Settlement-officer shall either
(i) exclude such land- from the limits of the proposed forest; or
(ii) come to an agreement with the owner thereof for the surrender of his rights; or
(iii) proceed to acquire such land in the manner provided by the Land Acquisition Act, 1894 (1 of 1894).
(3) For the purpose of so acquiring such land
(a) the Forest Settlement-officer shall be deemed to be a Collector proceeding under the Land Acquisition Act, 1894 (1 of 1894);
(b) the claimant shall be deemed to be a person interested and appearing before him in pursuance of a notice given under section *9* of that Act;
(c) the provisions of the preceding sections of that Act shall be deemed to have been complied with; and
(d) the Collector, with the consent of the claimant, or the Court, with the consent of both parties, may award compensation in land, or partly in land and partly in money.
12. Order on claims to rights of pasture or to forest-produce.–In the case of a claim to rights of pasture or to forest-produce, the Forest Settlement-officer shall pass an order admitting or rejecting the same in whole or in part.
13. Record to be made by Forest Settlement-officer.–The Forest Settlement officer, when passing any order under section 12, shall record, so far as may be practicable,–
(a) the name, father's name, caste, residence and occupation of the person claiming the right; and
(b) the designation, position and area of all fields or groups fields (if any), and the designation and position of all buildings (if any) in respect of which the exercise of such rights is claimed.
14. Record where he admits claim.–If the Forest Settlement-officer admits in whole or in part any claim under section 12, he shall also record the extent to which the claim is so admitted, specifying the number and description of the cattle which the claimant is from time to time entitled to graze in the forest, the season during which such pasture is permitted, the quantity of timber and other forest produce which he is from time to time authorised to take or receive, and such other particulars as the case may require. He shall also record whether the timber or other forest-produce obtained by the exercise of the rights claimed may be sold or bartered.
15. Exercise of rights admitted.-(1) After making such record the Forest Settlement officer shall, to the best of his ability, having due regard to the maintenance of the reserved forest in respect of which the claim is made, pass such orders as will ensure the continued exercise of the rights so admitted.
(2) For this purpose the Forest Settlement-officer may
(a) set out some other forest-tract of sufficient extent, and in a locality reasonably convenient, for the purposes of such claimants, and record an order conferring upon them a right of pasture or to forest-produce (as the case may be) to the extent so admitted; or
(b) so alter the limits of the proposed forest as to exclude forest-land of sufficient extent, and in a locality reasonably convenient, for the purposes of the claimants; or
(c) record an order, continuing to such claimants a right of pasture or to forest-overpage produce, as the case may be, to the e tent so admitted, at such seasons, within such portions of the proposed forest, and under such rules, as may be made in this behalf by the State Government.
16. Commutation of rights.–In case the Forest Settlement-officer finds it impossible having due regard to the maintenance of the reserved forest, to make such settlement under section 15 as shall ensure the continued exercise of the said rights to the extent so admitted, he shall, subject to such rules as the State Government may make in this behalf, commute such rights, by the payment to such persons of a sum of money in lieu thereof, or by the grant of land, or in such other manner as he thinks fit.
17. Appeal from order passed under section 11, section 12, section 15 or section 16.–Any person who has made a claim under this Act, or any Forest-officer or other person generally or specially empowered by the State Government in this behalf, may, within three months from the date of the order passed on such claim by the Forest Settlement-officer under section 11, section 12, section 15 or section 16, present an appeal from such order to such officer of the Revenue Department of rank not lower than that of a Collector, as the State Government may, by notification in the Official Gazette, appoint to hear appeals from such orders:
Provided that the State Government may establish a Court (hereinafter called the Forest Court) composed of three persons to be appointed by the State Government, and when the Forest Court has been so established, all such appeals shall be presented to it.

18. Appeal under section 17.–(1) every appeal under section 17 shall be made by petition in writing, and may be delivered to the Forest Settlement-officer, who shall forward it without delay to the authority competent to hear the same.
(2) If the appeal be to an officer appointed under section 17, it shall be heard in the manner prescribed for the time being for the hearing of appeals in matters relating to land-revenue.
(3) If the appeal be to the Forest Court, the Court shall fix a day and a convenient place in the neighborhood of the proposed forest for hearing the appeal, and shall give notice thereof to the parties, and shall hear such appeal accordingly.
(4) The order passed on the appeal by such officer or Court, or by the majority of the members of such Court, as the case may be, shall, subject only to revision by the State Government, be final.
19. Pleaders.–The State Government, or any person who has made a claim under this Act, may appoint any person to appear, plead and act on its or his behalf before the Forest Settlement-officer, or the appellate officer or Court, in the course of any inquiry or appeal under this Act.
20. Notification declaring forest reserved.–(1) When the following events have occurred, namely:–
(a) the period fixed under section 6 for preferring claims have elapsed and all claims (if any) made under that section or section 9 have been disposed of by the Forest Settlement-officer;
(b) if any such claims have been made, the period limited by section 17 for appealing from the orders passed on such claims has elapsed, and all appeals (if any) presented within such period have been disposed of by the appellate officer or Court; and
(c) all lands (if any) to be included in the proposed forest, which the Forest Settlement-officer has, under section 11, elected to acquire under the Land Acquisition Act, 1894 (1 of 1894), have become vested in the Government under section 16 of that Act, the State Government shall publish a notification in the Official Gazette, specifying definitely, according to boundary-marks erected or otherwise, the limits of the forest which is to be reserved, and declaring the same to be reserved from a date fixed by the notification.
(2) From the date so fixed such forest shall be deemed to be a reserved forest.
21. Publication of translation of such notification in neighborhood of forest.–The Forest-officer shall, before the date fixed by such notification, cause a translation thereof into the local vernacular to be published in every town and village in the neighborhood of the forest.
22. Power to revise arrangement made under section 15 or section 18–The State Government may, within five years from the publication of any notification under section 20, revise any arrangement made under section 15 or section 18, and may for this purpose rescind or modify any order made under section 15 or section 18, and direct that any one of the proceedings specified in section 15 be taken in lieu of any other of such proceedings, or that the rights admitted under section 12 be commuted under section 16.
23. No right acquired over reserved forest, except as here provided.–No right of any description shall be acquired in or over a reserved forest except by succession or under a grant or contract in writing made by or on behalf of the Government or some person in whom such right was vested when the notification under section 20 was issued.
24. Rights not to be alienated without sanction.–(1) Notwithstanding anything contained in section 23, no right continued under clause (c) of sub-section (2) of section 15 shall be alienated by way of grant, sale, lease mortgage or otherwise, without the sanction of the State Government:
Provided that, when any such right is appendant to any land or house, it may be sold or otherwise alienated with such land or house.
(2) No timber or other forest-produce obtained in exercise of any such right shall be sold or bartered except to such extent as may have been admitted in the order recorded under section 14.
25. Power to stop ways and water-courses in reserved forests.–The Forest-officer may, with the previous sanction of the State Government or of any officer duly authorised by it in this behalf, stop any public or private way or water-course in a reserved forest, provided that a substitute for the way or water-course so stopped, which the State Government deems to be reasonably convenient, already exists, or has been provided or constructed by the Forest-officer in lieu thereof.
26. Acts prohibited in such forests.–(1) Any person who–
(a) makes any fresh clearing prohibited by section 5, or
(b) sets fire to a reserved forest, or, in contravention of any rules made by the State Government in this behalf, kindles any fire, or leaves any fire burning, in such manner as to endanger such a forest; or who, in a reserved forest–
(c) kindles, keeps or carries any fire except at such seasons as the Forest-officer may notify in this behalf,
(d) trespasses or pastures cattle, or permits cattle to trespass;
(e) causes any damage by negligence in felling any tree or cutting or dragging any timber;
(f) fells, girdles, lops, or bums any tree or strips off the bark or leaves from, or otherwise damages, the same;
(g) quarries stone, bums lime or charcoal, or collects, subjects to any manufacturing process, or removes, any forest produce;
(h) clears or breaks up any land for cultivation or any other purpose;

(i) in contravention of any rules made in this behalf by the State Government hunts, shoots, fishes, poisons water or sets traps or snares; or
(j) in any area in which the Elephants' Preservation Act, 1879 (6 of 1879), is not in force, kills or catches elephants in contravention of any rules so made, shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both, in addition to such compensation for damage done to the forest as the convicting Court may direct to be paid.
(2) Nothing in this section shall be deemed to prohibit
(a) any act done by permission in writing of the Forest-officer, or under any rule made by the state Government; or
(b) the exercise of any right continued under clause (c) of sub-section (2) of section 15, or created by grant or contract in writing made by or on behalf of the Government under section 23.
(3) Whenever fire is caused wilfully or by gross negligence in a reserved forest, the State Government may (notwithstanding that any penalty has been inflicted under this section) direct that in such forest or any portion there of the exercise of all rights of pasture or to forest produce shall be suspended for such period as it thinks fit.
27. Power to declare forest no longer reserved.–(1) The State Government may,6[* * *] by notification in the Official Gazette, direct that, from a date fixed by such notification, any forest or any portion thereof reserved under the Act shall cease to be a reserved forest.
(2) From the date so fixed, such forest or portion shall cease to be reserved; but the rights (if any) which have been extinguished therein shall not revive in consequence of such cessation.

CHAPTER III

OF VILLAGE-FORESTS

28. Formation of village-forests.-(1) The State Government may assign to any village-community the rights of Government to or over any land which has been constituted a reserved forest, and may cancel such assignment. All forests so assigned shall be called village-forests.
(2) The State Government may make rules for regulating the management of village forests, prescribing the Conditions under which the community to which any such assignment is made may be provided with timber or other forest-produce or pasture, and their duties for the protection and improvement of such forest.
(3) All the provisions of this Act relating to reserved forests shall (so far as they are not inconsistent with the rules so made) apply to village-forests.

CHAPTER IV

OF PROTECTED FORESTS

29. Protected forests.–(1) The State Government may, by notification in the Official Gazette, declare the provisions of this Chapter applicable to any forest-land or waste-land which,, is not included in a reserved forest but which is the property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest produce of which the Government is entitled.
(2) The forest-land and waste-lands comprised in any such notification shall be called a "protected forest".
(3) No such notification shall be made unless the nature and extent of the rights of Government and of private persons in or over the forest-land or waste-land comprised therein have been inquired into and recorded at a survey or settlement, or in such other manner as the State Government thinks sufficient. Every such record shall be presumed to be correct until the contrary is proved:
Provided that, if, in the case of any forest-land or waste land, the State Government thinks that such inquiry and record are necessary, but that they will occupy such length of time as in the meantime to endanger the rights of Government, the State Government may, pending such inquiry and record, declare such land to be a protected forest, but so as not to abridge or affect any existing rights of individuals or communities.
30. Power to issue notification reserving trees, etc.–The State Government may, by notification in the Official Gazette,
(a) declare any trees or class of trees in a protected forest to be reserved from a date fixed by, the notification;
(b) declare that any portion of such forest specified in the notification shall be closed for such term, rot exceeding thirty years, as the State Government thinks fit, and that the rights of private persons, if any, over such portion shall be suspended during such terms, provided that the remainder of such forest be sufficient, and in a locality reasonably convenient, for the due exercise of the right suspended in the portion so closed; or
(c) prohibit, from a date fixed as aforesaid, the quarrying of stone, or the burning of lime or charcoal, or the collection or subjection to any manufacturing process, or removal of, any forest-produce in any such forest, and the breaking up or clearing for cultivation, for building, for herding cattle or for any other purpose, of any land in any such forest.
31. Publication of translation of such notification in neighbourhood.–The Collector shall cause a translation into the local vernacular of every notification issued under section 30 to be affixed in a conspicuous place in every town and village in the neighbourhood of the forest comprised in the notification.

32. Power to make rules for protected forests.–The State Government may make rules to regulate the following matters, namely:
(a) the cutting, sawing, conversion and removal of trees and timber, and the collection, manufacture and removal of forest-produce, from protected forests;
(b) the granting of licences to the inhabitants of towns and villages in the vicinity of protected forests to take trees, timber or other forest-produce for their own use, and the production and return of such licences by such persons;
(c) the granting of licences to persons felling or removing trees or timber or other forest-produce from such forests for the purposes of trade, and the production
d) the payments, if any, to be made by the persons mentioned in clauses (b) and (c) for permission to cut such trees,or to collect and remove such timber or other forest-produce;
(e) the other payments, if any, to be made by them in respect of such trees, timber and produce, and the places where such payment shall be made;
(f) the examination of forest-produce passing out of such forests;
(g) the clearing and breaking up of land for cultivation or other purposes in such forests;
(h) the protection from fire of timber lying in such forests and of trees reserved under section 30;
(i) the cutting of grass and pasturing of cattle in such forests;
(j) hunting, shooting, fishing, poisoning water and setting traps or snares in such forests and the killing or catching of elephants in such forests in areas in which the Elephants' Preservation Act, 1879 (6 of 1879), is not in force;
(k) the protection and management of any portion of a forest closed under section 30; and
(l) the exercise of rights referred to in section 29.
33. Penalties for acts in contravention of notification under section 30 or of rules under section 32.--(1) Any person who commits any of the following offences, namely:–
(a) fells, girdles, lops, taps or bums any tree reserved under section 30, or strips off the bark or leaves from, or otherwise damages, any such tree;
(b) contrary to any prohibition under section 30, quarries any stone, or bums any lime or charcoal or collects, subjects to any manufacturing process, or removes any forest-produce;
(c) contrary to any prohibition under section 30, breaks up or clears for cultivation or any other purpose any land in any protected forest;
(d) sets fire to such forest, or kindles a fire without taking all reasonable precautions to prevent its spreading to any tree reserved under section 30, whether standing fallen or felled, or to say closed portion of such forest;
(e) leaves burning any fire kindled by him in the vicinity of any such tree or closed portion;
(f) fells any tree or drags any timber so as to damage any tree reserved as aforesaid;
(g) permits cattle to damage any such tree;
(h) infringes any rule made under section 32, shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.
(2) Whenever fire is caused wilfully or by gross negligence in a protected forest, the State Government may, notwithstanding that any penalty has been inflicted under this section, direct that in such forest or any portion thereof the exercise of any right of pasture or to forest-produce shall be suspended for such period as it thinks fit.
34. Nothing in this Chapter to prohibit acts done in certain cases.–Nothing in this Chapter shall be deemed to prohibit any act done with the permission in writing of the Forest-officer, or in accordance with rules made under section 32, or, except as regards any portion of a forest closed under section 30, or as regards any rights the exercise of which has been suspended under section 33, in the exercise of any right recorded under section 29.

CHAPTER V

OF THE CONTROL OVER FORESTS AND LANDS NOT BEING THE PROPERTY OF GOVERNMENT

35. Protection of forests for special purposes.-(1) The State Government may, by notification in the Official Gazette, regulate or prohibit in any forest or waste-land
(a) the breaking up or clearing of land for cultivation;
(b) the pasturing of cattle; or
(c) the firing or clearing of the vegetation; when such regulation or prohibition appears necessary for any of the following purposes:–
(i) for protection against storms, winds, rolling stones, floods and avalanches;
(ii) for the preservation of the soil on the ridges and slopes and in the valleys of hilly tracts, the prevention of land slips or of the formation of ravines, and torrents, or the protection of land against erosion, or the deposit thereon of sand, stones or gravel;
(iii) for the maintenance of a water-supply in springs, rivers and tanks;
(iv) for the protection of roads, bridges, railways and other lines of communication;
(v) for the preservation of the public health.
(2) The State Government may, for any such purpose, construct at its own expense, in or upon any forest or wasteland, such work as it thinks fit.
(3) No notification shall be made under sub-'section (1) nor shall any work be begun under sub-section (2), until after the issue of a notice to the owner of such forest or land calling on him to show cause, within a reasonable

period to be specified in such notice, why such notification should not be made or work constructed, as the case may be, and until his objections, if any, and any evidence he may produce in support of the same, have been heard by an officer duly appointed in that behalf and have been considered by the State Government.

36. Power to assume management of forests.–(1) In case of neglect of, or wilful disobedience to, any regulation or prohibition under section 35, or if the purposes of any work to be-constructed under that section so require, the State Government may, after notice in writing to the owner of such forest or land and after considering his objections, if any, place the same under the control of a Forest-officer, and may declare that all or any of the provisions of this Act relating to reserved forests shall apply to such forest or land.

(2) The net profits, if any, arising from the management of such forest or land shall be paid to the said owner.

37. Expropriation of forests in certain cases.–(1) In any case under this Chapter in which the State Government considers that, in lieu of placing the forest or land under the control of a Forest-Officer, the same should be acquired for public purposes, the State 3overnment may proceed to acquire it in the manner provided by the Land Acquisition Act, 1894 (1 of 1894).

(2) The owner of any forest or land comprised in any notification under section 35 may, t any time not less than three or more than twelve years from the date thereof, require that such forest or land shall be acquired for public purposes, and the State Government shall require such forest or land accordingly.

38. Protection of forests at request of owners.–(1) The owner of any land or, if there more than one owner thereof, the owners of shares therein amounting in the aggregate at least two-thirds thereof may, with a view to the formation or conservation of forests thereon, represent in writing to the Collector their desire

(a) that such land be managed on their behalf by the Forest-officer as a reserved or a protected forest on such terms as may be mutually agreed upon; or

(b) that all or any of the provisions of this Act be applied to such land.

(2) In either case,-the State Government may, by notification in the Official Gazette, apply to such land such provisions of this Act as it thinks suitable to the circumstances thereof and as may be desired by the applicants.

Appendix- 2b: Forest (Conservation) Act, 1980

An Act to provide for the conservation of forests and for matters connected therewith or ancillary or incidental thereto.

2. Restriction on the dereservation of forests or use of forest land for non-forest purpose.

Notwithstanding anything contained in any other law for the time being in force in a State, no State Government or other authority shall make, except with the prior approval of the Central Government, any order directing-

(i) that any reserved forest (within the meaning of the expression "reserved forest" in any law for the time being in force in that State) or any portion thereof, shall cease to be reserved;

(ii) that any forest land or any portion thereof may be used for any non-forest purpose;

(iii) that any forest land or any portion thereof may be assigned by way of lease or otherwise to any private person or to any authority, corporation, agency or any other organization not owned, managed or controlled by Government;

(iv) that any forest land or any portion thereof may be cleared of trees which have grown naturally in that land or portion, for the purpose of using it for re afforestation.

Explanation - For the porpose of this section, "non-forest purpose" means the breaking up or clearing of any forest land or portion thereof for-

(a) the cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops or medicinal plants;

(b) any purpose other than re afforestation; but does not include any work relating or ancillary to conservation, development and management of forests and wildlife, namely, the establishment of check-posts, fire lines, wireless communications and construction of fencing, bridges and culverts, dams, waterholes, trench marks, boundary marks, pipelines or other like purposes.

3. Constitution of Advisory Committee.

The Central Government may constitute a Committee consisting of such number of persons as h may deem fit to advise that Government with regard to-

(i) the grant of approval. Under Section 2; and

(ii) any other matter connected with the conservation of forests which may be referred to h by the Central Government.

3A. Penalty for contravention of the provisions of the Act.

Whoever contravenes or abets the contravention of any of the provisions of Section 2, shall be punishable with simple imprisonment for a period which may extend to fifteen days.

3B. Offences by the Authorities and Government Departments.

(1) Where any offence under this Act has been committed -

(a) by any department of Government, the head of the department; or (b) by any authority, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the authority for the conduct of the business of the authority as well as the authority; shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly: Provided that nothing contained in this sub-section shall render the head of the department or any person referred to in clause (b), liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence punishable under the Act has been committed by a department of Government or any authority referred to in clause (b) of sub-section (1) and it is proved that the offence has been committed with the consent or connivance of; or is attributable to any neglect on the part of any officer, other than the head of the department, or in the case of an authority, any person other than the persons referred to in clause (b) of sub-section (1), such officer or persons shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly

Appendix 2c: FOREST CONSERVATION RULES, 2003

Forest Conservation Rules, 2003

6. Submission of the proposals seeking approval of the Central Government under section 2 of the Act.-
(1) Every user agency, who wants to use any forest land for non-forest purposes shall make his proposal in the appropriate Form appended to these rules, i.e. Form 'A' for proposals seeking first time approval under the Act and Form 'B' for proposals seeking renewal of leases where approval of the Central Government under the Act had already been obtained earlier, to the concerned nodal officer authorized in this behalf by the State Government, along with requisite information and documents, complete in all respects, well in advance of taking up any non-forest activity on the forest land.
(2) Every State Government or other authority, after having received the proposal under sub-rule (1) and after being satisfied that the proposal requires prior approval under section 2 of the Act, shall send the proposal to the Central Government in the appropriate forms, within ninety days of the receipt of the proposal from the user agency for proposals seeking first time approval under the Act and within sixty days for proposals seeking renewal of leases where approval of the Central Government under the Act had already been obtained earlier:
Provided that all proposals involving clearing naturally grown trees in forest land or portion thereof for the purpose of using it for re afforestation shall be sent in the form of Working Plan or Management Plan.
(3) The proposal referred to in sub-rule (2) above, involving forest land of more than forty hectare shall be sent by the State Government to the Secretary to the Government of India, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, Lodhi Road, New Delhi-110 003, with a copy of the proposal (with complete enclosures) to the concerned Regional Office.
(4) The proposal referred to in sub-rule (2) above, involving forest land up to forty hectare shall be sent to the Chief Conservator of Forests or Conservator of Forests of the concerned Regional Office of the Ministry of Environment and Forests.
(5) The proposal referred to in sub-rule (2) above, involving clearing of naturally grown trees in forest land or portion thereof for the purpose of using it for re afforestation shall be sent to the Chief Conservator of Forests or Conservator of Forests of the concerned Regional Office of the Ministry of Environment and Forests.
7. Committee to advice on proposals received by the Central Government.-
(1) The Central Government shall refer every proposal, complete in all respects, received by it under Sub-rule (3) of rule 6 including site inspection report, wherever required, to the Committee for its advice thereon.
(2) The Committee shall have due regard to all or any of the following matters while tendering its advice on the proposals referred to it under sub-rule (1), namely:-
(a) Whether the forests land proposed to be used for non-forest purpose forms part of a nature reserve, national park wildlife sanctuary, biosphere reserve or forms part of the habitat or any endangered or threatened species of flora and fauna or of an area lying in severely eroded catchment;
(b) Whether the use of any forest land is for agricultural purposes or for the rehabilitation of persons displaced from their residences by reason of any river valley or hydro-electric project ;
(c) Whether the State Government or the other authority has certified that it has considered all other alternatives and that no other alternatives in the circumstances are feasible and that the required area is the minimum needed for the purpose; and
(d) Whether the State Government or the other authority undertakes to provide at its cost for the acquisition of land of an equivalent area and afforestation thereof.
(3) While tendering the advice, the Committee may also suggest any conditions or restrictions on the use of any forest land for any non-forest purpose, which in its opinion, would minimize adverse environmental impact.
8. Action of the Central Government on the advice of the Committee.–
The Central Government shall, after considering the advice of the Committee tendered under rule 7 and after such further enquiry as it may consider necessary, grant approval to the proposal with or without conditions or reject the same within sixty days of its receipt.

(See Rule 6)

FORM – 'A'

Form for seeking prior approval under section 2 of the proposals by the State Governments and other authorities

PART-I

(to be filled up by user agency)

1. Project details:

   (i) Short narrative of the proposal and project/scheme for which the forest land is required.
   (ii) Map showing the required forest land, boundary of adjoining forest on a 1:50,000 scale map.
   (iii) Cost of the project:
   (iv) Justification for locating the project in forest area.
   (v) Cost-benefit analysis (to be enclosed).
   (vi) Employment likely to be generated.

2. Purpose-wise break-up of the total land required:

3. Details of displacement of people due to the project, if any:

   (i) Number of families.
   (ii) Number of Scheduled Castes/Scheduled Tribe families
   (iii) Rehabilitation plan. (to be enclosed)

4. Whether clearance under Environment (Protection) Act, 1986 required? (Yes/No).

5. Undertaking to bear the cost of raising and maintenance of compensatory afforestation and/or penal compensatory afforestation as well as cost for protection and regeneration of Safety Zone, etc. as per the scheme prepared by the State Government (undertaking to be enclosed).

6. Details of Certificates/documents enclosed as required under the instructions.

Signature
(Name in Block letters)
Designation
Address (of User Agency)

Date:-_____

Place:-_____

State serial No. of proposal_____

(To be filled up by the Nodal Officer with date of receipt)

PART-II

(To be filled by the concerned Deputy Conservator of Forests)

State serial No. of proposal_____

7. Location of the project/Scheme:

   (i) State/Union Territory
   (ii) District.
   (iii) Forest Division
   (iv) Area of forest land proposed for diversion (in ha.)
   (v) Legal status of forest
   (vi) Density of vegetation.
   (vii) Species-wise (scientific names) and diameter class-wise enumeration of trees (to be enclosed. In case of irrigation / hydel projects enumeration at FRL, FRL-2 meter & FRL-4 meter also to be enclosed.)
   (viii) Brief note on vulnerability of the forest area to erosion.

(ix) Approximate distance of proposed site for diversion from boundary of forest.

(x) Whether forms part of National Park, wildlife sanctuary, biosphere reserve, tiger reserve, elephant corridor, etc. (If so, the details of the area and comments of the Chief Wildlife Warden to be annexed).

(xi) Whether any rare/endangered/unique species of flora and fauna found in the area- if so details thereof.

(xii) Whether any protected archaeological/heritage site/defence establishment or any other important monument is located in the area. If so, the details thereof with NOC from competent authority, if required.

8. Whether the requirement of forest land as proposed by the user agency in col. 2 of Part-I is unavoidable and barest minimum for the project. If no, recommended area item-wise with details of alternatives examined.

9. Whether any work in violation of the Act has been carried out (Yes/No). If yes, details of the same including period of work done, action taken on erring officials. Whether work in violation is still in progress.

10. Details of compensatory afforestation scheme:

(i) Details of non-forest area/degraded forest area identified for compensatory afforestation, its distance from adjoining forest, number of patches, size of each patch.

(ii) Map showing non-forest/degraded forest area identified for compensatory afforestation and adjoining forest boundaries.

(iii) Detailed compensatory afforestation scheme including species to be planted, implementing agency, time schedule, cost structure, etc.

(iv) Total financial outlay for compensatory afforestation scheme.

(v) Certificates from competent authority regarding suitability of area identified for compensatory afforestation and from management point of view. (To be signed by the concerned Deputy Conservator of Forests).

11. Site inspection report of the DCF (to be enclosed) especially highlighting facts asked in col. 7 (xi, xii), 8 and 9 above.

12. Division/District profile:

(i) Geographical area of the district.

(ii) Forest area of the district.

(iii) Total forest area diverted since 1980 with number of cases.

(iv) Total compensatory afforestation stipulated in the district/division since 1980 on (a) forest land including penal compensatory afforestation,

(b) Non-forest land.

(v) Progress of compensatory afforestation as on (date) _____ on

(a) Forest land

(b) Non-forest land.

13. Specific recommendations of the DCF for acceptance or otherwise of the proposal with reasons.

Signature

Name

Official Seal

Date:-_____

Place:-_____

PART-III

(To be filled by the concerned Conservator of Forests)

14. Whether site, where the forest land involved is located has been inspected by concerned Conservator of Forests (Yes/No). If yes, the date of inspection & observations made in form of inspection note to be enclosed.
15. Whether the concerned Conservator of Forests agree with the information given in Part-B and the recommendations of Deputy Conservator of Forests.
16. Specific recommendation of concerned Conservator of Forests for acceptance or otherwise of the proposal with detailed reasons.

Signature
Name
Official Seal

Date:-_____
Place:-_____

PART-IV

(To be filled in by the Nodal Officer or Principal Chief Conservator of Forests or Head of Forest department)

17. Detailed opinion and specific recommendation of the State Forest Department for acceptance of otherwise of the proposal with remarks.

    (While giving opinion, the adverse comments made by concerned Conservator of Forests or Deputy Conservator of Forests should be categorically reviewed and critically commented upon).

Signature

Name & Designation

(Official Seal)

Date:-_____

Place:-_____

PART- V

(To be filled in by the Secretary in charge of Forest Department or by any other authorised officer of the State Government not below the rank of an Under Secretary)

18. Recommendation of the State Government:

    (Adverse comments made by any officer or authority in Part-B or Part-C or Part-D above should be specifically commented upon)

Signature

Name & Designation

(Official Seal)

Date:-_____

Place:-_____

INSTRUCTIONS (for Part-I):-

1. The project authorities may annex a copy of the approved project/plan in addition to filling Col. 1 (i) e.g.IBM approved mining plan for major minerals/CMPDI plan with subsidence analysis reports, etc.
2. Map has to be in original duly authenticated jointly by project authorities and concerned DCF – Col. 1 (ii).
3. Complete details of alternative alignments examined especially in case of project like roads, transmission lines, railway lines, canals, etc. to be shown on map with details of area of forest land involved in each alternative to be given - Col. 1 (iii).

4. For proposals relating to mining, certificate from competent authority like District Mining Officer about non-availability of the same mineral in surrounding/nearby non-forest areas.
5. In case the same company/individual has taken forest land for similar project in the State, a brief detail of all such approvals/leases be given as an enclosure along with current status of the projects.
6. The latest clarifications issued by the Ministry under Forest (Conservation) Act, 1980 may be kept in mind. In case such information do not fit in the given columns, the same shall be annexed separately.

GENERAL INSTRUCTIONS:-

1. On receipt of proposal, Nodal Officer shall issue a receipt to the user agency indicating therein the name of the proposal, user agency, area in hectare, serial number and date of receipt.
2. If the space provided above is not sufficient to specify any information, please attach separate details/documents.
3. While forwarding the proposal to the Central Government, complete details on all aspects of the case as per Form prescribed above read with the clarifications issued by the Ministry of Environment and Forests, Government of India, New Delhi should be given. Incomplete or deficient proposals shall not be considered and shall be returned to the State Government in original.
4. The State Government shall submit the proposal to the Central Government within stipulated time limits. In case of delay while forwarding, the reasons for the same to be given in the forwarding/covering letter.

FORM – 'B'

(See Rule 6)

Form for seeking prior approval under section 2 of the proposals by the State Governments and other authorities in respect of renewal of leases, which have been earlier granted clearance under Forest (Conservation) Act, 1980

PART-I

(to be filled up by user agency)

1. Letter No. & date vide which clearance under Forest (Conservation) Act, 1980 accorded by the Central Government (copy to be enclosed):
2. Project details:
   (i) Short narrative of the proposal and project/scheme for which the forest land is required.
   (ii) Map showing the required forest land, boundary of adjoining forest on a 1:50,000 scale map.
   (iii) Cost of the project:
3. Purpose-wise break-up of the total land required (already broken & to be broken):
4. Details of Certificates/documents enclosed as required under the instructions.

Signature
(Name in Block letters)
Designation
Address (of User Agency)

Date:-_____
Place:-_____

State serial No. of proposal_____
(To be filled up by the Nodal Officer with date of receipt)

PART-II

(To be filled by the concerned Deputy Conservator of Forests)

State serial No. of proposal_____

5. Location of the project/Scheme:
   (i) State/Union Territory
   (ii) District.
   (iii) Forest Division
   (iv) Area of forest land proposed for diversion (in ha.)
   (v) Legal status of forest
   (vi) Density of vegetation.

(vii) Species-wise (scientific names) and diameter class-wise enumeration of trees in unbroken area.
(viii) Whether forms part of National Park, wildlife sanctuary, biosphere reserve, tiger reserve, elephant corridor, etc. (If so, the details of the area and comments of the Chief Wildlife Warden to be annexed).

6. Whether any work in violation of the Act has been carried out (Yes/No). If yes, details of the same including period of work done, action taken on erring officials. Whether work in violation is still in progress.

7. Site inspection report of the DCF (to be enclosed) in respect to status of compliance of conditions stipulated during earlier approval.

8. Division/District profile:

(i) Geographical area of the district.
(ii) Forest area of the district.
(iii) Total forest area diverted since 1980 with number of cases.
(iv) Total compensatory afforestation stipulated in the district/division since 1980 on (a) forest land including penal compensatory afforestation,
(b) non-forest land.
(v) Progress of compensatory afforestation as on (date) _____ on
a. forest land
b. non-forest land.

9. Specific recommendations of the DCF for acceptance or otherwise of the proposal with reasons.

Signature

Name

Official Seal

Date:-_____

Place:-_____

PART-III

(To be filled by the concerned Conservator of Forests)

10. Whether site, where the forest land involved is located has been inspected by concerned Conservator of Forests (Yes/No). If yes, the date of inspection & observations made in form of inspection note to be enclosed.

11. Whether the concerned Conservator of Forests agree with the information given in Part-B and the recommendations of Deputy Conservator of Forests.

12. Specific recommendation of concerned Conservator of Forests for acceptance or otherwise of the proposal with detailed reasons.

Signature

Name

Official Seal

Date:-_____

Place:-_____

PART-IV

(To be filled in by the Nodal Officer or Principal Chief Conservator of Forests or Head of Forest department)

13. Detailed opinion and specific recommendation of the State Forest Department for acceptance of otherwise of the proposal with remarks.

(While giving opinion, the adverse comments made by concerned Conservator of Forests or Deputy Conservator of Forests should be categorically reviewed and critically commented upon).

Signature

Name & Designation

(Official Seal)

Date:-_____

Place:-_____

PART- V

(To be filled in by the Secretary in charge of Forest Department or by any other authorised officer of the State Government not below the rank of an Under Secretary)

14. Recommendation of the State Government:

(Adverse comments made by any officer or authority in Part-B or Part-C or Part-D above should be specifically commented upon)

Signature

Name & Designation

(Official Seal)

Date:-_____

Place:-_____

INSTRUCTIONS (for Part-I):-

(xii) The project authorities may annex a copy of the approved project/plan in addition to filling Col. 2 (i) e.g. IBM approved mining plan for major minerals/CMPDI plan with subsidence analysis reports, etc.
(xiii) Map has to be in original duly authenticated jointly by project authorities and concerned DCF – Col. 2 (ii).
(xiv) In case the same company/individual has taken forest land for similar project in the State, a brief detail of all such approvals/leases be given as an enclosure along with current status of the projects.
(xv) Item-wise requirement (Col. 3) should be separately shown for broken up and fresh areas.
(xvi) The latest clarifications issued by the Ministry under Forest (Conservation) Act, 1980 may be kept in mind.
In case such information do not fit in the given columns, the same shall be annexed separately.

GENERAL INSTRUCTIONS:-

1. On receipt of proposal, Nodal Officer shall issue a receipt to the user agency indicating therein the name of the proposal, user agency, area in hectare, serial number and date of receipt.
2. If the space provided above is not sufficient to specify any information, please attach separate details/documents.
3. While forwarding the proposal to the Central Government, complete details on all aspects of the case as per Form prescribed above read with the clarifications issued by the Ministry of Environment and Forests, Government of India, New Delhi should be given. Incomplete or deficient proposals shall not be considered and shall be returned to the State Government in original.
4. The State Government shall submit the proposal to the Central Government within stipulated time limits. In case of delay while forwarding, the reasons for the same to be given in the forwarding/covering letter.

APPENDIX 3: APPLICABLE STANDARDS

CENTRAL POLLUTION CONTROL BOARD
APPLICABLE ENVIRONMENTAL STANDARDS

General Standards for Discharge of Environmental Pollutants: Effluents

Sl.no	Parameter	Standards			
		Inland surface water	Public sewers	Land of irrigation	Marine/coastal areas
	(a)	(b)	(c)	(d)	
1.	Color and odor	remove as far as practicable			
2.	Suspended solids mg/l, maximum.	100	600	200	(a) For process waste water 100 (b) For cooling water effluent 10% above total suspended matter of influent.
3.	Particle size of suspended solids	shall pass 850 micron IS Sieve			(a) Floatable solids, maximum, 3 mm. (b) Settable solids (maximum 850 micron)
4.	pH value	5.5. to 9.0	5.5 - 9.0	5.5 - 9.0	5.5 - 9.0
5.	Temperature	shall not exceed 5 °C above the receiving water temperature			shall not exceed 5 °C above the receiving water temperature
6.	Oil and grease, mg/l, maximum.	10	20	10	20
7.	Total residual chlorine, mg/l, maximum.	1.0			1.0
8.	Ammonical nitrogen (as N.) mg/l, maximum.	50	50		50
9.	Total Kjeldahl Nitrogen (as NH_3) mg/l, maximum.	100			100
10.	Free ammonia (as NH_3), mg/l, maximum.	5.0			5.0
11.	Biochemical oxygen demand (3 days at 27 °C), mg/l, maximum.	30	350	100	100
12.	Chemical oxygen demand, mg/l, maximum.	250			250
13.	Arsenic (as As) mg/l, maximum.	0.2	0.2	0.2	0.2
14.	Mercury (As Hg), mg/l, maximum.	0.01	0.01		0.01
15.	Lead (as Pb) mg/l, maximum.	0.1	1.0		2.0
16.	Cadmium (as Cd) mg/l. maximum.	2.0	1.0		2.0
17.	Hexavalent chromium (as Cr. +6). mg/l, maximum.	0.1	2.0		1.0

Sl.no	Parameter	Standards			
		Inland surface water	Public sewers	Land of irrigation	Marine/coastal areas
18.	Total Chromium (as Cr) mg/l, maximum.	2.0	2.0		2.0
19.	Copper (as Cu) mg/l, maximum.	3.0	3.0		3.0
20.	Zinc (as Zn) mg/l, maximum.	5.0	15		15
21.	Selenium (as Se) mg/l, maximum.	0.05	0.05		0.05
22.	Nickel (as Ni) mg/l, maximum.	3.0	3.0		5.0
23.	Cyanide (as CN) mg/l, maximum.	0.2	2.0	0.2	0.2
24.	Fluoride (as F) mg/l, maximum.	2.0	15		15
25.	Dissolved phosphates (as P) mg/l, maximum.	5.0			
26.	Sulfide (as S) mg/l, maximum.	2.0			5.0
27.	Phenolic compounds (as C_6H_5OH) mg/l, maximum.	1.0	5.0		5.0
28.	Radioactive materials: (a) Alfa emitters micro curie/ml, maximum. (b) Beta emitters micro curie/ml, maximum.	10^{-7} 10^{-6}	10^{-7} 10^{-6}	10^{-8} 10^{-7}	10^{-7} 10^{-6}
29.	Bio-assay test	90% Survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
30.	Manganese (as Mn)	2 mg/l	2 mg/l		2 mg/l
31.	Iron (as Fe)	3 mg/l	3 mg/l		3 mg/l
32.	Vanadium (as V)	0.2 mg/l	0.2 mg/l		0.2 mg/l
33.	Nitrate Nitrogen	10 mg/l			20 mg/l

mg/l = milligram per litre, mm = millimetre.

Note: These standards shall be applicable for industries, operations or process other than those industries operations or process for which standards have been specified in schedule of the Environment Protection Rules, 1989.

Central Pollution Control Board Primary Water Quality Criteria

Designated-Best-Use	Class of Water	Criteria
Drinking Water Source without conventional treatment but after disinfection	**A**	❖ Total Coliform Organisms: MPN □ 50 per 100 Ml ❖ 6.5 □ pH □ 8.5 ❖ Dissolved Oxygen: □6 mg/l ❖ Biochemical Oxygen Demand (5 days @ 20 °C): □ 2 mg/L
Outdoor bathing (organized)	**B**	❖ Total Coliform Organisms: MPN □ 500 per 100 ml ❖ 6.5 □ pH □ 8.5 ❖ Dissolved Oxygen: □5 mg/l ❖ Biochemical Oxygen Demand (5 days @ 20 °C): □ 3 mg/l
Drinking water sources after conventional treatment and disinfection	**C**	❖ Total Coliform Organisms: MPN □ 5000 per 100 ml ❖ 6 □ pH □ 9 ❖ Dissolved Oxygen: □4 mg/l ❖ Biochemical Oxygen Demand (5 days @ 20 °C): □ 3 mg/l
Propagation of wildlife and fisheries	**D**	❖ 6.5 □ pH □ 8.5 ❖ Dissolved Oxygen: □4 mg/l ❖ Free ammonia (as N): □ 1.2 mg/l
Irrigation, industrial cooling, controlled waste disposal	**E**	❖ □ pH □ 8.5 ❖ Electrical conductivity at 25 °C: □2250 micro mhos/cm ❖ Sodium absorption ratio: Maximum 26 ❖ Boron: Maximum 2 mg/l

Indian Standards for Drinking Water - Specification (BIS 10500: 1991)

Sl.No	Substance or Characteristic	Requirement (Desirable Limit)	Permissible Limit in the absence of Alternate source
Essential characteristics			
1.	Color, (Hazen units, maximum)	5	25
2.	Odor	Unobjectionable	Unobjectionable
3.	Taste	Agreeable	Agreeable
4.	Turbidity (NTU, maximum)	5	10
5.	pH Value	6.5 - 8.5	No Relaxation
6.	Total Hardness (as $CaCo_3$) mg/l, maximum	300	600
7.	Iron (as Fe) mg/l, maximum	0.3	1.0
8.	Chlorides (as Cl) mg/l, maximum.	250	1000
9.	Residual, free chlorine, mg/l, minimum	0.2	--
Desirable Characteristics			
10.	Dissolved solids mg/l, maximum	500	2000
11.	Calcium (as Ca) mg/l, maximum	75	200
12.	Magnesium (as Mg)mg/l, maximum.	30	100

Sl.No	Substance or Characteristic	Requirement (Desirable Limit)	Permissible Limit in the absence of Alternate source
13.	Copper (as Cu) mg/l, maximum	0.05	1.5
14.	Manganese (as Mn)mg/l, maximum	0.10	0.3
15.	Sulfate (as SO_4) mg/l, maximum	200	400
16.	Nitrate (as NO_3) mg/l, maximum	45	100
17.	Fluoride (as F) mg/l, maximum	1.0	1.5
18.	Phenolic Compounds (as C_6H_5OH) mg/l, maximum.	0.001	0.002
19.	Mercury (as Hg)mg/l, maximum	0.001	No relaxation
20.	Cadmiun (as Cd)mg/l, maximum	0.01	No relaxation
21.	Selenium (as Se)mg/l,maximum	0.01	No relaxation
22.	Arsenic (as As) mg/l, maximum	0.05	No relaxation
23.	Cyanide (as CN) mg/l, maximum	0.05	No relaxation
24.	Lead (as Pb) mg/l, maximum	0.05	No relaxation
25.	Zinc (as Zn) mg/l, maximum	5	15
26.	Anionic detergents (as MBAS) mg/l, maximum	0.2	1.0
27.	Chromium (as Cr^{6+}) mg/l, maximum	0.05	No relaxation
28.	Polynuclear aromatic hydro carbons (as PAH) g/l, maximum	--	--
29.	Mineral Oil mg/l, maximum	0.01	0.03
30.	Pesticides mg/l, maximum	Absent	0.001
31	Radioactive Materials		
	i. Alpha emitters Bq/l, maximum	--	0.1
	ii. Beta emitters pci/l,maximum	--	1.0
32	Alkalinity mg/l. maximum	200	600
33	Aluminium (as Al) mg/l,maximum	0.03	0.2
34	Boron mg/l, maximum	1	5

Ambient Air Quality Standards

Pollutant	Time Weighted Average	Industrial, Residential, Rural and Other Areas	Sensitive Area (Notified by Central Government)	Method of Measurement
Sulphur Dioxide (SO_2)	Annual Average[a] 24 hours Average[b]	50 µg/m^3 80 µg/m^3	20 µg/m^3 80 µg/m^3	• Improved West & Gaeke method • Ultraviolet Fluorescence
Oxides of Nitrogen (NO_X)	Annual Average[a] 24 hours Average [b]	40 µg/m^3 80 µg/m^3	30 µg/m^3 80 µg/m^3	• Jacobs & Hochheiser modified (NaoH– $NaAsO_2$) method • Gas Chemiluminiscence
Particulate Matter (PM_{10}) (Size <10 µm)	Annual Average[a] 24 hours Average[b]	60 µg/m^3 100 µg/m^3	60 µg/m^3 100 µg/m^3	• Gravimetric • TOEM • Beta Attenuation
Particulate Matter ($PM_{2.5}$) (Size <2.5 µm)	Annual Average[a] 24 hours Average [b]	40 µg/m^3 60 µg/m^3	40 µg/m^3 60 µg/m^3	• Gravimetric • TOEM • Beta Attenuation
Ozone (O_3)	8 hours average[b] 1 hour[b]	100 µg/m^3 180 µg/m^3	100 µg/m^3 180 µg/m^3	• UV photometric • Chemiluminiscence • Chemical method
Lead (Pb)	Annual Average[a] 24 hours Average[b]	0.5 µg/m^3 1.0 µg/m^3	0.5 µg/m^3 1.0 µg/m^3	• AAS method after sampling using EPM 2000 or equivalent filter paper
Carbon Monoxide (CO)	8 hours Average[b] 1 hour[b]	2.0 mg/m^3 4.0 mg/m^3	2.0 mg/m^3 4.0 mg/m^3	• Non Dispersive Infrared Spectroscopy
Ammonia (NH_3)	Annual Average[a] 24 hours Average[b]	100 µg/m^3 400 µg/m^3	100 µg/m^3 400 µg/m^3	• Chemiluminiscence • Indophenol blue method
Benzene (C_6H_6)	Annual Average[a]	5 ng/m^3	5 ng/m^3	• Gas Chromatography continuous analyzer • Adsorption & desorption followed by GC analysis
Benzo(o)pyrene particulate phase only	Annual Average[a]	1 ng/m^3	1 ng/m^3	• Solvent extraction followed by GC/HPLC analysis
Arsenic (As)	Annual Average[a]	6 ng/m^3	6 ng/m^3	• AAS/ICP method after sampling using EPM 2000 or equivalent filter paper
Nickel (Ni)	Annual Average[a]	20 ng/m^3	20 ng/m^3	• AAS/ICP method after sampling using EPM 2000 or equivalent filter paper

AAC = Average Annual Concentration, EPM = EMP 2000 High Volume Sampler Filter Paper, GC = Gas Chromatography, HPLC = High Pressure Liquid Chromatography ,

[a] Indicate Annual Arithmetic Mean of Minimum 104 measurement in a year measured twice a week, 24 hourly at uniform intervals.

[b] 24 hourly / 8 hourly/1 hourly values should be met 98% of the time in a year. However, 2% of the time, it may exceed by not on two consecutive days.

Source: Central Pollution Control Board, New Delhi, Notification dated 18th November 2009.

Standards for Diesel Generator Sets: Stack Height

The minimum height of stack to be provided with each generator set can be worked out using the following formula:

$H = h+0.2x \sqrt{KVA}$
H = Total height of stack in metre
h = Height of the building in metres where the generator set is installed
KVA = Total generator capacity of the set in KVA
Based on the above formula the minimum stack height to be provided with different range of generator sets may be categorized as follows:

For Generator Sets	Total Height of stack in metre
50 KVA	Height of the building + 1.5 metre
50-100 KVA	Height of the building + 2.0 metre
100-150 KVA	Height of the building + 2.5 metre
150-200 KVA	Height of the building + 3.0 metre
200-250 KVA	Height of the building + 3.5 metre
250-300 KVA	Height of the building + 3.5 metre

Similarly for higher KVA ratings a stack height can be worked out using the above formula.

Noise Standards

Noise limits for domestic appliances and construction equipments at the manufacturing stage in dB(A).

Window air conditioners of 1 -1.5 tonne	68
Air coolers	60
Refrigerators	46
Diesel generator for domestic purposes	85
Compactors (rollers), front loaders, concentrate mixers, cranes (movable), vibrators and saws	75

National Ambient Noise Standards
The Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area	Limit in dB(A) Leq[a]	
		Day Time	Night Time
A.	Industrial area	75	70
B.	Commercial area	65	55
C.	Residential area	55	45
D.	Silence zone	50	40

[a] dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. A “decibel” is a unit in which noise is measured. “A”, in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear. Leq is an energy mean of the noise level over a specified period.

Notes:
Day time is reckoned in between 6 a.m. and 10 p.m.
Night time is reckoned in between 10 PM and 6 AM.
Silence zone is an area comprising not less than 100 m around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority
Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

APPENDIX 4

ASIAN DEVELOPMENT BANK'S RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

Nainital Water Supply Subproject

A. Screening Questions for Impact Categorization

Check the appropriate box (e.g. ☒ by double-clicking the box and selecting 'checked' in default vale)

Screening Questions	Yes/No	Remarks
A. Project Siting Is the project area?		
Densely populated?	☒Yes ☐No	Distribution network will extend to entire town. Ninital is densely populated hill town surrounded by hilly forest areas.
Heavy with development activities?	☐Yes ☒No	There are no major development activities
Adjacent to or within any environmentally sensitive areas?	☐Yes ☒No	No; however most of the hills in and around the town are under forests. Some of the pipelines, laid from outside the town pass through these areas. No impact however is envisaged due to the proposed pipelines. All the 4 D.G.sets shall be installed within the premises of Jal Sanstahn,no impact shall be envisaged due to installation of 4 D.G sets.
Cultural heritage site	☐Yes ☒No	There is no cultural heritage site in the project area.
Protected Area	☐Yes ☒No	There are forests within the town limits; some distribution lines likely pass through forests.
Wetland	☐Yes ☒No	No
Mangrove	☐Yes ☒No	No
Estuarine	☐Yes ☒No	No
Buffer zone of protected area	☒Yes ☐No	No
Special area for protecting biodiversity	☐Yes ☒No	No
Bay	☐Yes ☒No	No

Screening Questions	Yes/No	Remarks
Potential Environmental Impacts Will the Project cause…		
Pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?	☐Yes ☒No	Subproject involves no source development/ augmentation. There is no risk of pollution for existing sources
Impairment of historical / cultural monuments / areas and loss / damage to these sites?	☐Yes ☒No	There is no historical / cultural monument in the project location.
Hazard of land subsidence caused by excessive ground water pumping?	☐Yes ☒No	No source augmentation proposed in the subproject
Social conflicts arising from displacement of communities?	☐Yes ☒No	The subproject does not involve land acquisition or displacement.
Conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?	☐Yes ☒No	No source augmentation proposed in the subproject
Unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?	☐Yes ☒No	Raw water is fit for drinking after conventional treatment/disinfection. Raw water testing before and after treatment is routine practice by Jal Sansthan.
Delivery of unsafe water to distribution system?	☐Yes ☒No	Raw water will be given adequate treatment prior to supply into distribution system.
Inadequate protection of intake works or wells, leading to pollution of water supply?	☐Yes ☒No	Subproject involves no source development/ augmentation. There is no risk of pollution for existing sources
Over pumping of ground water, leading to salinization and ground subsidence?	☐Yes ☒No	Subproject involves no source development/ augmentation. The extraction will be at the existing levels.
Excessive algal growth in storage reservoir?	☐Yes ☒No	Regular cleaning of storage reservoir shall be ensured to avoid algal growth in the reservoir.
Increase in production of sewage beyond capabilities of community facilities?	☐Yes ☒No	Sewerage system of adequate capacity including treatment will be developed under the investment program
Inadequate disposal of sludge from water treatment plants?	☐Yes ☒No	No WTP is proposed in the subproject
Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?	☒Yes ☐No	No pumpng stations are proposed in the subproject
Impairments associated with transmission lines and access roads?	☒Yes ☐No	Temporary impairment with access roads is anticipated during construction. Restoration of damaged roads will be ensured as soon as the work is completed. Diversions shall be provided with consultation with local people where blocking of roads is needed.

Screening Questions	Yes/No	Remarks
Health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.	☐Yes ☒No	No such facilities proposed in the subproject
Health and safety hazards to workers from the management of chlorine used for disinfection and other contaminants?	☐Yes ☒No	No such facilities proposed in the subproject
Dislocation or involuntary resettlement of people	☐Yes ☒No	Subproject does not involve land acquisition or displacement. However, there may be temporary disturbance to business and squatters/vendors during construction. Appropriate measures will be suggested to mitigate the impact.
Social conflicts between construction workers from other areas and community workers?	☐Yes ☒No	Local workers shall be encouraged for engaging for different construction activities.
Noise and dust from construction activities?	☒Yes ☐No	Short term impact on air quality due to dust generation during construction activities is anticipated. Appropriate dust suppression measures will be taken to minimize dust generation due to construction activities at site. No significant increase in noise level is anticipated due to construction. All equipment and machineries will conform to the Statutory norms.
Continuing soil erosion / silt runoff from construction operations?	☒Yes ☐No	Construction activities (pipe laying, etc.) on hill slopes may increase the chance of land slide and soil erosion. Careful stacking of excavated materials will be ensured to avoid slippage and erosion especially on hill slopes. Construction work during monsoon shall be carried out with due care so that silt run off due to construction operation is prevented. No construction will be allowed during rains.
Increased road traffic due to interference of construction activities?	☒Yes ☐No	Proper traffic management and planning will be ensured during construction.
Delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?	☐Yes ☒No	Trained and skilled staff will be deployed for O&M. Also, quality of treated water will be regularly monitored through water sample testing to ensure delivery of safe water to consumers.
Delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?	☐Yes ☒No	GI and DI pipes will be used for distribution system and are non corrosive in nature.
Accidental leakage of chlorine gas?	☐Yes ☒No	Only liquid chlorine will be used.
Excessive abstraction of water affecting downstream water users?	☐Yes ☒No	Subproject involves no source augmentation
Competing uses of water?	☐Yes ☒No	No

Screening Questions	Yes/No	Remarks
Increased sewage flow due to increased water supply	☒Yes ☐No	Upgradation of sewerage system and sewage treatment facilities will be taken up under ADB program.
Increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant	☒Yes ☐No	Upgradation of sewerage system and sewage treatment facilities will be taken up under ADB program.
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?	☐Yes ☒No	No such impact anticipated; local communities in the vicinity of the project would be employed as much as possible.
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 operation and construction?	☐Yes ☒No	Not applicable. Construction will not involve use of explosives and chemicals.
Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	☐Yes ☒No	Operational area will be clearly demarcated and access will be controlled. Only worker and project concerned members will be allowed to visit the operational sites. During operation no such issues anticipated.

Climate Change and Disaster Risk Questions The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.	Yes	No	Remarks
Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes (see Appendix I)?	√		According to hazard zoning in the Vulnerability Atlas of India, the whole of Uttarakhand falls under “very high” to “high” category earthquake zone. The alignment of pipeline carrying water will pass through undulating hilly terrain. Necessary precautions are to be taken for protection of pipeline in hilly area. Adequate protection measures for vulnerable landslide zones will be taken.
Could changes in temperature, precipitation, or extreme events patterns over the Project lifespan affect technical or financial sustainability (e.g., changes in rainfall patterns disrupt reliability of water supply; sea level rise creates salinity intrusion into proposed water supply source)?		√	No such possibility within the lifespan of the project
Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?		√	No
Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by using water from a vulnerable source that is relied upon by many user groups, or encouraging settlement in earthquake zones)?		√	No such possibility of vulnerability increase of the surrounding area.

Appendix- 5 Office Order for GRC in Nainital

Uttarakhand Urban Sector Development Investment Program
Government of Uttarakhand
777, Saatvik Tower Opp. Hotel LP Residency, Rajindera Nagar, Kaulagarh Road, Dehradun
Telephone +91-135-2643894, Tele-fax +91-135-2643895 Email: uusdip@gmail.com

Ref: UUSDIP/ENV/ 1206 Dated: 11/11/2017

Office Order

Since the execution of work of reorganization of water supply and O&M in Nainital town has reached to an advanced stage, the number of public concerns and grievances needs to be addressed on day to day basis, needs an urgent attention by the concerning officers is required.

The program is attempting to record the public grievances from the community in multiple ways, so that its quick redressal is undertaken in a time bound manner. Keeping the above in mind, the Grievance Redressal Cell (GRC) needs to be strengthen by :-

1. Community Mobilisers will record the complaints through direct interaction with the public or sites and submit the grievance to the concerned officers.
2. Contact numbers of the concerned staff packages of PIU, Nainital will be provided to the general public for early follow up of the grievances.

In this regard a **Grievance Redressal Cell (GRC)** is being constituted in the PIU, Nainital comprising of the following Staff/ Public Officers:

1. **Project Manager, PIU-Nainital** henceforth will be in charge of the GRC.
2. A Computer Operator from PIU-Nainital will be assigned duty for registering and compiling, all the grievances for putting up before the concerning authority.
3. Environmental Officer and IECO from IPMU, Dehradun will oversee the grievances under overall supervision of **Deputy Program Director-2 (Shri. Ravi Pandey)**.
4. Community Mobilisers will work as representatives/ grievances (Social, Environmental and Safety) receiver, from the community.

The GRC w.e.f. 10th November 2017 and will put up the compilation of all the concern, complaints and grievances. They all should be registered, recorded ,attended and closed, along with pending cases on weekly basis, having co-ordination with the Executive Engineer of UJS-Nainital (as list of sub-projects developed by UUSDIP has been handed over to the UJS) and Deputy Program Director-2 of UUSDIP.

Encl. List of sub-projects handed over to Uttarakhand Jal Sansthan is annexed in Annexure-I.

(Jharna Kamthan)
Additional Program Director

C.C. for information and necessary action.
1. Deputy Program Director-2, UUSDIP.
2. Executive Engineer of UJS, Nainital.
3. Project Manager, PIU, Nainital.
4. Environmental Officer, IPMU, UUSDIP.
5. IECO, IPMU, UUSDIP.

Additional Program Director

APPENDIX 6 : List of Participant of Focused Group Discussions & Photographs

20-11-2017

UUSDA

Public Consultation Forms

Name of the Agency: PIU, U.U.S.D.I.P नैनीताल

Name of the subproject: नैनीताल पेयजल योजना

Name of the site: हरिनगर (नैनीताल)

Location where Public consultations conducted: हरिनगर (नैनीताल)

S.No	Name of the Person along with signature to whom you met	Mobile No	Issues Raised	Follow up Action
1-	[illegible]	9458956264	जल संस्थान पर	
2.	देवेन्द्र आर्या	9557703906	चर्चा।	
3-	अरुण पाल	7579096429	〃 〃	
4-	राधा देवी	9458313893	〃 〃	
5	[illegible]	9458956146	〃 〃	
6	[illegible]	9557756590	〃 〃	
7	[illegible]	9758143784	〃 〃	
8	[illegible]	9410377200	〃 〃	
9-	[illegible]	9837982573	〃 〃	
10-	[illegible]	9568315837	〃 〃	
11-	[illegible]	9917772604	मीटर नहीं लगा	
12-	[illegible]		〃 〃	
13-	[illegible]		〃 〃	
14-	[illegible]		〃 〃	
15	[illegible]	9917772604	〃 〃	
16-	[illegible]	9410334740	〃 〃	
17-	[illegible]	9410349623	〃 〃	
18-	Ramesh	7409341647	〃 〃	

20-11-2017

UUSDA

Public Consultation Forms

Name of the Agency: PIU, U.USDIP नैनीताल

Name of the subproject: नैनीताल पेयजल योजना

Name of the site: हरिनगर (नैनीताल

Location where Public consultations conducted: हरिनगर (नैनीताल)

S.No	Name of the Person along with signature to whom you met	Mobile No	Issues Raised	Follow up Action
20-	Matadash मञ्जू	9761369751	जल संरक्षण पर	
21-	प्रीती प्रीति		चर्चा।	
22	अनुराधा अनुराधा		" "	
23	मञ्जू मञ्जू		" "	
24-	पूनम पूनम		" "	
25	संगीता संगीता		" "	
26-	सुनीता सुनीता		" "	
27.	आशा		" "	
28-	मीनू		" "	
29.	मनोज		" "	
30	मीनाक्षी		" "	
31	नीमा रवेलिया		" "	
32	रेखा रेखा		" "	
33				
34				
35				
36				
37				

DDM

Photographs of Public Consultants in Nainital

Appendix 7 - CONSENT TO ESTABLISHMENT OF 4 DG SETS

WSSDG01N
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Dt-20/10/2016

उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड
क्षेत्रीय कार्यालयः आवास विकास कालोनी, हल्द्वानी (नैनीताल)।
UEPPCB
Ph No.- 05946-225618, 221532

Ref:UEPPCB/ROH/NOC/16/1548-52B

दिनांक 18/10/16

सेवा में,

Registered/AD

M/s Uttrakhand Urban Sector Development Agency
Old Water Pump House
Nainital.

PCB ID-20710
CTE- fresh
CTE- 16661

विषय–पर्यावरणीय प्रदूषण की दृष्टि से नई इकाई की स्थापना हेतु अनापत्ति प्रमाण पत्र निर्गमन।

महोदय,

उपरोक्त विषयक अपने आवेदन पत्र दि. 21.09.16 तथा Inward No–64436 का सन्दर्भ लें। आपके आवेदन पत्र पर विचार किया गया। उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तों एवं सामान्य शर्तों के समुचित अनुपालन के साथ सशर्त अनापत्ति स्वीकृत की जाती है।

1. अनापत्ति पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है।
   (क) स्थल : Old Water Pump House, Nainital.
   (ख) उत्पादन :डी.जी सेट 380 के.वी.ए.।
   (ग) मुख्य कच्चा माल–एच.एस.डी.।
   (घ) औद्योगिक उत्प्रवाह की मात्राः शून्य
   (ड.) प्रयुक्त ईंधन : डीजल (380 के.वी.ए. क्षमता के डी.जी. सेट हेतु)।
   उपयुक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः अनापत्ति प्रमाण पत्र प्राप्त करना वश्यक होगा।
2. इकाई (डी.जी. सेट) का संचालन तब तक प्रारम्भ न करे, जब तक की बोर्ड से जल एव वायु अधिनियमों के अन्तर्गत सहमति प्राप्त न कर लें। जल एवं वायु सहमति प्राप्त करने हेतु इकाई में उत्पादन आवास प्रारम्भ करने की तिथि से कम से कम 2 माह पहले निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्य ही जमा कर दिया जाय, यदि डवलपर उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्राविधानों के अन्तर्गत उद्योग के विरूद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।
   इकाई (डी.जी. सेट) संचालन से पूर्व हमारे क्षेत्रीय कार्यालय द्वारा निरीक्षण सुनियोजित किया जाय।
   ह अनापत्ति मात्र 380 के.वी.ए. क्षमता के डी.जी. सेट हेतु मान्य है, जिसे एकास्टिवः इनक्लोजरयुक्त कया जाये तथा संलग्न चिमनी की ऊँचाई बोर्ड मानकों के अनुरूप स्थापित की जाये।
   ह अनापत्ति मात्र हरी श्रेणी हेतु मान्य है।
   ावित इकाई (डी.जी. सेट) का स्थापना इस प्रकार की जाये, ताकि परिवेशीय ध्वनि स्तर एवं वेशीय वायु गुणवत्ता सदैव पर्यावरण (संरक्षण)अधिनियम–1986 यथा संशोधित मानको के अनुरूप अन्यथा की स्थिति में यह सहमति स्वतः निरस्त समझी जाये।
   वित इकाई (डी.जी.सेट) की स्थापना हेतु स्थानीय प्रशासन एवं अन्य सभी सम्बन्धित विभागों से त्ति/सहमति/अनुमति प्राप्त किया जाना सुनिश्चित किया जाये।

8. यह अनापत्ति प्रमाण पत्र अन्य विभागों, उद्योग विभाग के अनुमन्य रजिस्ट्रेशन एवं सक्षम अनुमति प्राप्त करने के उपरान्त ही मान्य होगी।
9. यह अनापत्ति प्रमाण पत्र पाँच वर्ष के लिए वैद्य है।

कृपया ध्यान दें कि उपरोक्त लिखित विशिष्ट शर्तों एवं सामान्य शर्तों का प्रभावी एवं सं अनुपालन न करने पर बोर्ड द्वारा निर्गत अनापत्ति प्रमाण पत्र निरस्त कर दिया जायेगा। उपर्युक्त वि सामान्य शर्तो के सम्बन्ध में उद्योग द्वारा इस कार्यालय में दि. 31.10.16 तक प्रथम अनुपालन आख्या की जाये। अनुपालन आख्या नियमित प्रेषित की जाय, अन्यथा अनापत्ति प्रमाण पत्र निरस्त कर जायेगा।

भवदीय

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क्षेत्रीय अधिक

पृ0 सं0 एवं दिनांक उपरोक्तानुसार।
प्रतिलिपि–सदस्य सचिव महोदय, उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड, देहरादून सूचनार्थ प्रेषित।

क्षेत्रीय अधिव

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दि. 20/10/16

उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड।

क्षेत्रीय कार्यालयः आवास विकास कालोनी, हल्द्वानी (नैनीताल)।

UEPPCB

Ph No.- 05946-225618, 221532

Ref:UEPPCB/ROH/NOC/16/1551-551 दिनांक 18/10/16

Registered/AD

सेवा में,

M/s Uttrakhand Urban Sector Development Agency
Phansi Gadhera, Tallital
Nainital.

PCB ID-20711
CTE- fresh
CTE- 16659

विषय–पर्यावरणीय प्रदूषण की दृष्टि से नई इकाई की स्थापना हेतु अनापत्ति प्रमाण पत्र निर्गमन।

महोदय,

उपरोक्त विषयक अपने आवेदन पत्र दि. 21.09.16 तथा Inward No–64437 का सन्दर्भ लें। आपके आवेदन पत्र पर विचार किया गया। उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तों एवं सामान्य शर्तों के समुचित अनुपालन के साथ सशर्त अनापत्ति स्वीकृत की जाती है।

1. अनापत्ति पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है।
   (क) स्थल : Phansi Gadhera, Tallital, Nainital.
   (ख) उत्पादन :डी.जी. सेट 160 के.वी.ए.।
   (ग) मुख्य कच्चा माल–एच.एस.डी.।
   (घ) औद्योगिक उत्प्रवाह की मात्राः शून्य
   (ड.) प्रयुक्त ईधन : डीजल (160 के.वी.ए. क्षमता के डी.जी. सेट हेतु)।

   उपयुक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः अनापत्ति प्रमाण पत्र प्राप्त करना आवश्यक होगा।
2. इकाई (डी.जी. सेट) का संचालन तब तक प्रारम्भ न करे, जब तक की बोर्ड से जल एव वायु अधिनियमों के अन्तर्गत सहमति प्राप्त न कर लें। जल एवं वायु सहमति प्राप्त करने हेतु इकाई में उत्पादन आवास प्रारम्भ करने की तिथि से कम से कम 2 माह पहले निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्य ही जमा कर दिया जाय, यदि डवलपर उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्राविधानों के अन्तर्गत उद्योग के विरूद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।
3. इकाई (डी.जी. सेट) संचालन से पूर्व हमारे क्षेत्रीय कार्यालय द्वारा निरीक्षण सुनियोजित किया जाय।
4. यह अनापत्ति मात्र 160 के.वी.ए. क्षमता के डी.जी. सेट हेतु मान्य है, जिसे एकास्टिक इनक्लोज़रयुक्त किया जाये तथा संलग्न चिमनी की ऊँचाई बोर्ड मानकों के अनुरूप स्थापित की जाये।
5. यह अनापत्ति मात्र हरी श्रेणी हेतु मान्य है।
6. प्रस्तावित इकाई (डी.जी. सेट) का स्थापना इस प्रकार की जाये, ताकि परिवेशीय ध्वनि स्तर एवं परिवेशीय वायु गुणवत्ता सदैव पर्यावरण (संरक्षण)अधिनियम–1986 यथा संशोधित मानको के अनुरूप रहे, अन्यथा की स्थिति में यह सहमति स्वतः निरस्त समझी जाये।
7. प्रस्थावित इकाई (डी.जी.सेट) की स्थापना हेतु स्थानीय प्रशासन एवं अन्य सभी सम्बन्धित विभागों से अनापत्ति/सहमति/अनुमति प्राप्त किया जाना सुनिश्चित किया जाये।

8. यह अनापत्ति प्रमाण पत्र अन्य विभागों, उद्योग विभाग के अनुमन्य रजिस्ट्रेशन एवं अनुमति प्राप्त करने के उपरान्त ही मान्य होगी।

9. यह अनापत्ति प्रमाण पत्र पॉच वर्ष के लिए वैद्य है।

कृपया ध्यान दें कि उपरोक्त लिखित विशिष्ट शर्तों एवं सामान्य शर्तों का प्रभावी ए
अनुपालन न करने पर बोर्ड द्वारा निर्गत अनापत्ति प्रमाण पत्र निरस्त कर दिया जायेगा। उपर्यु
सामान्य शर्तो के सम्बन्ध में उद्योग द्वारा इस कार्यालय में दि. 31.10.16 तक प्रथम अनुपालन
की जाये। अनुपालन आख्या नियमित प्रेषित की जाय, अन्यथा अनापत्ति प्रमाण पत्र नि
जायेगा।

(डा0
क्षेत्रीय

पृ0 सं0 एवं दिनांक उपरोक्तानुसार।

प्रतिलिपि--सदस्य सचिव महोदय, उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड, देह
सूचनार्थ प्रेषित।

क्षेत्रीय

UISSDA/N
32
1020
Dt. 20/10/16

उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड।

क्षेत्रीय कार्यालयः आवास विकास कालोनी, हल्द्वानी (नैनीताल)।

UEPPCB Ph No.- 05946-225618, 221532

Ref:UEPPCB/ROH/NCC/16/1550-530 दिनाक 18/10/16

Registered/AD

PCB ID-20712
CTE- fresh
CTE- 16685

सेवा में,

M/s Uttrakhand Urban Sector Development Agency
Sukhatal Pump House
Nainital.

विषय–पर्यावरणीय प्रदूषण की दृष्टि से नई इकाई की स्थापना हेतु अनापत्ति प्रमाण पत्र निर्गमन।

महोदय,

उपरोक्त विषयक अपने आवेदन पत्र दि. 21.09.16 तथा Inward No–64438 का सन्दर्भ लें। आपके आवेदन पत्र पर विचार किया गया। उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तों एवं सामान्य शर्तों के समुचित अनुपालन के साथ सशर्त अनापत्ति स्वीकृत की जाती है।

1. अनापत्ति पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है।
   (क) स्थल : Sukhatal Pump House.
   (ख) उत्पादन :डी.जी. सेट 250 के.वी.ए.।
   (ग) मुख्य कच्चा माल–एच.एस.डी.।
   (घ) औद्योगिक उत्प्रवाह की मात्राः शून्य
   (ड.) प्रयुक्त ईंधन : डीजल (250 के.वी.ए. क्षमता के डी.जी. सेट हेतु)।

   उपयुक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः अनापत्ति प्रमाण पत्र प्राप्त करना आवश्यक होगा।
2. इकाई (डी.जी. सेट) का संचालन तब तक प्रारम्भ न करे, जब तक की बोर्ड से जल एव वायु अधिनियमों के अन्तर्गत सहमति प्राप्त न कर लें। जल एवं वायु सहमति प्राप्त करने हेतु इकाई में उत्पादन आवास प्रारम्भ करने की तिथि से कम से कम 2 माह पहले निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्य ही जमा कर दिया जाय, यदि डवलपर उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्राविधानों के अन्तर्गत उद्योग के विरूद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।
3. इकाई (डी.जी. सेट) संचालन से पूर्व हमारे क्षेत्रीय कार्यालय द्वारा निरीक्षण सुनियोजित किया जाय।
4. यह अनापत्ति मात्र 250 के.वी.ए. क्षमता के डी.जी. सेट हेतु मान्य है, जिसे एकास्टिक इनक्लोजरयुक्त किया जाये तथा संलग्न चिमनी की ऊँचाई बोर्ड मानकों के अनुरूप स्थापित की जाये।
5. यह अनापत्ति मात्र हरी श्रेणी हेतु मान्य है।
6. प्रस्तावित इकाई (डी.जी. सेट) का स्थापना इस प्रकार की जाये, ताकि परिवेशीय ध्वनि स्तर एवं परिवेशीय वायु गुणवत्ता सदैव पर्यावरण (संरक्षण)अधिनियम–1986 यथा संशोधित मानको के अनुरूप रहे, अन्यथा की स्थिति में यह सहमति स्वतः निरस्त समझी जाये।
7. प्रस्थावित इकाई (डी.जी.सेट) की स्थापना हेतु स्थानीय प्रशासन एवं अन्य सभी सम्बन्धित विभागों से अनापत्ति/सहमति/अनुमति प्राप्त किया जाना सुनिश्चित किया जाये।

8. यह अनापत्ति प्रमाण पत्र अन्य विभागों, उद्योग विभाग के अनुमन्य रजिस्ट्रेशन एवं स
अनुमति प्राप्त करने के उपरान्त ही मान्य होगी।

9. यह अनापत्ति प्रमाण पत्र पॉच वर्ष के लिए वैद्य है।

कृपया ध्यान दें कि उपरोक्त लिखित विशिष्ट शर्तों एवं सामान्य शर्तो का प्रभावी एवं अनुपालन न करने पर बोर्ड द्वारा निर्गत अनापत्ति प्रमाण पत्र निरस्त कर दिया जायेगा। उपर्युक्त। सामान्य शर्तो के सम्बन्ध में उद्योग द्वारा इस कार्यालय में दि. 31.10.16 तक प्रथम अनुपालन आ की जाये। अनुपालन आख्या नियमित प्रेषित की जाय, अन्यथा अनापत्ति प्रमाण पत्र निरस्त जायेगा।

भव

(डा0 डी.
क्षेत्रीय अधि

पृ0 सं0 एवं दिनांक उपरोक्तानुसार।

प्रतिलिपि--सदस्य सचिव महोदय, उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड, देहरादून सूचनार्थ प्रेषित।

क्षेत्रीय अधि

WSSDGOIN
30
1019
दि. 20/10/16

उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड।

क्षेत्रीय कार्यालयः आवास विकास कालोनी, हल्द्वानी (नैनीताल)।

UEPPCB Ph No.- 05946-225618, 221532

Ref:UEPPCB/ROH/NOC/16/1549-529 दिनांक 18/10/16

Registered/AD

PCB ID-20528
CTE- fresh
CTE-

सेवा में,

M/s Uttrakhand Urban Sector Development Agency
Children Park Pump house
Nainital.

विषय–पर्यावरणीय प्रदूषण की दृष्टि से नई इकाई की स्थापना हेतु अनापत्ति प्रमाण पत्र निर्गमन।

महोदय,

उपरोक्त विषयक अपने आवेदन पत्र दि. 31.08.16 तथा Inward No–64152 का सन्दर्भ लें। आपके आवेदन पत्र पर विचार किया गया। उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तों एवं सामान्य शर्तों के समुचित अनुपालन के साथ सशर्त अनापत्ति स्वीकृत की जाती है।

1. अनापत्ति पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है।

(क) स्थल : Children Park Pump house, Nainital.
(ख) उत्पादन :डी.जी. सेट 625 के.वी.ए.।
(ग) मुख्य कच्चा माल–एच.एस.डी.।
(घ) औद्योगिक उत्प्रवाह की मात्राः शून्य
(ड.) प्रयुक्त ईधन : डीजल (625 के.वी.ए. क्षमता के डी.जी. सेट हेतु)।

उपयुक्त विषय वस्तु मे किसी भी प्रकार से परिवर्तन करने पर पुनः अनापत्ति प्रमाण पत्र प्राप्त करना आवश्यक होगा।

2. इकाई (डी.जी. सेट) का संचालन तब तक प्रारम्भ न करे, जब तक की बोर्ड से जल एव वायु अधिनियमों के अन्तर्गत सहमति प्राप्त न कर लें। जल एवं वायु सहमति प्राप्त करने हेतु इकाई में उत्पादन आवास प्रारम्भ करने की तिथि से कम से कम 2 माह पहले निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्य ही जमा कर दिया जाय, यदि डवलपर उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्राविधानों के अन्तर्गत उद्योग के विरूद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।
3. इकाई (डी.जी. सेट) संचालन से पूर्व हमारे क्षेत्रीय कार्यालय द्वारा निरीक्षण सुनियोजित किया जाय।
4. यह अनापत्ति मात्र 625 के.वी.ए. क्षमता के डी.जी. सेट हेतु मान्य है, जिसे एकास्टिक इनक्लोजरयुक्त किया जाये तथा संलग्न चिमनी की ऊँचाई बोर्ड मानकों के अनुरूप स्थापित की जाये।
5. यह अनापत्ति मात्र हरी श्रेणी हेतु मान्य है।
6. प्रस्तावित इकाई (डी.जी. सेट) का स्थापना इस प्रकार की जाये, ताकि परिवेशीय ध्वनि स्तर एवं परिवेशीय वायु गुणवत्ता सदैव पर्यावरण (संरक्षण)अधिनियम–1986 यथा संशोधित मानको के अनुरूप रहे, अन्यथा की स्थिति में यह सहमति स्वतः निरस्त समझी जाये।
7. प्रस्थावित इकाई (डी.जी.सेट) की स्थापना हेतु स्थानीय प्रशासन एवं अन्य सभी सम्बन्धित विभागों से अनापत्ति/सहमति/अनुमति प्राप्त किया जाना सुनिश्चित किया जाये।

8. यह अनापत्ति प्रमाण पत्र अन्य विभागों, उद्योग विभाग के अनुमन्य रजिस्ट्रेशन एवं सक्षम
अनुमति प्राप्त करने के उपरान्त ही मान्य होगी।

9. यह अनापत्ति प्रमाण पत्र पॉच वर्ष के लिए वैद्य है।

कृपया ध्यान दें कि उपरोक्त लिखित विशिष्ट शर्तों एवं सामान्य शर्तों का प्रभावी एवं संत
अनुपालन न करने पर बोर्ड द्वारा निर्गत अनापत्ति प्रमाण पत्र निरस्त कर दिया जायेगा। उपर्युक्त वि
सामान्य शर्तों के सम्बन्ध में उद्योग द्वारा इस कार्यालय में दि. 31.10.16 तक प्रथम अनुपालन आख
की जाये। अनुपालन आख्या नियमित प्रेषित की जाय, अन्यथा अनापत्ति प्रमाण पत्र निरस्त व
जायेगा।

भवदं

(डा0 डी.के
क्षेत्रीय अधि

पृ0 सं0 एवं दिनांक उपरोक्तानुसार।

प्रतिलिपि–सदस्य सचिव महोदय, उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड, देहरादून
सूचनार्थ प्रेषित।

क्षेत्रीय अधि

Appendix 8 – NOC for Land for installation of 4 DG sets

कार्यालय अधिशासी अभियन्ता, उत्तराखण्ड जल संस्थान, नैनीताल

पत्रांक 2391 / ई.डी.सी. /19 दिनांक 03-09-16

सेवा में,

परियोजना प्रबन्धक
पी.आई.यू.
यू.यू.एस.डी.आई.पी.
नैनीताल

विषय :– **जनरेटर सैट अधिष्ठापित करने एवं भूमि उपलब्ध कराने हेतु अनापत्ति प्रमाण पत्र के सम्बन्ध में।**

महोदय,

उपरोक्त विषयक आपको अवगत **करना है कि** नैनीताल नगर क्षेत्र के अन्तर्गत पेयजल व्यवस्था सुचारु रुप से चलाये जाने हेतु **निम्न स्थानों** पर जनरेटर सैट अधिष्ठापित किये जाने हेतु भूमि की अनापत्ति प्रदान की जाती है।

1. Children's Park Pump House – 625 KVA – 8m x 4m
2. Old Water Works Pump House – 380 KVA – 7m x 3m
3. Sukhatal Pump House – 250 KVA – 6m x 3m
4. Phansi Gadhera Pump House – 160 KVA – moveable (6m x 3m)

भवदीय

(जगदीप चौधरी)
अधिशासी अभियन्ता

Appendix 9- Environmental Monitoring of Air Quality and Noise quality

ARIHANT ANAALYTICAL LABORATORY PVT. LTD.

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272, Phase - IV,Sec - 57 HSIIDC, Kundli, Sonepat-131028 (Haryana)

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Report No. AAL ENV-20171017007

Issued To:	**Office of the Project Manager** Project Implementation Unit Uttarakhand Urban Sector Development Investment Program (UUSDIP) (Govt. of Uttarakhand) Neel Kanth Guest House, Pilgrim Lodge Compound, Mallital, Nainital (Uttarakhand)	**Date of Receiving:** **Date of Starting:**	17/10/2017 17/10/2017
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Completion:**	23/10/2017
Project Name:	Environmental Monitoring under project No.WSSDG01N.	**Date of Reporting:**	23/10/2017
Date of Monitoring:	15/10/2017 to 16/10/2017		
Sampling Location:	**Faansi Gadhera Pump House**	**Sampling Done By:**	AAL

TEST RESULT

Sampling Details:

Type of Monitoring	:	**Ambient Air Quality Monitoring**
Monitoring Procedure	:	As per IS-5182, P-14
Location of Sampling Point	:	**Faansi Gadhera Pump House**
Sampling Started on	:	09:15 AM (15/10/2017)
Sampling Completed on	:	09:15 AM (16/10/2017)
Actual Time of Sampling (Hrs)	:	24 hrs.
Average flow Rate for particulate matter (m^3/minute)	:	1.2
Total Volume of air sampled for particulate matter (m^3)	:	1728

S. No.	Test Parameter	Unit	Results	Limits NAAQS Monitoring & Analysis Guidelines Volume-I	Test Methods
1	Particulate Matter, $PM_{2.5}$	$\mu g/m^3$	42.18	60	SOP-(AAL/SOP/ENV/002)/ CPCB Guideline
2	Particulate Matter, PM_{10}	$\mu g/m^3$	77.40	100	IS-5182(P-23)-2006
3	Sulphur Dioxide (as SO_2)	$\mu g/m^3$	21.16	80	IS-5182 (P-2)-2001
4	Oxide of Nitrogen (as NO_2)	$\mu g/m^3$	36.39	80	IS-5182(P-6)-2006
5	Carbon Monoxide (as CO)	mg /m^3	<0.2	2(8hr)	IS-5182(P-10)-1999 Reaff. 2003
6	Benzene (as C_6H_6)	$\mu g/m^3$	<1.0	05	NISOH 6015-2005
7	Hydrocarbon (as HC)	mg /m^3	<0.1	-	By GC

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Report No. AAL ENV-20171017008

Issued To:	**Office of the Project Manager** Project Implementation Unit Uttarakhand Urban Sector Development Investment Program (UUSDIP) (Govt. of Uttarakhand) Neel Kanth Guest House, Pilgrim Lodge Compound, Mallital, Nainital (Uttarakhand)	**Date of Receiving:**	17/10/2017
		Date of Starting:	17/10/2017
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Completion:**	23/10/2017
Project Name:	Environmental Monitoring under project No.WSSDG01N.	**Date of Reporting:**	23/10/2017
Date of Monitoring:	15/10/2017 to 16/10/2017		
Sampling Location:	**Children Park Pump House**	**Sampling Done By:**	AAL

TEST RESULT

Sampling Details:

Type of Monitoring	:	**Ambient Air Quality Monitoring**
Monitoring Procedure	:	As per IS-5182, P-14
Location of Sampling Point	:	**Children Park Pump House**
Sampling Started on	:	09:45 AM (15/10/2017)
Sampling Completed on	:	09:45 AM (16/10/2017)
Actual Time of Sampling (Hrs)	:	24 hrs.
Average flow Rate for particulate matter (m^3/minute)	:	1.15
Total Volume of air sampled for particulate matter (m^3)	:	1656

S. No.	Test Parameter	Unit	Results	Limits NAAQS Monitoring & Analysis Guidelines Volume-I	Test Methods
1	Particulate Matter, $PM_{2.5}$	$\mu g/m^3$	52.53	60	SOP-(AAL/SOP/ENV/002)/ CPCB Guideline
2	Particulate Matter, PM_{10}	$\mu g/m^3$	86.42	100	IS-5182(P-23)-2006
3	Sulphur Dioxide (as SO_2)	$\mu g/m^3$	27.78	80	IS-5182 (P-2)-2001
4	Oxide of Nitrogen (as NO_2)	$\mu g/m^3$	48.54	80	IS-5182(P-6)-2006
5	Carbon Monoxide (as CO)	mg/m^3	0.5	2(8hr)	IS-5182(P-10)-1999 Reaff. 2003
6	Benzene (as C_6H_6)	$\mu g/m^3$	<1.0	05	NISOH 6015-2005
7	Hydrocarbon (as HC)	mg/m^3	<0.1	-	By GC

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Report No. AAL ENV-20171017009

Issued To: **Office of the Project Manager**
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Neel Kanth Guest House, Pilgrim Lodge Compound, Mallital, Nainital (Uttarakhand)

Date of Receiving: 17/10/2017
Date of Starting: 17/10/2017

Sample Description: **Ambient Air Quality Monitoring**
Project Name: Environmental Monitoring under project No.WSSDG01N.
Date of Monitoring: 15/10/2017 to 16/10/2017
Sampling Location: **Old Water Works UJS Campus**

Date of Completion: 23/10/2017
Date of Reporting: 23/10/2017
Sampling Done By: AAL

TEST RESULT

Sampling Details:

Type of Monitoring	:	**Ambient Air Quality Monitoring**
Monitoring Procedure	:	As per IS-5182, P-14
Location of Sampling Point	:	**Old Water Works UJS Campus**
Sampling Started on	:	10:10 AM (15/10/2017)
Sampling Completed on	:	10:10 AM (16/10/2017)
Actual Time of Sampling (Hrs)	:	24 hrs.
Average flow Rate for particulate matter (m^3/minute)	:	1.2
Total Volume of air sampled for particulate matter (m^3)	:	1728

S. No.	Test Parameter	Unit	Results	Limits NAAQS Monitoring & Analysis Guidelines Volume-I	Test Methods
1	Particulate Matter, $PM_{2.5}$	$\mu g/m^3$	49.70	60	SOP-(AAL/SOP/ENV/002)/ CPCB Guideline
2	Particulate Matter, PM_{10}	$\mu g/m^3$	93.11	100	IS-5182(P-23)-2006
3	Sulphur Dioxide (as SO_2)	$\mu g/m^3$	19.52	80	IS-5182 (P-2)-2001
4	Oxide of Nitrogen (as NO_2)	$\mu g/m^3$	35.66	80	IS-5182(P-6)-2006
5	Carbon Monoxide (as CO)	mg /m^3	<0.2	2(8hr)	IS-5182(P-10)-1999 Reaff. 2003
6	Benzene (as C_6H_6)	$\mu g/m^3$	<1.0	05	NISOH 6015-2005
7	Hydrocarbon (as HC)	mg /m^3	<0.1	-	By GC

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Issued To:	**Office of the Project Manager** Project Implementation Unit Uttarakhand Urban Sector Development Investment Program (UUSDIP) (Govt. of Uttarakhand) Neel Kanth Guest House, Pilgrim Lodge Compound, Mallital, Nainital (Uttarakhand)	**Date of Receiving:** **Date of Starting:**	17/10/2017 17/10/2017
Sample Description:	**Ambient Air Quality Monitoring**	**Date of Completion:**	23/10/2017
Project Name:	Environmental Monitoring under project No.WSSDG01N.	**Date of Reporting:**	23/10/2017
Date of Monitoring:	15/10/2017 to 16/10/2017		
Sampling Location:	**Sukhaa Task Pump House**	**Sampling Done By:**	AAL

TEST RESULT

Sampling Details:

Type of Monitoring	:	**Ambient Air Quality Monitoring**
Monitoring Procedure	:	As per IS-5182, P-14
Location of Sampling Point	:	**Sukhaa Task Pump House**
Sampling Started on	:	10:25 AM (15/10/2017)
Sampling Completed on	:	10:25 AM (16/10/2017)
Actual Time of Sampling (Hrs)	:	24 hrs.
Average flow Rate for particulate matter (m^3/minute)	:	1.1
Total Volume of air sampled for particulate matter (m^3)	:	1584

S. No.	Test Parameter	Unit	Results	Limits NAAQS Monitoring & Analysis Guidelines Volume-I	Test Methods
1	Particulate Matter, $PM_{2.5}$	$\mu g/m^3$	37.05	60	SOP-(AAL/SOP/ENV/002)/ CPCB Guideline
2	Particulate Matter, PM_{10}	$\mu g/m^3$	74.97	100	IS-5182(P-23)-2006
3	Sulphur Dioxide (as SO_2)	$\mu g/m^3$	18.22	80	IS-5182 (P-2)-2001
4	Oxide of Nitrogen (as NO_2)	$\mu g/m^3$	32.57	80	IS-5182(P-6)-2006
5	Carbon Monoxide (as CO)	mg /m^3	<0.2	2(8hr)	IS-5182(P-10)-1999 Reaff. 2003
6	Benzene (as C_6H_6)	$\mu g/m^3$	<1.0	05	NISOH 6015-2005
7	Hydrocarbon (as HC)	mg /m^3	<0.1	-	By GC

End of Report

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Report No. AAL ENV-20171017011

Issued To: **Office of the Project Manager**
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Uttarakhand Urban Sector Development Investment Program (UUSDIP) (Govt. of Uttarakhand)
Neel Kanth Guest House, Pilgrim Lodge Compound, Mallital, Nainital (Uttarakhand)

Date of Receiving: 17/10/2017
Date of Starting: 17/10/2017

Sample Description: **Ambient Noise**
Project Name: Environmental Monitoring under project No.WSSDG01N.
Date of Monitoring: 15/10/2017 to 16/10/2017
Sampling Location: **Faansi Gadhera Pump House**

Date of Completion: 23/10/2017
Date of Reporting: 23/10/2017
Sampling Method: By Noise Meter
Sampling Done By: AAL

TEST RESULT

S. No.	Test Parameter	Unit	Results	Requirement (as per CPCB Guidelines) Limits in dB(A) Leq.		
1	**Noise Level**			Category of Area / Zone	Day Time	Night Time
	Leq-Day	dB(A)	52.5	A: Industrial Area	75	70
				B: Commercial Area	65	55
	Leq-Night	dB(A)	46.3	C: Residential Area	55	45
				D: Silence Zone	50	40

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Report No. AAL ENV-20171017012

Issued To: **Office of the Project Manager**
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Uttarakhand Urban Sector Development Investment Program (UUSDIP) (Govt. of Uttarakhand)
Neel Kanth Guest House, Pilgrim Lodge Compound, Mallital, Nainital (Uttarakhand)

Date of Receiving: 17/10/2017
Date of Starting: 17/10/2017

Sample Description: **Ambient Noise**
Project Name: Environmental Monitoring under project No.WSSDG01N.
Date of Monitoring: 15/10/2017 to 16/10/2017
Sampling Location: **Children Park Pump House**

Date of Completion: 23/10/2017
Date of Reporting: 23/10/2017
Sampling Method: By Noise Meter
Sampling Done By: AAL

TEST RESULT

S. No.	Test Parameter	Unit	Results
1	**Noise Level**		
	Leq-Day	dB(A)	64.1
	Leq-Night	dB(A)	51.6

Requirement (as per CPCB Guidelines) Limits in dB(A) Leq.

Category of Area / Zone	Day Time	Night Time
A: Industrial Area	75	70
B: Commercial Area	65	55
C: Residential Area	55	45
D: Silence Zone	50	40

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Report No. AAL ENV-20171017013

Date of Receiving: 17/10/2017
Date of Starting: 17/10/2017

Sample Description: **Ambient Noise**
Project Name: Environmental Monitoring under project No.WSSDG01N.
Date of Monitoring: 15/10/2017 to 16/10/2017
Sampling Location: **Old Water Works UJS Campus**

Date of Completion: 23/10/2017
Date of Reporting: 23/10/2017
Sampling Method: By Noise Meter
Sampling Done By: AAL

TEST RESULT

S. No.	Test Parameter	Unit	Results	Requirement (as per CPCB Guidelines) Limits in dB(A) Leq.		
				Category of Area / Zone	Day Time	Night Time
1	**Noise Level**					
	Leq-Day	dB(A)	58.9	A: Industrial Area	75	70
				B: Commercial Area	65	55
	Leq-Night	dB(A)	48.3	C: Residential Area	55	45
				D: Silence Zone	50	40

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Neel Kanth Guest House, Pilgrim Lodge Compound,
Mallital, Nainital (Uttarakhand)

Date of Receiving: 17/10/2017
Date of Starting: 17/10/2017

Sample Description: **Ambient Noise**
Project Name: Environmental Monitoring under project No.WSSDG01N.
Date of Monitoring: 15/10/2017 to 16/10/2017
Sampling Location: **Sukhaa Task Pump House**

Date of Completion: 23/10/2017
Date of Reporting: 23/10/2017
Sampling Method: By Noise Meter
Sampling Done By: AAL

TEST RESULT

S. No.	Test Parameter	Unit	Results	Requirement (as per CPCB Guidelines) Limits in dB(A) Leq.		
				Category of Area / Zone	Day Time	Night Time
1	**Noise Level**					
	Leq-Day	dB(A)	53.6	A: Industrial Area	75	70
				B: Commercial Area	65	55
	Leq-Night	dB(A)	44.5	C: Residential Area	55	45
				D: Silence Zone	50	40

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