Initial Environmental Examination

Project Number: 38272-044
October 2021

India: Uttarakhand Integrated and Resilient Urban Development Project – Development of Water Supply, Sewerage and Storm Water Drainage System at Banjarawala - Package 2 (Part C)

Package UIRUDP: WS&S-DDN-02

Prepared by Urban Development Department, Government of Uttarakhand for Asian Development Bank. This is an updated version of the draft originally posted in September 2021 available on https://www.adb.org/projects/documents/ind-38272-044-iee-0.

Appendix 25: Photographs of Sample Roads

	
Mohthrowala Road	**Swarn Ganga Enclave**
	
Link road to Neelkanth Colony	**Doon University Road**
	
Ramkrishna Colony	**Shivam Vihar**

	
Mahalaxmi Puam	**Tehri Nagar**
	
Trimutrhi Enclave	**Shakti Vihar**
	
Dhaba Cant. road	**Nanda Devi Enclave**

Appendix 26: Natural Drains and Rivers where the Outfalls are proposed

	
Nala in Mothrowala area	Drainage Discharge into Rispana River
	
Discharge at Bindal River	Nala in Banjarawala -Mothrowala Area
	
Road side Drains in the Banjarawala - Mothrowala Area	Drainage Outfall Point at Bajarawala Area

Appendix 27: ADB's Interim Advisory Note on Protecting the Safety and Well-Being of Workers and Communities from COVID-19 (2020)

INTERIM ADVISORY NOTE

Protecting the Safety and Well-Being of Workers and Communities from COVID-19

Health and safety risks from the coronavirus disease (COVID-19) pandemic can cause an additional burden on workers, local communities, and employers. To support its developing member countries in managing these risks, the Asian Development Bank (ADB) has prepared the following advisory note on publicly available international good practice. These preventive measures can be adapted for a variety of workplaces and country-specific contexts.[1]

Transmission, spread, and infection are the greatest health and safety risks to projects and local communities. If left unmanaged, rising infection rates can result in project delays and job losses as well as overwhelm health care systems.

What can governments and companies (including enterprises of all sizes) do to prevent and manage COVID-19 risks?

To protect the health and safety of workers, as well as surrounding communities, it is recommended to conduct a workplace review and risk assessment for exposure to COVID-19. The nature of works, stage of implementation, location of the project activities, and status of the project (whether it is ongoing or under development) must be taken into consideration. In addition, vulnerable groups such as migrant workers as well as women, older workers, at-risk workers including those with underlying health conditions, or those with combined vulnerability factors (e.g., migrant women workers with underlying health conditions) who will also be disproportionately impacted, should be taken into account.[2]

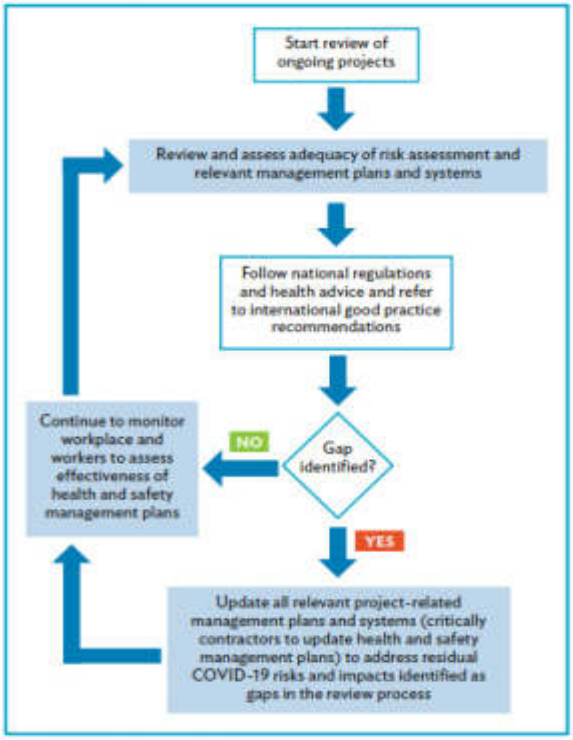
The decision tree (Figure 1) outlines how to review and assess the adequacy of management plans and systems to prevent the spread of COVID-19 in the workplace.

Which sectors are more at risk from COVID-19?

COVID-19 may be more easily transferred among workers or service users and local communities in the following sectors and associated workplace activities:[3]

- Projects and businesses where there are a **large number of workers in close proximity with one another**, particularly where remote work is not feasible.
- Projects that involve **worker accommodation camps**, where physical distancing and robust hygiene measures may be more difficult to implement.
- **Health care providers** including hospitals, laboratories, clinics, dentists, ambulances, and pharmacies.

Figure 1: COVID-19 Decision Tree



Source: Asian Development Bank.

[1] This advisory note may not cover all circumstances. It will remain a living document and will be updated regularly to reflect updates to international good practice in preventing and managing the COVID-19 pandemic at the workplace as listed in Annex.
[2] Migrant workers are faced with multiple impacts including the challenge of returning home, accessing food and medical assistance, and experiencing potential loss of income.
[3] The list represents a selection and is not exhaustive.

- **Food and agriculture** including food processing plants and those handling live animals and animal products.
- **Education**, after lockdowns are lifted and schools reopen in affected countries.
- Consumer-centric businesses where workers may come into **regular contact with customers** including **hotels, retail, and other tourism- related sectors**.
- **Logistics and transport**, where **workers come into contact with a large number of people** across potentially a large geographic region.
- Businesses where **workers come into contact with suppliers and supply chains** operating in affected areas.

How can governments and companies apply a risk-based approach to assess exposure risks to COVID-19 in the workplace?

1. DETERMINE LEVEL OF EXPOSURE RISK

The risk of work-related exposure to COVID-19 depends on the probability of coming into close or frequent contact with people who may be infected and through contact with contaminated surfaces and objects. According to guidance from the World Health Organization (WHO), the risk levels (Figure 2) may be useful in carrying out a workplace risk assessment for exposure risk to COVID-19 and planning for preventive measures in non-health care workplaces.[4]

Figure 2: COVID-19 Risk Categories

LOW EXPOSURE RISK

Jobs or work tasks **without frequent, close contact with the general public and other co-workers,** visitors, clients or customers, or contractors, and that do not require contact with people known to be or suspected of being infected with COVID-19.

MEDIUM EXPOSURE RISK

Jobs or work tasks **with close (less than 1 meter) frequent contact with the general public, or other co-workers**, visitors, clients or customers, or contractors, that do not require contact with people known to be or suspected of being infected with COVID-19.

HIGH EXPOSURE RISK

Jobs or work tasks with high potential for **close contact with people who are known or suspected of having COVID-19** as well as contact with objects and surfaces possibly contaminated with the virus.

Source: World Health Organization.

2. DETERMINE ADDITIONAL EXPOSURE RISK FACTORS

Work-related exposure can occur anytime in the workplace, during work-related travel to an area with local community transmission, as well as on the way to and from the workplace.

In the same work setting, there may be jobs with different levels of risk, and different jobs or work tasks may have similar levels of exposure. Therefore, risk assessment should be carried out for each specific work setting and for each job or group of jobs. For each risk assessment, it is important to consider the environment; the task; the threat, if any (e.g., for frontline staff); and resources available such as personal protective equipment.

Some workers may be at higher risk of developing severe COVID-19 illness because of age or pre-existing medical conditions; this should be considered in the risk assessment for individuals. Essential public services, such as security and police, food retail, accommodation, public transport, deliveries, water and sanitation, and frontline workers may be at an increased risk of exposure.

3. CONSULT WITH WORKERS

Employers and managers, in consultation with workers, are encouraged to carry out and regularly update the risk assessment for work-related exposure to COVID-19, preferably with support from occupational health services and local primary health care facilities.

4. UPDATE OR DEVELOP NEW HEALTH AND SAFETY MANAGEMENT PLANS

Following completion of the review and risk assessment process, health and safety plans in the workplace may require updates or may have to be developed for ongoing projects that did not require one previously. Relevant approvals of the health and safety plan should be obtained.

5. REVIEW INTERNATIONAL GOOD PRACTICES

ADB recommends that employers review WHO-issued key guidance to manage the spread of COVID-19 in the workplace (Table).

[4] WHO. 2020. Considerations in adjusting public health and social measures in the context of COVID-19: interim guidance. 15 April. https://www.who.int/publications/i/item/considerations-in-adjusting-public-health-and-social-measures-in-the-context-of-covid-19-interim-guidance.

Table: Guidelines on Preventive Measures at the Workplace

MEASURES FOR ALL WORKPLACES	
Hand hygiene	• Regular and thorough handwashing with soap and water or hand hygiene with alcohol-based hand-rub before starting work; before eating; frequently during the work shift, especially after contact with co-workers or customers; after using the bathroom; after contact with secretions, excretions, and body fluids; after contact with potentially contaminated objects (gloves, clothing, masks, used tissues, waste); and immediately after removing gloves and other protective equipment but before touching eyes, nose, or mouth. • Hand hygiene stations, such as handwashing and hand rub dispensers, should be put in prominent places around the workplace and be made accessible to all staff, contractors, clients or customers, and visitors along with communication materials to promote hand hygiene.
Respiratory hygiene	• Promote respiratory etiquette by all people at the workplace. Ensure that medical face masks and paper tissues are available, for those who develop a runny nose or cough at work, along with bins with lids for hygienic disposal. • Develop a policy on wearing a face mask or cover in line with national or local guidance. Masks may carry some risks if not used properly. If a worker is sick, they should not come to work. If a worker feels unwell while at work, provide a medical mask so that they may get home safely. Where masks are used, whether in line with government policy or by personal choice, it is very important to ensure safe and proper use, care, and disposal.
Physical distancing	• Introduce measures to keep a distance of at least 1 meter between people and avoid direct physical contact i.e., hugging, touching, shaking hands), strict control over external access, queue management (marking on the floor, barriers). • Reduce density of people in the building (no more than one person per 10 square meters), physical spacing at least 1 meter apart for workstations and common spaces, such as entrances/exits, lifts, pantries/canteens, stairs, and other areas congregation or queuing of employees or visitors/clients might occur. • Minimize the need for physical meetings, e.g., by using teleconferencing facilities. • Avoid crowding by staggering working hours to reduce congregation of employees at common spaces such as entrances or exits. • Implement or enhance shift or split-team arrangements, or teleworking. • Defer or suspend workplace events that involve close and prolonged contact among participants, including social gatherings.
Reduce and manage work-related travels	• Cancel or postpone non-essential travel to areas with community transmission of coronavirus disease (COVID-19), provide hand sanitizer to workers who must travel, advise workers to comply with instructions from local authorities where they are traveling as well as information on whom to contact if they feel ill while traveling. • Workers returning from an area where COVID-19 transmission is occurring should monitor themselves for symptoms for 14 days and take their temperature twice a day; if they are feeling unwell, they should stay at home, self-isolate, and contact a medical professional.

Source: World Health Organization.

Regular environmental cleaning and disinfection	• Clean surfaces by brushing or scrubbing thoroughly using soap or a neutral detergent to remove dirt, debris, and other materials.. After the cleaning process is completed, disinfection is used to kill pathogens and other microorganisms on surfaces. • Selection of disinfectants should align with the local authorities' requirements for market approval, including any regulations applicable to specific sectors. • Identify "high-touch" surfaces for priority disinfection (e.g., commonly used areas, door and window handles, light switches, kitchen and food preparation areas, bathroom surfaces, toilets and taps, touchscreen personal devices, personal computer keyboards, and work surfaces). • Prepare and use disinfectant solutions according to the manufacturer's instructions, including instructions on how to protect the safety and health of disinfection workers and how to use personal protective equipment (PPE); avoid mixing different chemical disinfectants. • In indoor workplaces, routine application of disinfectants to environmental surfaces via spraying or fogging is generally not recommended because it is ineffective at removing contaminants outside of direct spray zones and can cause eye, respiratory, and skin irritation and other toxic effects. • In outdoor workplaces, there is currently insufficient evidence to support recommendations for large-scale spraying or fumigation. • Spraying of people with disinfectants (such as in a tunnel, cabinet, or chamber) is not recommended under any circumstances.
Risk communication, training, and education	• Provide posters, videos, and electronic message boards to increase awareness of COVID-19 among workers, and promote safe individual practices at the workplace and engage workers in providing feedback on the preventive measures and their effectiveness. • Provide regular information about the risk of COVID-19 using official sources such as government agencies and the World Health Organization, and emphasize the effectiveness of adopting protective measures and counteracting rumors and misinformation. • Special attention should be given to reaching out to and engaging vulnerable and marginalized groups of workers, such as those in the informal economy as well as migrant workers, domestic workers, subcontracted and self-employed workers, and those working under digital labor platforms.
Management of people with suspected COVID-19 or their contacts	• Urge workers who are unwell or who develop symptoms consistent with COVID-19 to stay at home, self-isolate, and contact a medical professional or the local COVID-19 information line for advice on testing and referral. • Where local community transmission is high, and work continues, allow for a telemedicine consultation where available, or consider waiving the requirement for a medical note for workers who are sick so that they may stay home. • Urge all workers to self-monitor their health, possibly with the use of questionnaires, and take their body temperature regularly.

SPECIFIC MEASURES FOR WORKPLACES AND JOBS AT MEDIUM RISK	
In addition to the measures for all sites	• Enhance cleaning and disinfection of objects and surfaces that are touched regularly, including all shared rooms, surfaces, floors, bathrooms, and changing rooms. • Where the physical distancing of at least 1 meter cannot be implemented to a particular activity, workplaces should consider whether that activity needs to continue; if so, take all the mitigating actions possible to reduce the risk of transmission between workers, clients or customers, contractors, and visitors such as scheduling staggered activities, minimizing face-to-face and skin-to-skin contacts, placing workers side-by-side or facing away from each other rather than face-to-face, assigning staff to the same shift teams to limit social interaction, and installing plexiglass barriers at all points of regular interaction and cleaning them regularly. • Enhance hand hygiene—regular handwashing with soap and water or use of alcohol-based hand rub—before entering and after leaving enclosed machinery, vehicles, confined spaces, and before putting on and after taking off PPE.. • Provide PPE and training on its proper use—e.g., masks, disposable gowns, and disposable gloves or heavy-duty gloves that can be disinfected. Provide face or eye protection (medical mask) during cleaning procedures that generate splashes (e.g., washing surfaces). • Increase ventilation rate, through natural aeration or artificial ventilation, preferably without re-circulation of the air.
SPECIFIC MEASURES FOR WORKPLACES AND JOBS AT HIGH RISK	
In addition to the measures for all sites	• Assess the possibility of suspending the activity. • Adhere to hygiene before and after contact with any known or suspected case of COVID-19, before and after using PPE. • Require use of medical mask, disposable gown, gloves, and eye protection for workers who must work in the homes of people who are suspected or known to have COVID-19. Use the protective equipment when in contact with the sick person, or respiratory secretions, body fluids, and potentially contaminated waste. • Train workers on infection prevention and control practices and use of PPE. • Avoid assigning tasks with high risk to workers who have pre-existing medical conditions, are pregnant, or older than 60 years of age.

Source: World Health Organization.

The application of the international good practice within job-specific method statements/schedules and environments should be informed by a job-specific risk assessment.

How do governments and companies ensure effective implementation?

Cooperation between workplace managers, workers and their representatives, surrounding communities, and primary health care facilities is an essential element of workplace-related preventive measures in line with international good practice. To assess the effectiveness of implementation of the workplace health and safety management plan, regular monitoring of site conditions and those of surrounding communities is recommended. It is also important for management of workplaces to keep abreast with the latest updates to the international good practice guidance referenced in this advisory note including government issued health advice in relation to COVID-19 to ensure effective implementation. A select list is provided in Annex.

Risks communication, training, awareness campaigns, and the development of an emergency action plan are also recommended to address suspected cases of COVID-19 in the workplace.

The decision to close or reopen workplaces, and suspend or downscale individual work activities at the workplace should be made in light of the risk assessment, the capacity of contractors to implement proposed preventive measures within the Health and Safety Management Plan, and also the recommendations of national authorities for adjusting public health and social measures at the workplace in the context of COVID-19.

Further Assistance

ADB may be able to provide assistance to our developing member countries in emergency planning, emergency assistance, and continuous sharing of international best practice. Please contact ADB resident missions and offices to request assistance.

The Pandemic Sub-National Reference Laboratory at the Jose B. Lingad Memorial Regional Hospital in San Fernando City, Pampanga on 9 May 2020. The laboratory financed by the $3 million grant from the Asia Pacific Disaster Response Fund, can perform up to 3,000 COVID-19 tests daily, significantly increasing the country's testing capacity (photo by Eric Sales/ADB).

Annex: Publicly Available Sources and Useful Links

Asian Development Bank

Managing Infectious Medical Waste during the COVID-19 Pandemic, April 2020. An outline of key considerations for governments to understand their country's capacity to manage an anticipated surge in infectious medical waste. Also includes practical recommendations to improve disposal of household and hospital waste—as well as municipal solid waste—with the aim of reducing the further spread of the coronavirus disease (COVID-19) and other diseases. Links to important technical resources and guidance materials are also provided.

Belgian Investment Company for Developing Countries

COVID-19: ESG Guidance Note for Employers, March 2020. General Environmental, Social and Governance guidance to employers on how to minimize business disruptions and take the most adequate actions.

Canadian Construction Association

Standardized Protocols for All Canadian Construction Sites

Centre for Disease Control

Centre for Disease Control (CDC) Group COVID-19 Guidance for Employers, March 2020. Summary of publicly available guidance and examples of practice adopted by some CDC Group investees and fund managers. Aims to provide a framework that can be applied to many companies and situations, but guidance is not able to cover all circumstances and not every company will be able to benefit from all of the guidance, in particular if employees are not able to work from home or practice social distancing.

European Bank for Reconstruction and Development Workers Accommodation

Worker accommodation and COVID-19, April 2020. Note on key issues relating to workers living in accommodation camps and considerations on how to address certain risks. In alignment with good international industry practice and international lenders' standards. Developed by Mott MacDonald's social, labor, and health specialists based on their experience, drawing on the guidance of the World Health Organization (WHO).

Her Majesty's Government, United Kingdom

Her Majesty's Government. Working safely during COVID-19 in construction and other outdoor work, 2020. Guidance for employers, employees, and the self-employed.

Inter-American Development Bank

Corporate Governance: COVID-19 and the board of directors, March 2020. Indicative guidance for the Board of Directors in identifying, prioritizing, and implementing a governance framework to deal with the strategy and oversight challenges that COVID-19 may present, and a list of questions that can be asked by investors and that Board of Directors should consider to build an effective response to the COVID-19 crisis.

COVID-19 Guidance for Infrastructure Projects, March 2020. Guidance for clients to identify project performance and capacity gaps, along with context and project-related risks, that could contribute to COVID-19 transmission.

International Federation of Consulting Engineers

COVID-19 guidance memorandum for users of International Federation of Consulting Engineers (FIDIC) standard forms of works contract. An outline of the provisions in FIDIC's various general conditions of contract for works which may be relevant with regard to likely scenarios that are arising as a consequence of COVID-19. Guidance memorandum to help parties to a FIDIC contract to consider mutually satisfactory solutions and avoid disputes arising between them.

Coronavirus (COVID-19): FIDIC Guidance for Global Consulting Engineering Businesses, March 2020.

International Finance Corporation

Interim Advice for International Finance Corporation (IFC) Clients on Preventing and Managing Health Risks of COVID-19 in the Workplace, April 2020. A selection of publicly available advice from internationally recognized sources to help IFC clients rapidly identify measures for preventing and managing outbreaks of COVID-19 in the workplace, and for responding to community COVID-19 infection. Not exhaustive, and provides generic rather than sector-specific advice. Companies in high-risk sectors should refer to sector-specific procedures and standards.

Interim Advice for IFC Clients on Supporting Workers in the Context of COVID-19, April 2020. Tip sheet of useful information to support decision making in response to the impacts of COVID-19 on workers and employment. Focus areas include:

(i) Health and safety, including actions to prevent transmission.

(ii) Job protection, including supporting workers through difficult times and building resilience for businesses to operate during and after the immediate crisis.

(iii) Responsible retrenchment as an option only if there is no other alternative, and how to re-employ those workers, when possible, once the situation has improved.

Corporate Governance Tip-Sheet for Company Leadership on Crisis Response, Facing the COVID-19 Pandemic, April 2020. Generally applicable to any type of business, some tips may not be relevant based on the nature or size of business, shareholding structure, or other factors.

International Labour Organization

International Labour Organization (ILO) Standards and COVID-19 FAQ, March 2020. A compilation of answers to most frequently asked questions related to international labor standards and COVID-19.

Family-Friendly Policies and other Good Workplace Practices in the Context of COVID-19: Key steps employers can take, March 2020. General recommendations to help employers strengthen support for workers and their families. In collaboration with UNICEF.

International Organization for Migration

COVID-19: Guidance for employers and business to enhance migrant worker protection during the current health crisis, April 2020.

KfW

KfW DEG COVID-19 Guidance for employers, March 2020. Guidance specifically from the perspective of international guidance on social topics and occupational health and safety.

Occupational Health and Safety Organization

Guidance on Preparing Workplaces for COVID-19. Recommendations and descriptions of mandatory safety and health standards (based on the United States' Occupational Safety and Health Act of 1970). Advisory only. Identifies four categories of risk (low, medium, high, very high) depending on proximity to the people infected with the virus and recommends taking different level of precautions in the areas of engineering control, administrative control, and personal protective equipment (PPE).

Pan American Health Organization, World Health Organization, and United Nations Office for Project Services

COVID 19 Prevention Measures at Construction Sites

The United Nations Entity for Gender Equality and the Empowerment of Women (UN Women)

Guidance for Action: Addressing the Emerging Impact of the COVID-19 Pandemic on Migrant Women in Asia and the Pacific for a Gender-Responsive Recovery. Note on the emerging impacts of the COVID-19 pandemic on women migrant workers and recommendations to support governments, donors, civil society organizations, employers, and the private sector in addressing those impacts.

World Health Organization

Considerations in adjusting public health and social measures in the context of COVID-19 (Interim Guidance) (WHO 2020).

Considerations in adjusting public health and social measures in the context of COVID-19 (Interim Guidance, April 2020) (WHO 2020).

Coronavirus disease (COVID-19) advice for the public, March 2020. Web page providing advice for the public, including on social distancing, respiratory hygiene, self-quarantine, and those seeking medical advice.

Getting your workplace ready for COVID-19, March 2020. Summary of general considerations for getting businesses ready for work in the context of COVID-19. Does not provide technical detail but useful starting point to develop further awareness. Also provides some specific guidance on meetings and travel.

Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response, March 2020. Advice on communicating effectively with the public, engaging with communities, local partners, and other stakeholders to prepare and protect public health relating to COVID-19.

Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19), March 2020. Guidance to member states on quarantine measures for individuals in the context of COVID-19. Intended for those responsible for establishing local or national policy for quarantine of individuals, and adherence to infection prevention and control measures.

Operational considerations for case management of COVID-19 in health facility and community, March 2020. Intended for health ministers, health system administrators, and other decision makers. Guidance for the care of COVID-19 patients as the response capacity of health systems is challenged; aims to ensure that COVID-19 patients can access lifesaving treatment, without compromising public health objectives and safety of health workers.

Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19), February 2020. Summary of WHO's recommendations for the rational use of PPE in health care and community settings, as well as during the handling of cargo. Intended for those who are involved in distributing and managing PPE as well as public health authorities and individuals in health care and community settings. Provides information about when PPE use is most appropriate.

Water, sanitation, hygiene and waste management for COVID-19, March 2020. Technical brief that supplements existing infection prevention and control (IPC) documents by referring to and summarizing WHO guidance on water, sanitation, and health care waste which is relevant for viruses (including coronaviruses). Written for water and sanitation practitioners and providers.

Safe management of wastes from health care activities, 2014. Handbook of practical guidance on the management of healthcare waste in local facilities. Provides guidelines for national and local administrators.

Advice on the use of masks in the community, during home care and in health care settings in the context of the novel coronavirus (COVID-19) outbreak, March 2020. Intended for individuals in the community, public health and IPC professionals, health care managers, health care workers, and community health workers. Updated version also includes advice to decision makers on the use of masks for healthy people in community settings.

Laboratory biosafety guidance related to coronavirus disease 2019 (COVID-19), March 2020. Interim guidance on laboratory biosafety related to the testing of clinical specimens of COVID-19 patients.

Infection prevention and control during health care when novel coronavirus infection is suspected, March 2020. Guidance for healthcare workers, health care managers, and IPC teams at the facility level, also relevant for national and district/provincial level.

Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, March 2020. Outline of rights and responsibilities of health workers, including the specific measures needed to protect occupational safety and health.

Disability Considerations during the COVID-19 outbreak, March 2020. Mitigation actions and protective measures that can reduce the impacts of COVID-19 on advice on vulnerable groups, focusing on those with disabilities.

This advisory note does not constitute medical or legal advice and is not a substitute for professional advice from international public health organizations such as the World Health Organization, national public health authorities, and national governments. We strongly encourage our borrowers and clients to seek guidance and monitor regular updates as the COVID-19 pandemic evolves. ADB is not responsible for the content of any external references within this document.

Cover photo. Tokyo, Japan—Elementary students wearing masks sit with distance to each other during graduation in Tokyo, 25 March 2020. Japanese Prime Minister Shinzo Abe has called for all schools in the country to close until the end of the spring holidays to reduce the risk of spreading the virus (photo by Richard Atrero de Guzman/ADB).

Annex 1 photo. San Fernando, Pampanga—Medical technicians test the equipment inside a sterile lab during the inauguration and turnover of the Pandemic Sub-National Reference Laboratory at the Jose B. Lingad Memorial Hospital in San Fernando, Pampanga on 9 May 2020. The laboratory financed by the $3 million grant from the Asia Pacific Disaster Response Fund, can perform up to 3,000 COVID-19 tests daily, significantly increasing the country's testing capacity (photo by Veejay Villafranca/ADB).

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Appendix 28: Preliminary Environmental Audit Report of Existing Sewerage System at Kargi, Dehradun

I. Introduction

1 The existing 68 MLD capacity Kargi STP based on the SBR process and equipped with septage co-treatment facility was built and commissioned in October 2015 as a part of ADB loan project [36]. It comprises of receiving chamber, coarse screen (manual and mechanical), raw sewage sump, pump house, stilling chamber, fine screen (manual and mechanical), grit chamber, parshall flume, SBR basin, chlorine contact tank, sludge sump, and centrifuge.

2. The Kargi STP is located at Haridwar by pass road adjacent to Bindal river in Kargi zone in Dehradun (co-ordinates: 30o17'11.30" N and 78o00'58.25"E) and land of the existing STP is owned by Nagar Nigam Dehradun. The total area for STP is 3.12 hectare (equivalent to 7.71 acres). Bindal river drainage zone also collects sewage from western part of the city for the existing Kargi STP. The sewage generated from the areas under Kargi zone are also being treated in this STP. The STP has backup generator, which is an emergency diesel generator set (750 KW capacity) as emergency power for common and essential services / utilities. The Kargi STP is away from habitations (100m), and do not have any nearby notable sensitive environmental features The existing treatment technology, SBR, being an aerobic process and conducted in a compact and a closed system with automated operation, therefore odour nuisance will be very minimal and negligible. At present, the Kargi STP is receiving only 12 to 15 MLD sewage against the 68 MLD design capacity. Only about 130 KLD of FSS is presently being disposed at Kargi STP for treatment (NIUA 2021).

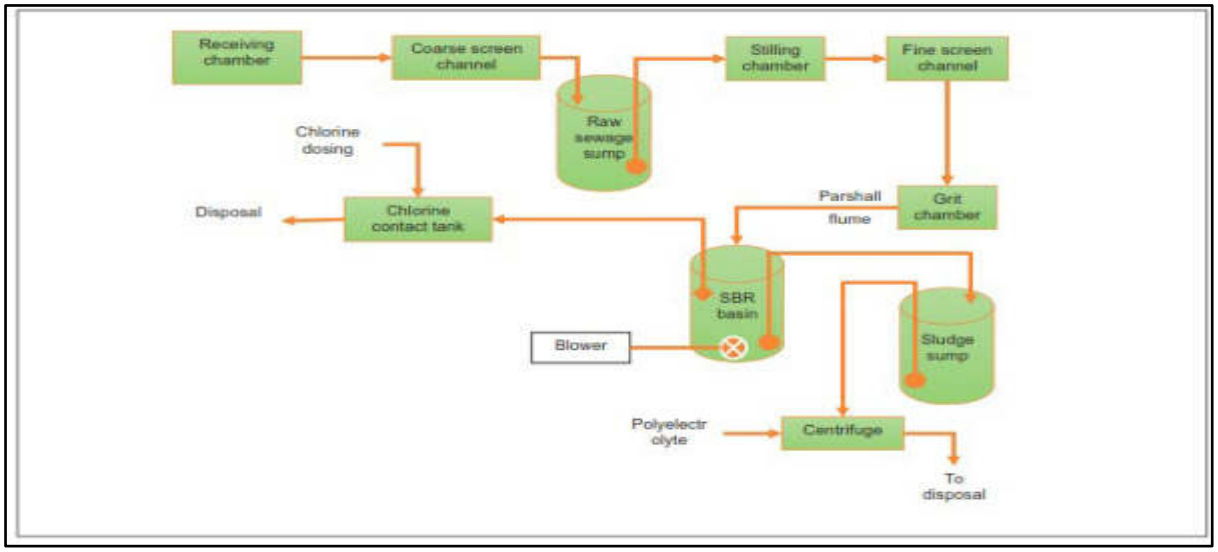
3. Based on the report "Co-Treatment of Septage at STPs of Ganga Towns in Uttarakhand" by the National Institute of Urban Affairs (NIUA), 2019 the design and operation related information about the existing 68 MLD Kargi STP are discussed below:

II. Flow sheet

4. The typical flow sheet of STP is provided in Figure 1

[36] ADB. Uttarakhand Urban Sector Development Investment Program-Project 1; and ADB. Uttarakhand Urban Sector Development Investment Program-Tranche 2.

Figure 1: Flow sheet of 68 MLD STP



III. Design parameters & unit sizes

5. The STP is designed for an average flow of 68 MLD and a peak flow of 153 MLD. The design inlet and outlet water quality parameters are summarized in Table 1. The unit sizes are summarized in Table 2.

Table 1: Inlet and Outlet Water Quality Parameters

S.No.	Parameter	Units	Influent	Effluent
1.	BOD	mg/L	250	<10
2.	COD	mg/L	500	<100
3.	TSS	mg/L	400	<10

Table 2: Unit Sizes of STP

S.no.	Description	Dimensions	No.
1.	Receiving chamber	Volume - 53.13 m^3	1
2.	Mechanical coarse screen	5.75 m x 1.4 m x 1.35 m SWD	2
3.	Manual coarse screen	5.75 m x 1.4 m x 1.35 m SWD	1
4.	Raw sewage sump (wet well)	16.5 m Dia. x 2.56 m SWD	1
5.	The raw sewage pumping station	16.5 m Dia. X 5.0 m ht.	1
6.	Stilling chamber	4.3 m x 4.2 m x 3.0 m SWD	1
7.	Mechanical fine screen	7.25 m x 1.45 m x 1.25 m SWD	1
8.	Manual fine screen	7.25 m x 1.45 m x 1.25 m SWD	2
9.	Grit chamber	9.0 m x 9.0 m x 0.9 m SWD	2
10.	SBR/C-Tech basin	60.45 m x 33.5 m x 5.8 m SWD	4
11.	Chlorine contact tank	50.0 m x 1.9 m x 1.5 m SWD	1
12.	Chlorination room	10.0 m x 5.0 m x 4.5 m ht.	1
13.	Sludge sump	10.0 m x 8.55 m x 3.5 m SWD	1
14.	Sludge pump house	12.0 m x 10.0 m x 4.5 m ht.	1
15.	Sludge drying area	Area = 475 m^2	
16.	Centrifuge house	10.0 m x 6.5 m x 9.0 m ht.	1
17.	Blower room	37.0 m x 10.0 m x 10.0 m ht.	1

IV. Flow Variation

6. Flow variations are needed for obtaining peak and lean flows. The peak factor is one of the essential criteria for the design of preliminary treatment units and the flexibility of the biological process to handle peak flows. The average flow measured was 734 m3/h or 17.62 MLD, and peak flow was 2,953 m3/h with a peak factor of 4 on 14-15th June 2019,

V. Composite Sampling & Analysis

7. For composite sampling, representative samples were collected at a regular time interval of 3-h on 14-15th June 2019. The flow rate was recorded by pump operation. The representative samples were then integrated by mixing together the portions of the individual samples relative to the flowrate at sampling time to make a composite sample. Analyses of alkalinity, COD, BOD, TSS, NH4-N, NO3-N, and PO4–P were carried out as per the Standard Methods (APHA, 2012) and presented in Table 3. The results show that almost all parameters satisfy the design outlet quality.

Table 3: Results of Composite Sample

S.No.	Parameters	Unit	Raw sewage	Outlet	Desired Effluent Quality
1	Alkalinity as $CaCO_3$	mg/L	420	270	-
2	pH		7.1	7.2	-
3	Turbidity	NTU	65	1.8	-
4	BOD	mg/L	298	11	10
5	COD	mg/L	547	33	100
6	TSS	mg/L	406	9	10
7	NH_4-N	mg/L	45.3	1	-
8	NO_3-N	mg/L	0.1	4.1	-
9	TN	mg/L	48.6	7.2	-
10	PO_4-P	mg/L	3.5	0.4	-

VI. Strategies for Septage addition for design and actual COD, BOD and TSS loadings

8. Based on the design COD, BOD, and TSS loadings calculations the safe load for septage addition is assumed as 80% of the design load. The safety factor is taken for consideration of harmful effects by Oil & Grease, cleaning agents, etc., on BOD, COD, TSS, and nutrient removal.

Table 4: Design COD, BOD, and TSS Loading

Parameter	Design Flow (m^3/h)	Design Inlet Water Quality (mg/L)	Design Loading (kg/h)	Safe Loading for co-treatment with septage addition (80 % of Design Load)
COD	68000 m^3/d x 1 day/24 h = 2833 m^3/h	COD = 500 mg/L or 0.5 kg/ m^3	2833 m^3/h x 0.5kg/m^3 = 1416.5 kg/h	0.8 x 1416.5 kg/h = 1133.2 kg/h
BOD	2833 m^3/h	BOD = 250 mg/L or 0.25 kg/m^3	2833 m^3/h x 0.25 kg/m^3 = 708 kg/h	0.8 x 708 kg/h = 566 kg/h
TSS	2833 m^3/h	TSS = 400 mg/L or 0.4 kg/ m^3	2833 m^3/h x 0.4 kg/m^3 = 1133.2 kg/h	0.8 x 1133.2kg/h = 906 kg/h

9. Actual COD, BOD, and TSS loading during the day (i.e., 8:00 am to 4:00 pm) was intermittent and higher than design loading capacity. Therefore, during this duration, co-treatment is not possible. To achieve co-treatment at the STP, the septage should be added between 4:00 pm to 8:00 am. After providing a storage facility, co-treatment can be done during the provided hours.

VII. Salient Features of the Kargi STP

Sr. No	Components Particulars	Descriptions
	Name of Plant	Sewerage Treatment Plant(STP) at Kargi, Dehradun
	Capacity of the STP	68 MLD (At present, the Kargi STP is receiving only 12 to 15 MLD sewage)
	Technology used	Extended Aeration Sequential Batch Reactor Pocess (SBR)

<table>
<tr><th>Sr. No</th><th>Components Particulars</th><th>Descriptions</th></tr>
<tr><td></td><td>Executing agency</td><td>Urban Developmet Department , Govt. of Uttarakhand</td></tr>
<tr><td></td><td>Implementing agency:</td><td>Uttarakhand Urban Sector Development Agency (UUSDA). The O & M contractor is M/s Gharpure Engineering & Construction (P) Ltd.</td></tr>
<tr><td></td><td>Land ownership details</td><td>Nagar Nigam Dehradun (Total land area of STP: 3.12 Ha)</td></tr>
<tr><td></td><td>Estimated/Final cost of STP</td><td>45.33 Cr.</td></tr>
<tr><td></td><td>O&M period of contract</td><td>60 months</td></tr>
<tr><td></td><td>Tree plantations done under this project (nos. and types of trees)</td><td>300 numbers</td></tr>
<tr><td></td><td>Status of Consent to Establish (CTE) from Pollution Control Board:</td><td>Obtained on 16th May 2008 (Ref. Enclosure 1)</td></tr>
<tr><td></td><td>Status of Consent to Operate (CTO) from Pollution Control Board:</td><td>Renewed on 29th July 2019 (Ref. Enclosure 2)</td></tr>
<tr><td></td><td>Validity of CTO</td><td>Upto 31st March 2022</td></tr>
<tr><td></td><td>Compliance with effluent standards</td><td>Month-wise treated effluentquality analysis results of Kargi STP (Enclosure 4), for the year 2019 and 2020 (upto October) reveal that all outlet water quality parameters, i.e.,BOD, pH and TSS are well within the standards prescribed by the UEPPCB per approved CTO. BOD values range from 8.08 to 9.56 mg/L and are below the 30 mg/L standard. Meanwhile, pH values range from 7.54 to 8.23 and also comply with the standard range which is 6.5-9.0. Lastly, TSS, with values from 9.30 to 13.78 mg/L, are well within the 100mg/L standard.

The outlet water quality results for pH, BOD and TSS are also well within the Effluent Discharge Standards for STP as per National Green Tribunal (NGT) order dated 30.04.2019 (Appendix 4), except for COD values which are almost at the standard level. Outlet water quality values are presented in the table below, in comparison with the UEPPCB and NGT standards.
<table>
<tr><th>Param-eters</th><th>Outlet water quality results (2019 - 2020) (Range)</th><th>Effluent Discharge Standards for STPs (NGT) order dated 30.04.2019</th><th>Standard UEPPCB (as prescribed in CTO)</th></tr>
<tr><td>PH</td><td>7.54 - 8.23</td><td>5.5-9.0</td><td>6.5-9.0</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Sr. No</th><th>Components Particulars</th><th>Descriptions</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>BOD</td><td>8.08 - 9.56</td><td>Not more than 10 mg/l</td><td>Not more than 30 mg/l</td></tr>
<tr><td>COD</td><td>40.13 - 50.91</td><td>Not more than 50 mg/l</td><td>-</td></tr>
<tr><td>TSS</td><td>9.30 - 13.78</td><td>Not more than 20 mg/l</td><td>Not more than 100 mg/l</td></tr>
<tr><td>P-Total (mg/l)- for discharge into ponds/lakes</td><td>-</td><td>Not more than 1.0 mg/l</td><td>-</td></tr>
<tr><td>N-Total (mg/l)</td><td>-</td><td>Not more than 10 mg/l</td><td>-</td></tr>
<tr><td>Fecal Coliform (MPN/100 ml)</td><td>-</td><td>Desirable-Less than 100 Permissible -230</td><td>Less than 1000</td></tr>
</table>
Source : UUSDA
</td></tr>
<tr><td></td><td>Reuse/disposal of treated effluent from STP:</td><td>The treated effluent is being utilized for gardening/green area development within the STP premises. Balance is being discharged into the adjoining Bindal river as approved under the CTO through a covered drain of about 250 m length</td></tr>
<tr><td></td><td>Sludge management</td><td>The dewatered sludge from centrifuge is currently disposed off to a suitable location within the STP premises for further drying and use as manure. The surplus/excess sludge (if any) is disposing off to Government owned landfill site with a solid waste management plant at Shisambara[37] at about 25 km away.</td></tr>
<tr><td></td><td>Status and type of electricity connection: dedicated grid supply with approved load</td><td>2000 KVa</td></tr>
<tr><td></td><td>Whether DG set installed, if yes give capacity and type of DG set</td><td>750 KW</td></tr>
</table>

[37] The Shishambara waste management plant was inaugurated in January 2018 under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) scheme of the central government with an aim to achieve scientific collection, disposal and processing of around 350 metric ton of waste produced in the city every day. Shishambara solid waste management plant on 8.3 hectares in the city and is being implemented on the public private partnership (PPP) mode.The operations at the plant include composting, recycling, Refuse Derived Fuel (RDF) as well as sanitary land fill (SLF). The biggest advantage of the plant is that it is completely covered so there is no chance of any stench going outside.

<table>
<tr><th>Sr. No</th><th>Components Particulars</th><th>Descriptions</th></tr>
<tr><td></td><td>Whether consent from Pollution Control Board taken for DG set</td><td>Yes</td></tr>
<tr><td></td><td>Numbers of employees proposed for operation of plant (designation wise numbers of employees):</td><td>
<table>
<tr><td>1 no</td><td>Plant Manager</td></tr>
<tr><td>1 no</td><td>Plant Engineer</td></tr>
<tr><td>4 no</td><td>Plant Supervisor</td></tr>
<tr><td>2 no</td><td>Centrifuge operator</td></tr>
<tr><td>2 no</td><td>Fitter</td></tr>
<tr><td>1 no</td><td>Helper</td></tr>
<tr><td>1 no</td><td>Chemist</td></tr>
<tr><td>1 no</td><td>Lab Assistant</td></tr>
<tr><td>3 no</td><td>Guard</td></tr>
<tr><td>5 no</td><td>Gardner/Cleaner</td></tr>
</table>
</td></tr>
</table>

Photographs of Existing STP

Enclosure 1: Consent to Establish Certificate

मुख्यालय
उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड
6 वसन्त विहार, फेज–1, देहरादून

पत्रांक सं0–यूईपीपीसीबी/एच.ओ./एन.ओ.सी.–1213/08/24]

दिनांकः 16/5/08
Registered /AD

सेवा में,

मै0 उत्तराखण्ड अर्बन सेक्टर,
डेवलपमेन्ट इन्वेस्टमेन्ट प्रोग्राम
न्यू आई.एस.बी.टी. परिसर, हरिद्वार बाई पास
माजरा, देहरादून।

विषयः–पर्यावरणीय प्रदूषण की दृष्टि से नई इकाई की स्थापना हेतु सहमति (Consent to Establish) पत्र निर्गमन।

महोदय,

कृपया उपरोक्त विषयक अपके आवेदन पत्र दिनांक 05.05.08 एवं तत्सम्बन्धी क्षेत्रीय कार्यालय की निरीक्षण आख्या एवं संस्तुति एवं का परीक्षण किया गया। परीक्षणोपरान्त लिए गए निर्णय के क्रम में उद्योग को पर्यावरणीय प्रदूषण के दृष्टिकोण से निम्नलिखित विशिष्ट शर्तो एवं सामान्य शर्तो के समुचित अनुपालन की शर्त के साथ सशर्त स्थापना हेतु सहमति पत्र (Consent to Establish) निर्गत किया जाता है।

1. स्थापना हेतु सहमति पत्र निम्नलिखित विशिष्ट विवरणों के लिए ही निर्गत किया जा रहा है:–

(क)	स्थलः	बिन्दाल नदी के किनारे, माजरा, कारगी, जनपद–देहरादून।
(ख)	उत्पादनः	68 एम0एल0डी0 क्षमता के सीवेज ट्रीटमेन्ट प्लान्ट।
(ग)	मुख्य कच्चे मालः	सीवेज।
(ध)	औद्योगिक उत्प्रवाह :	शून्य।
(ङ.)	प्रयुक्त ईंधनः	शून्य।

उपर्युक्त विषय वस्तु में किसी भी प्रकार से परिवर्तन करने पर पुनः स्थापना हेतु सहमति पत्र प्राप्त करना आवश्यक होगा।

2. यह सहमति जल एवं वायु अधिनियम के तहत निर्गत किया जा रहा है। उद्योग अन्य सक्षम विभागों से भी आवश्यक अनुमति प्राप्त करना सुनिश्चित करें।
3. सीवेज ट्रीटमेन्ट प्लान्ट की स्थापना यथा प्रस्तावित विवरणों के अनुसार किया जाना सुनिश्चित करें।
4. सीवेज ट्रीटमेन्ट प्लान्ट में सभी आवश्यक यन्त्र, संयंत्र, हरित पट्टिका, उत्प्रवाह शुद्धिकरण संयंत्र तथा वायु प्रदूषण नियन्त्रण की व्यवस्था की स्थापना में की गई प्रगति रिपोर्ट इस कार्यालय में प्रत्येक माह की दसवीं तारीख तक निरन्तर प्रेषित् करें।
5. सीवेज ट्रीटमेन्ट प्लान्ट इकाई में परीक्षण उत्पादन तब तक प्रारम्भ नहीं करें, जब तक कि वह बोर्ड से जल एवं वायु अधिनियमों के अन्तर्गत सहमति (CoPI) प्राप्त न कर ले। जल एवं वायु सहमति (CoP) प्राप्त करने हेतु इकाई में उत्पादन प्रारम्भ करने की तिथि से कम से कम 2 माह पूर्व निर्धारित सहमति आवेदन पत्रों को उत्पादन पूर्व प्रथम आवेदन का उल्लेख करते हुए इस कार्यालय में अवश्यक जमा कर दिया जाये। यदि उद्योग उपरोक्त का अनुपालन नहीं करता है तो उक्त अधिनियमों के वैधानिक प्राविधानों के अन्तर्गत उद्योग के विरुद्ध बिना किसी पूर्व सूचना के विधिक कार्यवाही की जा सकती है।

6. सीवेज ट्रीटमेन्ट प्लान्ट में परीक्षण उत्पादन से पूर्व क्षेत्रीय कार्यालय द्वारा इकाई का निरीक्षण सुनिश्चित कराया जाये।
7. घरेलू उत्प्रवाह, जिसकी मात्रा 2 कि0ली0/दिन से अधिक नहीं होगी। एस.टी.पी. के माध्यम निस्तारित किया जाये।
8. यह स्थापना हेतु सहमति पत्र केवल घरेलू उत्प्रवाह के लिये मान्य है। उद्योग से औद्योगिक उत्प्रवाह कदापि निस्तारित न किया जाए।
9. सीवेज ट्रीटमेन्ट प्लान्ट प्रतिवर्ष माह सितम्बर तक पर्यावरणीय वक्तव्य प्रस्तुत करना सुनिश्चित करें।
10. उद्योग का संचालन इस प्रकार से किया जाये, कि परिवेशीय वायु गुणवत्ता सदैव बोर्ड मानकों के अनुरूप रहे।
11. उद्योग से जनित ठोस अपशिष्ट पदार्थो को इस प्रकार निस्तारित किया जाये, कि जल, वायु तथा मृदा प्रदूषण की सम्भवना न रहे।
12. सीवेज ट्रीटमेन्ट प्लान्ट का संचालन इस प्रकार किया जाये, कि प्रदूषण सम्बन्धी शिकायतें प्राप्त न होवें। प्रदूषण सम्बन्धी जन –शिकायतें प्राप्त होने एवं पुष्टि होने पर स्थापना हेतु सहमति पत्र रिवोक कर दी जायेगी। जिसका सम्पूर्ण उत्तरदायित्व उद्यमी का होगा।
13. सीवेज ट्रीटमेन्ट प्लान्ट परिसर में चारों तरफ कम से कम 3 कतारों वाली हरित पट्टिका विकसित की जाये। हरित पट्टिका हेतु सघन तथा छायादार वृक्षो का चयन किया जाये। हरित् पट्टिका हेतु निर्धारित भूमि पर निर्माण कार्य न किया जाये।
14. सीवेज ट्रीटमेन्ट प्लान्ट परिसर में रूफ टापरेन वाटर हार्वेस्टिंग की व्यवस्था की जाये।
15. उद्योग में परिसंकटमय अपशिष्ट (प्रबन्धन एवं हथालन) नियम 1989 यथा संशोधित 2003 का अनुपालन सुनिश्चित करें तथा उत्पादन से पूर्व परिसंकटमय अपशिष्ट के निस्तारण हेतु बोर्ड से प्राधिकार प्राप्त किया जाये।
16. सीवेज ट्रीटमेन्ट प्लान्ट में सुरक्षा सम्बन्धी समस्त उपाय किये जायें तथा उत्पादन प्रारम्भ करने से पूर्व सक्षम विभागों से अनापत्ति प्रमाण पत्र प्राप्त किया जाये।
17. सीवेज ट्रीटमेन्ट प्लान्ट मे जल एवं वायु प्रदूषकारी श्रोतों की स्थापना न की जाये।
18. सीवेज ट्रीटमेन्ट प्लान्ट में खतरनाक/परिसंकटमय रसायन विनिर्माण, भण्डारण एवं आयात नियम 1989 का पालन किया जाये।
19. सीवेज ट्रीटमेन्ट प्लान्ट द्वारा बोर्ड की अनुमति के बिना क्षमता विस्तारीकरण, प्रक्रिया परिवर्तन कदापि न किया जाये।
20. सीवेज ट्रीटमेन्ट प्लान्ट में कार्मिकों की संख्या–100 से अधिक न की जाये।
21. सीवेज ट्रीटमेन्ट प्लान्ट में बोर्ड की पूर्वानुमति के बिना ब्वायलर/फर्नेस/ओवन डी0जी0 सेट आदि की स्थापना न की जाये।
22. उद्योग मे शुद्धीकृत उत्प्रवाह को यथा सम्भव गार्डनिंग मे सिंचाई हेतु प्रयोग किया जाये यह सुनिश्चित किया जाय कि नदी जल की गुणवत्ता प्रभावित न हो।
23. यह सहमति मा0 सर्वोच्च न्यायालय में विचाराधीन विशेष अनुमति अपील संख्या (सिविल) एस 8023 – 2006 में पारित निर्णय के अधीन रहेगी।

कृपया ध्यान दें कि उपर्युक्त लिखित विशिष्ट शर्तो एवं सामान्य शर्तो का प्रभावी एवं सन्तोषजनक अनुपालन न करने पर बोर्ड द्वारा निर्गत स्थापना हेतु सहमति (CoE)पत्र निरस्त कर दिया जयेगा। बोर्ड का अधिकार सुरक्षित है, कि स्थापना हेतु सहमति पत्र (Consent to Establish) की शर्तो में संशोधन किया जाये अथवा निरस्त कर दिया दिया जाये।

उपर्युक्त विशिष्ट एवं सामान्य शर्तो के सम्बन्ध में उद्योग द्वारा इस कार्यालय में दिनांक 10.06.08 तक प्रथम अनुपालन आख्या अवश्यक प्रेषित् की जाये। अनुपालन आख्या नियमित प्रेषित की जाये, अन्यथा स्थापना हेतु सहमति पत्र निरस्त कर दिया जाएगा।

भवदीय

(सुब्रत विश्वास)
सदस्य सचिव

पृ0 सं0 एवं दिनाँक/उपरोक्तानुसार
प्रतिलिपिः–क्षेत्रीय अधिकारी, उत्तराखण्ड पर्यावरण संरक्षण एवं प्रदूषण नियंत्रण बोर्ड, देहरादून को सूचनार्थ एवं उपरोक्त के अनुपालन हेतु प्रेषित।

मुख्य पर्या0 अधिकारी (प्र0)

CONSENT TO ESTABLISH CERTIFICATE for STP 68 MLD, DEHRADUN

TRANSCRIPT,

UEPPCB vide its letter number UEPPCB.H. O/ NOC-1213/08 /241 dated issued the 16th May 2008 to M/s Uttarakhand urban Sector Development Investment Program by member secretary UEPPCB.

1 Name of the Project: 68 MLD, capacity Sewerage Treatment plant

(A) **Site: Bindal River Bank, Mazri, kargi, Dehradun**
(B) **Production: 68 MLD STP**
(C) **Raw Material: Sewerage**
(D) **Industrial effluent: No**
(E) **Used Fuel: Nil**

Any change in above conditions will be liable to avail permission.

Other conditions are as follows,

1) The consent is under water and air act additional permission for the unit will be the responsibility of the operator/agency,
2) STP shall be established as per the proposed technical specifications,
3) Monthly report for the operation of essential machines/equipment's/ reports such as green belt, effluent treatment, Air pollution will be submitted by the operator/agency,
4) The agency will Operation of the STP will be subject to consent under water and Noise (CoPI) from the Board, Board will be intimated two months prior to its establishment referring to the consent availed, so that if the units fails to abide to the specified effluent standards than will be liable to legal implications as per rule.
5) Unit will be liable to ensure the inspection by the regional office prior to the trial run.
6) Domestic Sewer upto 2KLD /House will be treated through the STP**.**
7) Consent to establish is only for the domestic sewer not any industrial /commercial effluent,
8) STP operator should provide the annual environmental statement by the September of each year,
9) Unit should be run in a way that the Ambient Air quality environmental standards never exceed to specified specifications by the board,
10) The effluents should be disposed in a wat that it doesn't cause any Air, Water and Soil pollution.
11) Unit should be run in a way that it doesn't generate pollution related grievances, if any such public grievance arises then on due verification of the grievance, the CTE be provoked and the operator/agency will be held responsible for the same,
12) 3 layers of green belt with dense canopy of evergreen vegetation bearing plants will be developed around the STP premises and no construction will be done in that green belt area,
13) Provision roof Roof top rain water harvesting system will be established in the STP campus,
14) The unit will abide to the hazardous chemicals and effluent rules 1989 and revised rules 2003 and will avail permission for the handling of the same from the board,
15) Operating agency will ensure all the health and safety provisions and will get the NOC for the same from the Board,
16) Operating Agency will not establish Air and water polluting units,
17) For health and safety provisions unit will avail the NOC from the board before operation of the unit,
18) STP shall not be permitted to extent its capacity without the permission from the board,
19) The staff in the STP should not exceed to the gross number of 100 workers
20) The unit should not establish the boiler/ furnace/oven/D. G set etc,

21) Preferably the treated effluent should be used for the irrigation /agriculture purpose and should ensure that it doesn't pollute the river water quality,
22) The CTE is subject to the honourable supreme court of India special permission appeal number (Civil) S- 6023 -dated 10.6.08.

It is to notify that operator/agency will abide to the above conditions mentioned in the CTE, UEPPCB will have right to reject the CTE in case of unsatisfactory compliance of above conditions.

Sd (Member Secretary -UEPPCB-Dehradun)

Enclosure 2: Consent to Operate Certificate

UEPPCB

HEAD OFFICE
Uttarakhand Environment Protection and Pollution Control Board
"Gaura Devi Paryavaran Bhawan"
46B, IT Park, Sahastradhara Road, Dehra Dun (Uttarakhand)
Web : www.ueppcb.uk.gov.in, E-mail : mukpcb@yahoo.com

UEPPCB/HO/Con/U-67/2019/ 513 **Date** 29.07.2019
REGD. POST

To,

M/s Uttarakhand Urban Sector Development Agency,
(68 MLD Sewerage Treatment Plant),
Rajendranagar,
Kaulagarh Road, Dehradun.

Consolidated Consent to Operate and Authorisation hereinafter referred to as the CCA (Consolidated Consent & authorization) (Renewal) under Section-25 of the "Water (Prevention & Control of Pollution) Act, 1974" and under Section-21 of the "Air (Prevention & Control of Pollution) Act, 1981" and Authorization under "Rule-6(2)" of the "Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016" notified under "Environment (Protection) Act, 1986" as applicable (to be referred hereinafter as **Water Act, Air Act** and **HW Rules** respectively).

PCB ID - 20114	**Inward ID – 243214**
CCA (Renewal)	
Consent No.39532	**Date :- 07.05.2019**

CCA is hereby granted to **M/s Uttarakhand Urban Sector Development Agency, Dehradun for operation of Khasra No : 193, Kargi Chowk, Dehradun** subject to the provisions of the **Water Act, Air Act** and **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** and the orders that may be made further and subject to following terms and conditions :-

1. This CCA is **granted for a period upto 31.03.2022** and valid for manufacturing of following products with **Capital Investment/Net Assets Values ₹ 48.00 Crs :-**

S. No.	Last CCA		Present CCA (Renewal)	
	Operation	Treatment Capacity	Operation	Treatment Capacity
1	STP	68 MLD	STP	68 MLD

2. **Specific Conditions under Water Act :**

(i) **The daily quantity of effluent discharge (MLD) :-**

	Last CCA	Present CCA (Renewal)
Trade Effluent	Nil	Nil
Sewage (STP Discharge)	Nil.	68

(ii) **Sewage Treatment and Disposal**: The applicant shall ensure appropriate operation and maintenance of common Sewage Treatment Plant as required with reference to influent quantity and quality.

The operator of STP shall provide adequate facility of 3 days which can be utilized for storage of sewage in case of stoppage of functioning of STP.

(iv) The Quality of the treated effluent shall meet to the following standards as prescribed under the Environment (Protection) Rules, 1986 as amended dated 13.10.2017.

S.No.	Parameters	Standards
1	pH	6.5 to 9.0
2	BOD (mg/L)	Not more than 30
3	TSS (mg/L)	Not more than 100
4	Fecal Coliform (MPN/100ml)	Less than 1000

3. Conditions under Air Act :-

(i) The applicant shall use following fuel and install a comprehensive control system consisting of control equipment as is required with reference to generation of emissions and operate and maintain the same continuously so as to achieve the level of pollutants to the following standards :-

S. No	Stack attached with	Stack height (Mt)	Type of Fuel	Fuel Quantity	Emission Control Equipment	Emission standards not to exceed
1	DG Set (750 KVA) x 1	4	Diesel	30 Ltr/Hr	Acoustic Enclosure	-

*In case of stoppage of functioning of air pollution control equipment, production has to be **stopped immediately** and this **Board** has to be intimated by fax/phone/ mail with a report in this regard to be dispatched immediately.*

(ii) Noise from the D.G. Set and other source(s) should be controlled by providing an acoustic enclosure as is required for meeting the ambient noise standards for night and day time as prescribed for respective areas/zones (Industrial, Commercial, Residential, Silence) which are as follows :-

Standards for Noise level in db(A) Leq	Industrial Area		Commercial Area		Residential Area		Silence Zone	
	Day time	Night time	Day time	Night time	Day time	Night time	Day time	Night time
	75	70	65	55	55	45	50	40

Day time : from 6.00 a.m. to 10.00 p.m., Night time: from 10.00 p.m. to 6.00 a.m.

4. Conditions under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 :-

(i) Number of authorization and date of issue : ----------

(ii) The **Manager** of **M/s Uttarakhand Urban Sector Development Agency, Dehradun** is hereby granted an authorization to operate a facility for collection and storage of Hazardous wastes.

(iii) The authorization is granted to operate a facility for generation, collection and storage of hazardous wastes within factory premises for following category of wastes :-

S.No.	Category (Schedule-I & Schedule-II)	Quantity of Waste for which authorization is being issued (MTA)	Mode of Disposal
1	Schedule I – 5.1	0.300	Recyclable

(iv) The authorization shall be in force for a **period upto 31.03.2022.**

(v) The authorization is subject to the conditions stated below and such conditions as may be specified in the rules for the time being in force under Environment (Protection) Act, 1986.

Terms and conditions of authorization :-

(i) The authorization shall comply with the provisions of the **Environment (Protection) Act, 1986,** and the rules made there under.

(ii) The authorization and its renewal shall be produced for inspection at the request of an officer authorized by the SPCB/PCC.

(iii) The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous wastes without obtaining prior permission of the SPCB/PCC.

(iv) Any unauthorized changes in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.

(v) It is the duty of the authorized person to take prior permission of the SPCB/PCC to close down the facility.

(vi) An application for the renewal of an authorization shall be made as laid down under these rules.

(vii) The unit shall comply with any other conditions specified in the guidelines issued by the MoEF or CPCB/SPCB from time to time.

5. This CCA is valid for the operation of STP only.

6. **Compulsory documents to be submitted by the Industry/Unit :-**
   (i) Annual return in **Form-4** and **Waste Disposal Manifest** in **Form-10** under **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** and **Third Party Audit Report.**
   (ii) Environment Statement in **Form-V** of **Environment (Protection) Rules, 1986.**
   (iii) Quarterly **compliance report of the CCA, photograph of ETP/APCs/Waste Storage Area.**

7. Unit has to apply for renewal of CCA well in advance of 60 days of expiry of this CCA.

8. Competent Authority reserves the right to change/modify/add any time any condition of this CCA.

9. Unit has to comply with the other general conditions as annexed herewith. Non compliance of any provision of this CCA and provisions of the **Water Act, Air Act** and **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016** will results in legal action under the aforesaid **Acts and Rules.**

10. **The Applicant shall obtain all permissions and prepare a plan for reutilization of treated water in pursuance of Hon'ble NGT orders issued time to time and shall ensure time bound execution of the same. Copies may be submitted to the Board offices.**

Member Secretary

Copy to: **Regional Officer, Uttarakhand Environment Protection and Pollution Control Board, Dehradun** for information and compliance of the same.

Chief Environment Officer

Enclosure 3: PHOTOS SHOWING VARIOUS PROCESS AT 68 MLD STP AT KARGI

	
Sludge Drying Beds at STP Site	**Use of treated Sewer at STP Site**
	
Covered Drain for discharge of treated effluent into Bindal River	**Use of treated Sewer at STP Site**
	
Covered Drain for discharge of treated effluent into Bindal River	**Use of treated Sewer at STP Site**

	
Dried Sludge at STP site	**Effluent discharge into Bindal River**
	
Signage in STP site stating treated sewer available free of cost for nondrinking purposes	**Effluent outfall point**

Shishambara Waste Management Plant

Enclosure : 4
Water Quality Characteristics of Existing 68 MLD Kargi STP, Dehradun (2019-2020)

(Operation & Maintenance Maintained by Gharpure Engineering & Construction Pvt.Ltd)

Year : 2019

Month	Desired Parameters / Standards			Inlet				Outlet			
				BOD mg/l	COD mg/l	TSS mg/l	PH	BOD mg/l	COD mg/l	TSS mg/l	PH
				250	500	400	6.5 - 7.5	≤ 10	≤ 100	≤ 10	6.5 - 8.5
	Inflow MLD	Outflow	Consumed Power kWH	BOD mg/l	COD mg/l	TSS mg/l	PH	BOD mg/l	COD mg/l	TSS mg/l	PH
January - 2019	11.92	11.91	1755.56	228.36	478.07	416.78	8.09	9.543	50.57	13.62	8.23
February -2019	11.95	11.94	1751.69	228.37	478.99	417.81	8.09	9.541	50.6	13.68	8.23
March-2019	12.01	12	1754.34	228.61	480.1	418.66	8.09	9.55	50.77	13.67	8.23
April -2019	12.05	12.03	1754.13	228.07	480.97	419.72	8.09	9.537	50.84	13.69	8.23
May-2019	12.07	12.04	1753.17	228.41	482.29	420.26	8.09	9.535	50.87	13.72	8.23
June -2019	12.14	12.12	1749.22	228.65	483.25	419.98	8.09	9.543	50.88	13.78	8.23
July-2019	12.12	12.09	1745.12	227.67	480.85	417.75	8.10	9.541	50.91	13.7	8.23
August - 2019	12.13	12.12	1734.19	227.1	478.93	415.12	8.10	9.528	50.85	13.65	8.23
September -2019	12.12	12.07	1735.46	226.62	476.8	413.01	8.10	9.536	50.82	13.6	8.23
October - 2019	12.12	12.08	1733.81	226.24	475.77	412.08	8.10	9.556	50.87	13.59	8.22
November 2019	12.15	12.1	1729.14	225.62	474.8	411.27	8.1006	9.566	50.83	13.53	8.22
December 2019	12.18	12.1	1728.73	224.53	472.34	410.13	8.0984	9.553	50.73	13.52	8.22

Year : 2020

Month	Desired Parameters / Standards			Inlet				Outlet			
				BOD mg/l	COD mg/l	TSS mg/l	PH	BOD mg/l	COD mg/l	TSS mg/l	PH
				250	500	400	6.5 - 7.5	≤ 10	≤ 100	≤ 10	6.5 - 8.5
	Inflow MLD	Outflow	Consumed Power kWH	BOD mg/l	COD mg/l	TSS mg/l	PH	BOD mg/l	COD mg/l	TSS mg/l	PH
January - 2020	14.28	14.36	2669	207.9	460.02	546.18	7.68	9.22	45.35	12.14	7.76
February-2020	13.99	13.98	2753	196.88	503.62	553.14	7.64	9.15	44.41	10.76	7.71
March-2020	14.31	14.36	2667	207.89	456.50	542.97	7.68	9.22	45.38	12.1	7.76
April -2020	13.41	13.48	2699	203.48	430.01	432.2	7.74	9.10	43.26	12.14	7.82
May-2020	13.87	13.9	2578	199.63	418.32	379.05	7.61	9.10	98.46	11.42	7.68
June -2020	15.10	15.20	2648	163.97	343.68	406.57	7.54	8.91	40.13	10.5	7.64
July-2020	19.73	19.78	2777	115.52	273.46	321.75	7.42	8.34	35.20	10.13	7.54
August - 2020	23.23	23.34	2864	119.92	224.10	243.04	7.29	8.09	32.12	8.81	7.38
September -2020	20.05	20.29	2683	112.4	282.88	278.54	7.49	8.08	33.58	9.41	7.56
October - 2020	18.02	18.75	2953	138.52	338.78	289.94	7.52	8.89	33.41	9.30	7.58

Source: UUSDA,2020