

UTTARAKHAND DISASTER PREPAREDNESS &  
RESILIENCE PROJECT (U-PREPARE)



**Occupational Health and Safety Plan  
for**

*Construction of Motor Bridge in Km-11 at Nandprayag to Ghat way in  
District Chamoli.*

M/s D.S. Construction

*Vivek K. Malhotra*  
Partner

**M/S DS CONSTRUCTION**

## **Table of Contents**

INTRODUCTION.....	3
PROJECT BACKGROUND.....	5
OBJECTIVES OF OHSE PLAN.....	5
OBJECTIVES OF OHSE PLAN.....	5
OCCUPATIONAL HEALTH AND SAFETY RISK ASSESSMENT .....	7
ENSURING LABOR SAFETY DURING CONSTRUCTION.....	7
GENERAL SAFETY GUIDELINES.....	8
EMERGENCY RESPONSE PLAN .....	8
PROJECT SITE ARRANGEMENTS.....	10
PLAN OF THE EDUCATION .....	11
SITE SPECIFIC OCCUPATIONAL HEALTH AND SAFETY PLAN.....	13

## I. INTRODUCTION

### **ABOUT UTTARAKHAND**

Uttarakhand has a total area of 53,483 Square kms of which 86% is mountainous and 65% is covered by forest. Most of the northern part of the state is covered by high Himalayan peaks and glaciers. Uttarkashi, Chamoli and Pithoragarh districts of Uttarakhand share International boundary in the NW with China. In the east, the districts of Pithoragarh, Champawat and Udham Singh Nagar also share International boundary with Nepal. Uttarkashi and Dehradun share inter-state boundaries with Himachal Pradesh in the north-west, while Dehradun, Haridwar, part of Nainital and Udham Singh Nagar touches the boundary of Uttar Pradesh in the south.

It is rich in natural resources especially water and forests with many rivers and snow-clad mountain peaks. Resting majestically in the Garhwal Himalayas is a twin-peaked massif that forms a long high ridge leaning east to west, known as Nanda Devi. The Nanda Devi East Peak is part of this, and together with the West Peak, are formed the twin peaks of the Goddess Nanda. A barrier ring guards the main summit, within which can be found some of the highest mountains in the Indian Himalayas, and Nanda Devi East is one of them. Twelve peaks surpass 6,400 meters in height.

The heart of the insurmountable ring is the Nanda Devi Sanctuary which is protected as the Nanda Devi National Park. Nanda Devi East lies on the eastern edge of the ring and of the Park; at the border of Chamoli, Pithoragarh and Bageshwar districts. The Nanda Devi West Peak towers at 7,817 meters and is the second highest in the country. Uttarakhand lies on the southern slope of the Himalaya range, and the climate and vegetation vary greatly with elevation, from glaciers at the highest elevations to subtropical forests at the lower elevations. The highest elevations are covered by ice and bare rock. Below them, between 3,000 and 5,000 metres (9,800 and 16,400 ft.) are the western Himalayan alpine shrub and meadows. Two of the most important rivers in Hinduism originate from the glaciers of Uttarakhand, the Ganges at Gangotri and the Yamuna at Yamunotri. These two along with Badrinath and Kedarnath form the Chota Char Dham, a holy pilgrimage for the Hindus.

## **TRANSPORT**

### **Road Network**

Uttarakhand has a total road length of 58,714 kms out of which surfaced roads are 36,026 kms. Length of National Highways is 2,042 kms and length of State Highways is 3,788 kms.

## **CLIMATE**

Uttarakhand mainly has two different climatic regions, namely, the hilly terrain and the smaller plain region. The most favorable time to visit Uttarakhand happens to be in the course of the summers when the weather is very clement and mild. Certain areas of the hills even become inaccessible in winter due to extremities of climate causing prolonged snowfall. The plain region seems to be at its best in terms of climate in winter, when the weather is pleasant.



## **MONSOON**

During the period of July to September, lies the monsoon season of Uttarakhand. The temperature ranges from 15 to 25 degrees Celsius at most of the places, during this time. The state receives approximately 90% of its annual rainfall in this season. It is also one of the most pleasant seasons of Uttarakhand.

## **II. PROJECT BACKGROUND**

Client is aiming to build the new bridges in replacement of existing old bridges/Construction of new bridges at locations of Bridges which have been washed away in disaster of year 2013 and construction of new bridges as per requirement at site. Under the contract, the contractor **M/S DS Construction** is assigned to perform all activities related to the “Construction of Motor Bridge in km-11 at Nandprayag to Ghat Motorway in District Chamoli”.

### **Objectives of OHSE Plan:**

The purpose of the OHS Action Plan is to provide safety guidelines and procedures for employees and to clearly define roles and responsibilities for its implementation. This Action Plan focuses primarily on protecting employees in the workplace from various risks such as accidents and injuries, in addition to maintaining their rights for a safe working environment. The OHSE plan sets out the OHSE management system as well as the resources required to implement. It includes the minimum requirements for compliance with OHSE laws and regulations in order to prevent injuries to workers, damage to property or the environment.

## **III.Occupational health and safety**

Occupational health and safety The rights of workers, including occupational health and safety, must be taken into account to avoid accidents and injuries, loss of labor resources, labor abuse and ensure fair treatment, pay, working and living conditions. For the purposes of the correct implementation of the Health and Safety program, the following basic concepts used in the national labor legislation are used:

***labor protection*** - a system of measures to preserve the life and health of workers in the course of their work, including legal, socio-economic, organizational and technical, sanitary and hygienic, medical and preventive, rehabilitation and other measures;

**Working conditions** - a set of factors of the working environment and the labor process that affect the performance and health of an employee;

**Harmful production factor** - a production factor, the impact of which on an employee can lead to his illness or decrease in working capacity;

**Hazardous production factor** - a production factor, the impact of which on an employee can lead to his injury or sudden sharp deterioration in health, death;

**Safe working conditions** - working conditions under which the impact on workers of harmful or hazardous production factors is excluded or the levels of their impact do not exceed the established standards;

**Workplace** - a place of permanent or temporary stay of employees in the process of labor activity;

**Means of individual and collective protection of workers** - technical means used to prevent or reduce the impact on workers of harmful or hazardous production factors, as well as to protect against pollution;

**Personal protective equipment of an employee** - means intended for personal protection of the respiratory, hearing, vision and skin of an employee from the effects of adverse factors;

**Occupational disease** - a chronic or acute disease caused by exposure of an employee to harmful production factors in connection with the employee's performance of his labor (service) duties;

**occupational risk** - the magnitude of the probability of a health disorder, taking into account the severity of the consequences as a result of exposure to adverse factors in the working environment and the labor process;

In addition, in order to achieve the objectives of the OHSE, the following activities shall be carried out:

- i. All construction sites/ sites should have first aid facilities available on a regular basis;
- ii. Contractor shall conduct awareness camps / health camps on quarterly basis and disseminate information at worksites on the risks of all the transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction;
- iii. Conducting training for all Contractor personnel on basic sanitation and health issues, general health and safety issues, taking into account the specifics of the work;
- iv. Providing clean drinking water to all employees;

- v. Provision of Sanitation facility, adequate number of toilets and covered space for bathing and washing at the construction site, which will be cleaned to prevent an outbreak of diseases;
- vi. Conducting monthly safety meetings as well as daily safety briefings;
- vii. Lighting and signs should not be obscured and be readable.
- viii. Equipment that is contaminated or out of place must be repaired immediately and put away.

## **IV. Occupational health and safety risk assessment**

The Contractor will constantly take measures to prevent violations and comply with generally accepted OHS rules, analyze the reasons for non-compliance with labor protection requirements. The main types of possible incidents that led to an accident at work shall include:

- 1) Traffic accident
- 2) Falling from height;
- 3) Collapses, collapses of objects, materials, earth;
- 4) Electric shock;
- 5) Exposure to harmful substances;
- 6) Exposure to ionizing radiation;
- 7) Physical overload;
- 8) Damage resulting from contact with animals, insects and reptiles;
- 9) Fire, burns;
- 10) Disaster damage, etc

Incidents on the site will be immediately reported to the FPIU / PIU Engineer and the competent government authorities. Records will be kept in the office and on site. The FPIU / PIU engineer as well as the public have rights and access to information on labor protection.

## **V. Ensuring labor safety during construction**

This section provides an overview of the management of activities that will be carried out as part of the overall implementation of the project. Failure to comply with health and safety regulations can pose a risk to construction workers. The Contractor will comply with occupational health and safety regulations, which include, but are not limited to, strict adherence to established norms and procedures, which depend on the type of work performed, the use of

PPE, training activities and monitoring. In addition, all workers must be familiar with the handling of hazardous materials. The Contractor shall provide the workers with appropriate living conditions: safe water supply, optimal conditions for meeting hygiene needs etc.

## **VI. General Safety Guidelines**

**Housekeeping:** Housekeeping is an essential safety requirement for all safe work environments. An untidy work area can cause accidents, inefficiencies, and creates fire and other hazards. Wet floors, spills, and clutter may cause slips, trips and falls. It is important to keep work areas clear of clutter and equipment.

**Drugs and Alcohol Consumption:** To ensure the ongoing safety of all our employees, the consumption of alcohol or recreational drugs are not permitted in the workplace at any time. All employees reporting to work must be free of alcohol and drugs. Measures to identify whether alcohol or drugs are being taken will include:

- Employee experiencing poor coordination, poor concentration and/or visual disturbance;
- Near miss incidents;
- Violence;
- Habitual lateness or absences;
- Neglect of personal grooming.

**Smoking:** The partners shall commit to protecting the health and safety of all its employees and others who may be affected by environmental tobacco smoke at work by creating a smoke-free workplace. Smoking is prohibited in the workplace and is only permitted in designated areas.

**Electrical Safety:** This project does not involve any electrical safety risks.

**Machinery and Power Tools:** This project does not include the use of any dangerous moving parts of machinery, such as gears, belts, pulleys, sprockets, counterweights, chains, and shafts.

## **VII. Emergency Response Plan**

**Emergency Plan:** A site-specific emergency procedure shall be produced prior to the commencement of site operations. This shall be communicated to all personnel via the Site Induction Training. An emergency situation may involve:

- Fire
- Flooding
- Explosion
- Pollution
- Fuel Leak

- Medical Emergency
- Natural Disasters (e.g. earthquake, hurricane, high winds etc.)

***First Aid Arrangements:*** -

- OHS expert will be responsible to administer basic first aid at site.
- First aid supplies will be placed in the workplace.
- First aid box shall be available. It shall contain all the emergency medicines, artificial respiration apparatus, bandages, gauss swabs etc. Routine checks and maintenance shall be conducted on all fire suppression /protection systems and equipment as per the regulatory standards. Registers shall be kept of all such maintenance and inspections.

***Incident reporting:***

- All workplace related accidents where an employee, contractor or visitor is injured must be reported immediately to the Authority Engineer and an accident/incident report form must be completed within 24 hours of the accident.

***Engineers and Supervisors are required to:***

- a. FPIU will be notified in line with their requirements.
- b. Take appropriate action as far as is reasonably practicable to eliminate or control any risk associated with a reported incident or known hazardous situation;
- c. Ensure accident/incident reports are completed and submitted.
- d. Ensure a record of any work related injury to an employee is produced and.

***Fire Emergency Procedure:***

Routine checks and maintenance shall be conducted on all fire suppression /protection systems and equipment as per the regulatory standards. Registers shall be kept of all such maintenance and inspections. Fire extinguishers signs shall be included in all the offices, in addition to an office plan clearly showing the exits.

The fire emergency procedure shall be shared with all employees and reminded regularly:

- Where a fire is detected, the person should attempt to extinguish the fire only if it is safe to do so and the fire is containable.
- The person must notify the OHS Expert immediately.
- If required, the OHS expert will make an announcement for all employees to evacuate the premises immediately and meet at the "Fire Assembly Point".

- Assembly Points and the location of fire extinguishers will be made clear by the senior management to all the employees during regular trainings.
- All employees must stop work immediately and evacuate.
- The OHS expert must notify the Fire Services as soon as practical.
- An incident/accident report form will be filled out by the OHS expert/project manager and personnel on the site at the time.
- A review will be carried out of the effectiveness of the process and any improvements or corrective actions will be recorded for future implementation.

## VIII. Project Site Arrangements

- **Traffic Management** – Communication and display of traffic routes, speed restrictions, signage, speed bumps, one way routes, and detailed traffic management plan.



- **Storage of Materials** - Storage of materials, Oils, fuels, and tools at the designated store area in the construction site.
- Dedicated area to be barricaded with suitable arrangement.



- **Signages** – Signages to be displayed at work site detailing warning instructions for people working and site and visiting the site and also providing preventive information to avoid accidents at site.



- **Temporary Services** – Clean drinking water provided in bottles for labor and staff.
- **Labour Camp**- The contractors to set up the accommodation and arrangement for acceptable residential accommodation, potable water for labours at proposed construction site

## IX. Plan of the education

In accordance with the requirements of the national legislation on labor protection, an OHS coordinator has been appointed to perform tasks related to labor protection in the workplace. In accordance with the requirements of national legislation, the OHS coordinator must:

- OHS Expert will provide different trainings to their labours and staff as per the training schedule provided to them by PMU and will properly maintained the records of the trainings.
- Comply with workforce management procedures and occupational health and safety requirements.
- Monitor compliance with labor management procedures and health and safety requirements

- Keep records of employees under the contract and compliance with the conditions of their employment
- Ensure that each hired employee knows the phone number, email address and website where he can file a GRM complaint with the FPIU/PIU.

## Site-specific Occupational Health & Safety (OHS) Management Plan

OHS Issues	Potential Impact	Mitigation Measures	Location	Time Frame	Project Execution	
					Execution	Monitoring
Contractor's OHS Plan		<ul style="list-style-type: none"> <li>• The Contractor will Develop a site-specific and job-specific Occupational Health and Safety (OHS) Plan which will cover the following aspects but not limited to:           <ul style="list-style-type: none"> <li>- Site and Activity specific Hazard identification</li> <li>- Identification of PPE requirements</li> <li>- Work zone safety Plan including Safety during excavation, concreting, etc., operation of Heavy Plant &amp; Machinery; safety during Material handling, safety plan for lifting devices, fire, electrical and mechanical safety, vehicular safety</li> <li>- Medical facilities including first aid arrangements</li> <li>- Institutional arrangement for implementation of safety measures including safety committee</li> <li>- H&amp;S safety training program including training schedule</li> <li>- Incidence reporting system and</li> </ul> </li> </ul>	Contractor's Document at Contractor's Camp	Pre-Construction	Contractor OHS Expert	FPIU and PIU Environment Expert

	Safety Checklists
	<ul style="list-style-type: none"> <li>• The Contractor OHS Expert will comply with the requirements of the Environmental, Health, and Safety (EHS), Guidelines of the World Bank Group, 2007[1] and all national, state and local core labor laws during preparation of OHS Plan and implement the same.</li> <li>• A general guideline as provided in the Labour Management Procedures (LMP) on Occupational Health and Safety, prepared for U-PREPARE as separate document will be followed by the contractor in developing the OHS Plan.</li> <li>• In addition to EHS Plan the Contractor will develop Disaster Management Plan and Emergency Response System in line with the Disaster Management Policy of the State to deal with emergency situations, such as accidents, natural calamities, construction failure and submit them to the PIU for approval.</li> <li>• The Contractor's EHS Officer will be responsible for conducting</li> </ul>

		environmental and safety awareness training for workers		
Occupational Health and Safety	Occupational health hazards and accidents at working sites	<ul style="list-style-type: none"> <li>• He will be responsible for record keeping and reporting on various environmental and OHS issue of the project during construction and defect liability period</li> </ul>	Camp Site and Working areas	Construction Phase
		<ul style="list-style-type: none"> <li>• The Contractor will comply with the requirements of the Environmental, Health, and Safety (EHS), Guidelines of the World Bank Group, 2007<sup>1</sup> and all national, state and local core labor laws on working conditions and safety during construction.</li> <li>• The Contractor will provide adequate good quality Personal Protective Equipment (PPE) to all the workers working at construction zones and Plant sites and will ensure that these PPEs are used by workers including those of subcontractor's workforce at all time during works. The list of PPEs as under:           <ul style="list-style-type: none"> <li>- Full body protection clothing, protective footwear, hand gloves and goggles to workers employed handling cement</li> </ul> </li> </ul>	Contractor	FPIU and PIU Environment Expert

	<ul style="list-style-type: none"> <li>- concrete,</li> <li>- Construction workers will be provided high visibility vests, Ear plugs to workers exposed to high noise levels, Hard hat or helmets to workers, where there is danger of falling objects from height,</li> <li>- Hand gloves, helmets, protective footwear/safety shoes, protective goggles, nose masks, high visibility vests etc. (as required) will be provided to the workers employed in construction works,</li> <li>- Safety belts will be used by workers while working at height,</li> <li>• Safety net will be provided around the girders/ under construction superstructure for protection against falling of objects</li> <li>• The Contractor will provide and maintain safe access and safe working conditions to the work site throughout the working period</li> <li>• The medical insurance coverage for the workers should be provided by the Contractor.</li> <li>• The emergency contact details of concern officer and medical</li> </ul>
--	---

	<ul style="list-style-type: none"> <li>• officers/officers require to be made available at working sites.</li> <li>• The Contractor will provide hard baricading around the Work Zone</li> <li>• The Contractor will secure all installations from unauthorized intrusion and accident risks;</li> <li>• The Contractor will arrange of potable drinking water at work site as well as at camps;</li> <li>• Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</li> <li>• The Contractor will 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;</li> <li>• Ensure moving equipment is outfitted with audible back-up alarms;</li> <li>• 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,</li> </ul>
--	--

<p>and easily understood by workers, visitors, and the general public as appropriate;</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• Bridge construction will be carried out only during lean period and no construction activity will be carried out during monsoon period.</li> <li>• During the alert from the Metrological Department/ USDMA, the river side construction work should be suspended till the situation normalize.</li> <li>• All the construction material and machineries stacked near the river must be cleared during alert period to avoid any mis happening.</li> </ul> <p><b>OHS Awareness Trainings</b></p> <p>Occupational health hazards and accidents at working sites</p> <ul style="list-style-type: none"> <li>• The Contractor will organize awareness program on occupational health and safety aspects on periodic basis as per the training schedule</li> <li>• The Contractors EHS Expert will provide regular pep talks and toll box talk to the labourers on the type of risk specific to the planned</li> </ul>	Work site and Camp site	During Construction period	Contractor	FPIU and PIU Environment Expert

		activities for the day and safety requirements before start of work			
First Aid and Emergency Management	<ul style="list-style-type: none"> <li>Emergency numbers will be displayed at the camp and construction sites,</li> <li>Readily available First Aid boxes will be made available at the camp and construction sites. The Contractor will ensure at all time that all the basic items of the first aid are available in the first aid kits</li> <li>Ensure that qualified first-aider can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site</li> <li>Contractor will maintain First Aid Register</li> <li>The Contractor will tie up with nearby health centers to provide immediate treatment in case of any incidence requiring advance treatment beyond first-aid</li> <li>Designated vehicles, which can be used as ambulances during emergencies, will be available at construction sites as required.</li> </ul>				
Emergency Response System	<ul style="list-style-type: none"> <li>Since the project area is located in a disaster-prone area, so there is the risk of natural calamities such as flash floods, cloud bursts and</li> </ul>	Camp Site and Working areas	Construction Phase	Contractor OHS Expert	FPIU and PIU Environment Expert

landslides in the area.

Moreover, there may be an accidental failure of the structure during construction. So, it is important to develop

an emergency response system.

- To develop and communicate a plan for emergency response that is tailored to the hilly environment.
- Conducting a comprehensive risk assessment of the construction site to identify potential hazards.

## **Annexure:1**

### **Occupational Health and Safety (OHS)/Community Health and Safety (CHS) and grievances Redressal related trainings for workers**

<b>Number of Trainings conducted in a month</b>	<b>Key issues identified</b>	<b>Proposed line of action</b>
a) OHS/CHS Trainings, b) Awareness on Grievance Redressal Mechanism c) Awareness on (ICC) Internal complaint committee for Sexual Harassment/Sexual exploitation and Abuse d) Awareness on prevention of HIV (AIDS) at project site, e) Any other challenge at project site for which stakeholder meeting taken?	a) b) c) d) e)	a) b) c) d) e)

## Annexure:2

### Safety and Security at project site and labour camp

SI	Safety and Amenities available for Labours at site	Present status	Issues/bottlenecks identified if any (Kindly list out issues and line of action)
1	a) No of barricades as per position/area, b) Drinking water facility c) No of wash rooms at site d) Rest Room for workers e) Sanitation facility at site (like handwash, hygienically maintained wash rooms etc.) f) Security guard g) Fire extinguisher h) First Aid box i) Safety sign board j) C&D waste generation collection treatment and its disposal at site	a) b) c) d) e) f) g) h) i) j)	a) b) c) d) e) f) g) h) i) j)
<b>Safety &amp; security at Labour camp</b>			
2	a) Drinking water b) No of toilets for workers c) Sanitation facility d) Fire extinguisher e) First aid box f) Safety sign board g) Hand wash h) Sanitation facility at Labour camp (like handwash, hygienically maintained wash rooms etc.) i) Solid and liquid waste generation collection treatment and its disposal at labour camp	a) b) c) d) e) f) g) h) i)	a) b) c) d) e) f) g) h) i)