

**DISASTER MANAGEMENT PLAN OF STEEL & MINES DEPARTMENT,
GOVERNMENT OF ODISHA**
{Reference: Section 23 (7) & Section 39 of the Disaster Management Act, 2005}

CHAPTER – 1

1.0 Profile of the Department –

1.1 Statistical profile of the Department;

The mineral administration in the State dates back to the beginning of the 20th Century and till independence it was under the administration of the Ex-Princely States. With a view to explore mineral wealth of the State and promote industrial development and to increase revenue for the State from mining sector, a separate Directorate of Mines was created with effect from 1.8.55 under the Department of Industries. Later, for better administrative control and supervision, a separate Department of Mining & Geology was created during the year, 1956 and the Directorate of Mines was placed under it. Subsequently the State Directorate was re-named as Directorate of Mining & Geology in the year 1983. In view of the liberalised Mineral Policy adopted by the Govt. of India and attention of the State Govt. for development of its large Iron & Bauxite resources by inviting private investors from the country and abroad as well as for effective administration of mines and minerals with increased mining activities, the Directorate of Mining & Geology was bifurcated with creation of a post of Director of Mines vide State Govt. Notification No.11388/SM. dt.2.12.96 with reorganization of the erstwhile Directorate of Mining & Geology into two separate Directorates such as Directorate of Mines and Directorate of Geology vide Department of Steel & Mines order No.1438/SM. dt.20.2.97. Thereafter, the Director of Mines has been declared as the Head of the Department vide Govt. Notification No.5254/SM. Dt.26.6.99. In the meantime the State Govt. vide their Resolution No.8815/SM. Dt.21.9.99 & No.8798/SM. Dt.21.9.99 have issued guidelines for reorganisation and separate functioning of the Directorate of Mines and Directorate of Geology with distribution of ministerial and common cadre staff.

1.2 Organization Structure

There are two Directorates functioning under the Steel and Mines Department viz Directorate of Mines and Directorate of Geology.

The Directorate of Mines is functioning as the Head of Department since 26.6.99. There are 14-Circle Mining Offices; 7-Offices headed by Deputy Director of Mines and 7-Offices by Mining Officers under the control of the Director. The category-wise sanctioned posts, present strength and vacancy position for Headquarters and Field Organisation is detailed in the *Annexure - I*.

The Directorate of Geology has its head office at Bhubaneswar and six zonal offices at Sambalpur, Dhenkanal, Berhampur, Balangir, Koraput and Kendujhar.

The Director of Geology, Joint Directors of Geology (Level-I & II), Deputy Directors of Geology, Geologists, Petrologists, Sr. EO, EO & AO hold their office at headquarters Bhubaneswar supported by other supporting technical and non-technical staff .Each zonal office is headed by a Joint Director Geology (Level-II). He is supported by Deputy Director Geology, Geologists, other technical and ministerial staff. The flow sheet of the organization structure is detailed in the *Annexure - I*

1.3 Details of infrastructure available with the department. :-

The Directorates of Mines operates in its own Building at HOD building in its 1st and 2nd floor. Besides there are 12 office buildings for holding circle mining offices at different district head quarters and cluster mining areas and one independent building for zonal laboratory at Jajpur Road. The Dept. has some vehicles deployed at different offices. A detailed list is enclosed at *Annexure-II*. Further this Directorate has been provided with one web site in the name and style of orissaminerals.gov.in and has developed Integrated Mines Minerals Management System (i-3MS) which has been extended to all the 14 circle offices of Odisha. This system is intended to control and regulate various activities concerning mineral transaction along with an updated database and to induce transparency in every sphere of mineral activity with proper accountability.

There are 600 mining leases for various ores and minerals existing in the State out of which 129 leases are in operation. These include 5 underground coal mines and 3 underground chromites mines and rest are opencast in nature. These mines are independent in nature having their own set up of management and disaster management programme. This Directorate only oversees the smooth functioning of the mines in thorough abidance to the provisions of the Acts and Rules enacted by Centre and State for the purpose.

The Directorate of Geology has been functioning in its own six storied building lying adjacent to Heads of the Department Building. The zonal offices also operate in the departmental buildings in respective places. The email id of the Directorate is directorgeology_orissa@yahoo.co.in.

Directorate of Geology is undertaking mineral exploration programme at State level since 1960s which includes coal, iron ore, manganese , chromite , bauxite, lime stone & dolomite ,graphite, diamond & beach sand minerals .

Following facilities are available in the Directorate of Geology:

- An elaborate drilling unit with highly experienced drilling crew.

- A modern and state of the art gem testing laboratory, which takes up gem testing and characterization including commercial gem testing.
- An ore dressing laboratory, which carries out gravel sample processing for diamond exploration.
- A petrology laboratory for study of rocks, minerals and ores; including commercial testing thereof.
- A granite cutting and polishing unit for testing and characterization of dimension and decorative stones.
- Data Processing Centre with equipment to carry out geophysical data and image processing. This also has a database, which is unique and one of the largest in the world. It contains geological, geophysical (magnetic, radiometric, DEM and landsat) and hydro geological data of 75,000 sq km area (3, 30,000 line km) of the state.
- A Remote Sensing Cell to deal with the interpretation and application of the satellite imageries to select the target areas for mineral exploration.
- A Geophysical Cell, which takes up geophysical exploration of groundwater and minerals through magnetic, electrical and other methods.
- A Report Cell, which stores all the data generated by geological investigation. Exploration data are provided to the interested parties on payment on specific requisition.

CHAPTER – 2

2.1 Hazard, Vulnerability, Capacity and Risk Profile –

i) Nature, frequency and intensity of disaster to which the department is prone to or is likely to be impacted in future

The probable disaster situations to happen includes both natural and operational

- (1) **Natural** (i) Flood (ii) Earthquake (iii) Beach erosion
- (2) **Operational** (i) Fire (ii) Explosion (iii) inundation (iv) Slope failure (v) subsidence (vi) Accidents.

i) Historical/past disasters/losses in the department:-

Two massive slope failures in chromite mines of Kaliapani area of Sukinda Valley and inundation of Boula Chromite Mines of FACOR Ltd. had taken place in past. Leaving aside these two disasters in mines, no other incidence of disaster has been reported. No loss of life has been reported in these accidents except substantial loss of mining equipments lost in these disasters.

There is also reported incidence of cyclone, earthquakes, beach erosion, river bank erosion and shifting of river channels, land slides in the state.

ii) Causes of losses /damages;

The slope failures in Chromite mines of Sukinda Valley took place due to sliding of a large chunk of the hill slope under its own mass along a plane of weakness. This happened primarily due to development of benches of the opencast mines at the lower horizons which caused instability of the slope above. The inundation of Boula Chromite Mines of FACOR Ltd. took place due to incessant rains causing flooding of the mines and entry of flood water into underground workings through the entry points.

The Directorate have suffered heavy loss in 1999 due to super-cyclone.

iii) Hazard-wise vulnerability of the department to various hazards to which the department / state is prone to:-

The mines are vulnerable to the above mentioned hazards. Safety of the mines is regulated under the provisions of Mines Act, 1952 and Rules & Regulations made there

under. Directorate General of Mines Safety, Dhanbad (DGMS), under the Ministry of Labour, Govt. of India regulates the safety of the mines through its various regional offices. Although disasters in mines have been successfully handled by the DGMS in past with the help of local administration, life and property have been affected by such disasters. Hazard-wise vulnerability of the persons engaged in the mines are as follows:

(a) Fire: Fire is caused in the underground mines due to presence of methane in the coal mines. Besides, spontaneous combustion of coal also causes fire in the opencast coal mines causing loss of life and property. Persons working in the underground coal mines face threat to their lives due to such fires. In the opencast coal mines, the fire breaks out in the coal stacks due to long exposure to atmosphere causing spontaneous combustion. Such fire accounts for huge loss of such a valuable national property.

(b) Inundation: Flooding of the mine workings are mostly caused due to entry of surface run-off into the mine workings, both above ground and below ground, due to improper design of the workings. This causes loss of life and property and creates hindrance to proper development of the mines subsequently which may result in loss of the mineral property from its economic view point.

(c) Subsidence: Subsidences are mostly observed on the top surface of the underground mines from which minerals are extracted leaving voids therein. The voids give way to collapse of the strata above which is ultimately transmitted to the surface in the shape of subsidence. The properties located within the area of subsidence get severely affected due to such subsidences, which affects both life and property adversely.

In the Northern sector of the State, erosion at southern bank of river Burhabalang of Balasore area (73 K/15/NE) is noteworthy. This was due to reactivation of palaeochannels of this river causing toe erosion, which has affected an area of 100m (L) x 10m (W) x 20m (D) with collapse of a double storied building.

(d) Slope failure: Failure of the slopes are observed in the opencast mines which are caused due to presence of weak planes along which a large chunk of the sides of an opencast mine slides down taking advantage of various structural controls of the available strata. Although incidences of such failures in past has not caused any loss to life, this is likely to pose danger to mine workings.

(e) Explosion: Explosions in the underground mines are caused due to presence of inflammable gases in appropriate concentration. In opencast mines such explosions are

caused due to errors in conducting heavy blasting. Such explosions are likely to cause loss of life and property, both in and around the mines.

(f) Flood and river bank erosion: In Odisha, damages are caused due to floods mainly in the Mahanadi, the Brahmani, Baitarani and Subarnarekha rivers. River bank erosion has been predominant in Kushabhadra river which is eroding the Puri Konark marine drive. River bank erosion in the downstream of Mahanadi river has engulfed many horticulture farms and in the verge of eroding the Taldanda canal. Subarnarekha river bank erosion is predominant in the northern sector which is marked by destruction of many primary schools and agricultural fields. In the same sector Budhabalanga river bank erosion has led to land subsidence at Puruna Baleswar.

(g) Beach erosion: Of the six coastal districts in the state beach erosion is dominant in the districts of Puri and Jagt Singhpur, Ganjam, Kendrapara, Bhadrak and Balasore district. Puri-Konark sector, Siali and Paradeep of Jagt Singhpur district and Ekakula, Satavaya, Kanhupur and Penth of Kendrapada district are worst affected beach erosion areas. At Kanarpur of Puri district the beach erosion has reached up to the back dune and if not checked then the village will be badly affected in near future. Similarly, the roads leading to Sterling hotel in Puri town has been eroded away by huge sea waves causing severe beach erosion. At Ekakula of Kendrapada district the coastal forests have been destroyed by such erosion and thousands of tons of sands along with heavy minerals are getting into sea every day. Similarly, at Penth the beach width was 500 m during 1972-73 but in 2006, as per IRS-ID data, the same beach width was found to be 75 m with a loss of 425 m of beach within 33 years. The Kanhupur village in Kendrapada district has been completely washed away by such erosion and the Satavaya village in the same district is under the process of such destruction.

iv) Capacity of the department to deal with the identified disaster – institutional, organizational, and infrastructural:-

To prevent the operational disasters, there has been set of guidelines framed under Coal Mines Regulation, 1957 and Metalliferous Mines Regulation 1961. Director General Mines Safety, Dhanbad, a Central Govt. Organisation, monitors this aspect and conducts awareness programmes and promotes preventive measures each year. Hence there is no organisational or infrastructural set up available in the Directorate to deal with such disasters in the mines. However, DGMS with the assistance of local administration takes appropriate steps towards ameliorative measures when such disasters take place.

The Directorate of Geology has organisational & infrastructural set up like availability of manpower & vehicle to assist the Govt in policy formulation to check such disasters.

v) ***Gaps in the existing capacity:-***

The Department of Steel & Mines does not have any disaster management capacity at present so far as mine disasters are concerned. Such capacity may have to be built for meeting the requisites of such disaster management.

vi) ***Risk Analysis – calculating risk which various hazards / disaster can cause to department keeping in the view its vulnerability and capacity.***

The mining sector can be looked into partly as organised sector which includes mines of State PSUs, Central PSUs and mines being managed by large industrial houses such as Tatas and Birlas and some other private mine owners. The mines in the unorganised sector include mines of economically less important minerals like quartz, quartzites, fireclay, chinaclay, graphite etc. Besides the decorative stone mines and the mines for extracting other minor minerals can also be classified into unorganised sector. Mining activities in these mines are governed by either Coal Mines Regulation (CMR) or Metalliferous Mines Regulation (MMR) (Under Mines Act, 1952) and DGMS Dhanbad takes care of the safety aspects of the mines. DGMS also conducts safety awareness programmes in the mines for prevention of any hazard arising out of mining activities. DGMS has also been conferred with the punitive powers to deal with the erring mining units. Although the organised mining sector is equipped to considerable extent to meet the exigencies arising out of such hazards, much is desired to be done for the unorganised sector where risk factor is much more.

All the disasters related to mines carry high risk factor involving loss of life and property of the mine and area under its influence. The assessment of risk involved is always site specific for which a generalised assessment cannot be done prior to incidence of such disasters.

CHAPTER - 3

3.1 Prevention, Mitigation and Preparedness plan –

i. Measures necessary for prevention of disasters, mitigation, preparedness and capacity-building in accordance with the guidelines laid down by the National Authority and the State Authority:-

a) Prevention: Sufficient and effective measures are provided in the MMR,1961 and CMR,1957 to prevent disasters caused due to operational failure. DGMS has a total control over the issues. However, in the event of any disaster in the mines causing loss to life and property, it is proposed to create a Disaster Management Cell at District level for coordinating with the individual disaster management units of the individual lessees and also with the District Administration to bring back normalcy. The *District Level Disaster Management Cell* should function under the administrative control of a *State Level Disaster Management Cell* to be constituted under the Revenue & Disaster Management Department. This cell may have a representative from Directorate General of Mines Safety.

Landslides, beach erosion & river bank erosion can be prevented by identifying the vulnerable locations utilising remote sensing data, geo-physical and geomorphological studies of the subject areas. A special centralised at the Directorate of Geology can be set up for identification of such vulnerable areas and preparation of plans for prevention of such disasters. Steps will be taken for mitigation of the effects of such hazards by undertaking geo-technical studies in these areas at the Directorate level and advising the concerned Department to take up appropriate ameliorative measures. A disaster preparedness plan can be also be prepared by the Directorate depending on the nature of hazard involved and transmitted to appropriate authority.

A Geologist can conduct geomorphological studies of floodplains that can lead to a better understanding of how rivers will behave and have behaved earlier and how sediment will be transported when a flood occurs. Such studies can be supplemented by Remote Sensing data. The periodic satellite data may be analysed to know the nature of oscillation and to quantify the damage caused by periodic shifting of rivers. Regular monitoring and recording of flood water data and river bed profile data may be kept for better future planning. Detailed study may be carried out to ascertain the frequent shifting of Kushabhdra river to check the erosion along the marine drive road and to save coastal

forests lying adjacent to the river. The channel bars in the river beds should be removed to facilitate rapid discharge of river flow. The remedial measures such as re-establishing the connectivity of palaeo-channels with main river/ streams to avoid drainage congestion in palaeo-channel areas and other appropriate measures are required to be carried out.

ii. *Integration into its development plans and projects, the measures for prevention of disaster and mitigation;*

The District Level Disaster Management Cell will have both way coordination. It shall coordinate with the individual mining units under their jurisdiction and also integrate with the State Level Disaster Management Cell. In the event of a disaster it shall collect information, mobilise the resources for managing the situation in rescuing the man and machineries and take necessary steps for rehabilitation of the victims.

The District Level Disaster Management Cell will have the following representations:

- | | | | |
|----|--|---|------------------|
| a) | Addl. District Magistrate | - | Head of the Cell |
| b) | Dy. Superintendent of Police | - | Member |
| c) | Chief Medical Officer | - | Member |
| d) | Deputy Director, Mines/Mining Officer | - | Member |
| e) | District Fire Officer | - | Member |
| f) | Executive Engineer (PWD) | - | Member |
| g) | Regional Transport Officer | - | Member |
| h) | Joint Director Geology of the concerned Zone | - | Member |
| i) | Any other member as desired by the Cell | | |

Deputy Director Mines/ Mining Officer will act as *Nodal Officer* of the cell.

The District Level Disaster Management Cell shall constitute a Quick Response Team (QRT) with representative of their respective Departments for early response to the disaster. This team will be under beck and call of the head of the District Level Disaster Management Cell and on receipt of information from the nodal officer, the head of the cell will mobilise the QRT.

iii. *Provision of funds for prevention of disaster, mitigation, capacity-building and preparedness;*

Requirement of funds for prevention of disaster, mitigation, capacity building and preparedness shall be worked out by the District Level Disaster Management Cell and communicated to the State Level Disaster Management Cell. The Government in Revenue and Disaster Management Department will make adequate provision of funds

for the purpose. Head of each District Level Disaster Management Cell shall have adequate financial power for drawal and disbursement of funds for preparedness of the cell and for its disaster management.

iv. Drawing up mitigation, preparedness and response plans, capacity-building, data collection and identification and training of personnel in relation to disaster management:

All the mining units have their own disaster management units under a Safety Officer of Asst. Mines Manager rank. There is facility for training of fire fighting, rescue of man and machineries, fighting inundation, first aid units and ambulances for shifting critical casualties to nearby hospitals. The District Level Disaster Management Cell will co-ordinate with the mining officials and take stock of available facilities in the mines for disaster mitigation. The Cell will thereafter work out strategies for meeting the requirements for disaster mitigation of larger order with assistance of other organisations and the facilities that could be extended from the State. Requirement of infrastructure and logistic support should also be worked out by the District Level Disaster Management Cell and additional infrastructure facilities may be built up as required. For this purpose the Cell should co-ordinate with the State Level Disaster Management Cell for the needful.

The cell should collect information on each mine under its jurisdiction and assess the probability of a mine disaster in consultation with the respective DDM/MO and the concerned mine officials. The regional Director of DGMS should also be consulted in this regard for preparing a disaster preparedness plan. Accordingly a team of officers should be kept in readiness to meet any eventuality.

The State may set up a training institute in Bhubaneswar for imparting training to various officers of the District Level Disaster Management Cells. Experts from various fields such as Geology, Fire Fighting, Redcross, DGMS, Directorate of Health and Family Welfare, Relief Commissioner, reputed NGOs involved in disaster management etc should be involved in the training programmes to be conducted by the institute periodically.

As regards control of floods, the associated geological deposits can be mapped and can provide important insights into identifying where flooding has occurred in the past and complement other methods for predicting where flooding might occur in the future. Flooding from rivers or the sea takes place across natural landforms (floodplains and coastal plains) that have a characteristic geomorphology and geological make-up. The following flood mitigation measures are suggested:

- Dredging of river mouths, particularly for Subarnarekha, Mahanadi and its branches is to be taken up as long term measure to facilitate quick discharge of flood water into sea.
- All the spurs should be provided with wire nets and the stone packings should be subjected to cement spraying for resisting the river flow and thus degradation.
- Setting up brick kilns along the bank of rivers are to be banned to avoid erosion of embankments.
- Construction of check dams should be adopted to tackle flood and drainage problem. The river mouth and channel should be dredged to its design discharge
- Out fall drain, secondary drains link drains, collection drains and field drains are to be excavated to its full design section with a requisite slope and carrying capacity.

Following measures can be taken up to avoid beach erosion

- Use of modular marine floating breakwater technology, highly engineered to provide shoreline beach erosion control against the forceful wave energy and survive deployment in the harshest marine environments without destroying the beauty of the beach .
- Use of geo-tube.
- Creation of coastal forest.
- Construction of jetties and groins (This is not full proof remedial measure, as jetties/ groins vertical to shore line cause deposition at one end and erosion at the other end but cost effective).
- Construction of sea walls (This is also not a full proof method as the sea facing side of the wall is subjected to erosion but cost effective).

All the above flood control measures and measures to avoid beach erosion can be taken up at State Level Disaster Management Cell for the entire State in co-ordination with the respective Departments.

- v. ***Review the enactments administered by it, its policies, rules and regulations with a view to incorporate therein the provisions necessary for prevention of disasters, mitigation or preparedness:***

The training institute will review the enactments from time to time for its proper administration. For this purpose the District Level Disaster Management Cells will furnish adequate feedback on the policies, rules and regulations enacted by them and accordingly the training schedules will be modified for proper administration of the

enactments. A Standard Operating Procedure (SOP) will be devised by the training institute which will be adopted by all the District Level Disaster Management Cells.

Standard Operating Procedure: In the event of any disaster related to mining activities, the nodal officer of the concerned mine will immediately contact the nodal officer of the concerned District Level Disaster Management Cell intimating him about the intensity of the disaster and mitigative actions initiated by him. The nodal officer of the District Level Disaster Management Cell will mobilise the Quick Response Team (QRT) to the spot of disaster with adequate instruction for appropriate assistance to the disaster victims and actions as demanded by the situation. The QRT will render all emergency support to the mine officials and take preventive measures for avoiding proliferation of the disaster to the surrounding areas, if possible. He will also intimate the Head of the District Level Disaster Management Cell for mobilising the Incident Response Team for further assistance to the disaster affected persons and to the area under disaster. The IRT will take actions for providing further relief and recovery support. This will include evacuation to safer places, rescue, temporary shelter, medical assistance to the affected persons, supply of food and drinking water and other necessary technical support. The IRT will also take up technical analysis of the need for disaster mitigation and, if required seek assistance from the State Level Disaster Management Cell.

vi. Provision of emergency communication in the affected areas and such other actions as may be necessary for disaster management:

The District Level Disaster Management Cells shall be assigned with a specific emergency telephone number which shall be communicated to all mines of the State. This number should be displayed in front of each mine in a display board. In case of emergency, the manager of the mine shall access the District Level Disaster Management Cells through this number for immediate response of the Cell. The District Level Disaster Management Cells may have a unique e-mail address for easy communication. In addition provisions shall be made in the existing web-site of the Steel and Mines Department under i-3ms project to get the information on the disaster management from the individual units and on their preparedness.

CHAPTER - 4

Response Plan:

i) Mechanism for early warning and dissemination thereof:

In each mining unit an officer not below the rank of Asst. Mines Manager shall be designated as nodal officer of the Disaster Management unit of the mine. In the event of any disaster he shall immediately intimate through phone/ e-mail to the Nodal Officer of District Level Disaster Management Cells and shall describe the magnitude of the disaster vis-a-vis the capacity of the unit to negotiate the disaster. The District Level Disaster Management Cells will initiate actions as per the nature of the disaster so reported.

ii) Trigger Mechanism for response

Sooner the information reaches the District Level Disaster Management Cell the Nodal Officer of the Cell shall alert the nearby mining units and command them to render necessary assistance to rescue man and machineries. He will also assess the situation and intimate the District Level Disaster Management Cells for further actions. The Cell will mobilise the Quick Response Team (QRT) to the spot of disaster for relief and rescue operations.

iii) Response plan for responding effectively and promptly to any threatening disaster situation or disaster in accordance with the State Plan, and in accordance with the guidelines or directions of the National Executive Committee and the State Executive Committee and the State Government and the SDMA:

The head of District Level Disaster Management Cells shall mobilise the Cell for meeting the requirements as demanded by the situation/disaster. He will also assess the situation further and if required he will immediately contact the State Executive Committee and SDMA and seek necessary assistance from them promptly.

iv) Appointment of Nodal Officers to perform Emergency Support Functions (ESFs)/roles in emergency in the format already circulated by the State Government:

The concerned Deputy Director Mines/Deputy Director Geology /Geologist/Mining Officer will act as Nodal Officer in each District Level Disaster Management Cells. In case more than one mining circle comes under the same District, DDM/MO/JDG in charge of each circle/zone will act as Noda Officer in respect of the respective mining circle/zone. The Nodal Officers will act independently without waiting orders from the Director of Mines

while handling mining and geological disasters. Similarly there shall be one nodal officer in the State Level Disaster Management Cell. The District Level Nodal Officer will be in contact with the State Level Nodal Officer for further assistance while negotiating a disaster. The following Emergency Support Functions are to be discharged by the Nodal Officer:

- a) Provide his contact number to the head of District Level Disaster Management Cell, R&DM Department and State Level Disaster Management Cell
- b) Act as convenor for emergency meetings of the District Level Disaster Management Cell.
- c) Ensure mobilisation of the QRT available with the District Level Disaster Management Cell
- d) Maintain official records concerning District Level Disaster Management relating to his mining circle.
- e) Set up control room and assign officials for control room duty in consultation with the Head of District Level Disaster Management Cell.
- f) Identify staff/manpower for on-site operation centres.
- g) Make arrangement for alternative communication system, if required, in consultation with the Director of Mines.
- h) Ensure timely mobilisation of resources available under the District Level Disaster Management Cell for timely mitigation.
- i) Organise mock drills and awareness programmes periodically at least twice in a year.
- j) Procure necessary machines, tools and equipments for the QRT.

v) ***Constitution of the Incident Response Teams (IRTs) at all levels with provision of delegation of authority:***

Each District Level Disaster Management Cell will have a Incident Response Team under its disposal to further strengthen the QRT. The team will have representations from the respective Departments corresponding to the constitution of the District Level Disaster Management Cell. The Incident Response Team will be under the control of the head of the District Level Disaster Management Cell, who in consultation with the Nodal Officer will further deploy the IRT for disaster mitigation. After deployment of QRT by the cell in the event of any disaster for emergency operation, the IRT will be pressed into service by

the District Level Disaster Management Cell with detailed strategic instruction for undertaking further mitigation and rehabilitation measures.,.

vi) *Reporting procedures and formats:*

Initial information shall be sent by the Nodal Officer through telephone/e-mail with magnitude of the disaster. Thereafter, the Nodal Officer shall make reports of actual damage and actual assessment report on utilisation of funds for disaster management. A format for reporting of the disaster shall be devised by the training institute and circulated amongst each District Level Disaster Management Cells. The final report on the entire disaster management operation will be submitted by the District Level Disaster Management Cell to the State Level Disaster Management Cell for their appraisal. A format for the same will also be devised by the training institute for circulation among the District Level Disaster Management Cells.

vii) *Role of NGOs and Voluntary Sector and coordination thereof:*

Since mining and disasters are disasters specific to mining operations and it requires special approaches for its management, involvement of NGOs in such matters is not desirable.

viii) *System of assessing the damage from any disaster*

A team of officials and experts shall be formed by the Director of Mines & Directorate of Geology to assess the magnitude of the disaster and the damage caused due to the disaster. This team may include experts from various fields/organisations such as Directorate of Mines, Directorate of Geology, DGMS, Engineering Colleges and any other source as may be felt appropriate by them. The assessment of the multi-disciplinary team will be final and acceptable to Government.

ix) *Roles and responsibilities and coordination mechanism for the department.*

Roles and responsibility of the Department of Steel & Mines - The role of the Department of Steel & Mines in disaster management will be as follows:

- i) To be in constant touch with the nodal officers and collect information on preparedness and capacity building.
- ii) Collect detailed information of the disaster and intimate the State Level Disaster Management Cell under R & DM Deptt..
- iii) To inform the nearby mines/cells and the State Level DM Cell of the magnitude of the disaster and seek assistance.
- iv) To appraise the Government of the details of Disaster Management operations and the expenses made for the same.

- x) *Disaster Specific Response Plan – Response plan for major disasters such as earthquake, inundation, landslide, slope failures, subsidence etc. in which state level response would be needed:*

In the event of disasters like earth quake, landslide, slope failure, subsidence in mining sector the nodal officer of the District Level Disaster Management Cell shall immediately move for seeking necessary assistance from state and central disaster management units. The Remote Sensing Centre of Directorate of Geology can provide spatial extent of inundated areas using pre-cyclone/flood IRS LISS-III/LISS-IV data and post cyclone/ flood IRS LISS-III/LISS IV data for further assistance to the District Level Disaster Management Cell.

- xi) **Identification of suppliers and pre-contracting for supplies in case of emergencies;**

The District Level Disaster Management Cell will finalise the suppliers for various commodities, logistic support required for assistance of the victims and for related operations through an open tender every year and keep the suppliers in readiness for meeting any emergency. R&DM Department shall provide necessary funds for the purpose.

CHAPTER - 5

Relief, Rehabilitation and Reconstruction –

- i) ***Norms of relief if applicable.***
Relief shall be provided to the victims of the disaster as per the norms prescribed in the Relief Code of the State Government.
- ii) ***Minimum Standards of relief :-***
Minimum Standards of relief shall be as per the norms prescribed in the Relief Code of the State Government.
- iii) ***Rehabilitation Plan:***
The rehabilitation plan shall be in accordance with the provision of policies of the State Government.
- iv) ***Financial mechanism.***
A corpus fund may be created by the Revenue and Disaster Management Department to meet the expenditure of the Disaster Management Cells both at District level and State level.
- v) ***Action Plan for Reconstruction – ‘Building back better’ :-***
The District Level Disaster Management Cell will prepare an action plan for reconstruction of the disaster affected area. This action plan will be forwarded to the State Level Disaster Management Cell for their appraisal. The Director of Mines will also send the report of a multi disciplinary team on the assessment of damage and reconstruction thereof. The State Level Disaster Management Cell will finalise the reconstruction process after assessing the proposals of District Level Disaster Management Cell and multi-disciplinary team of the Director of Mines and accordingly respective departments will be mobilised for reconstruction. The entire process should be completed within a period of one month from the date of disaster.

CHAPTER – 6

Knowledge Management

1) *Need of Creating network of knowledge institutions;*

A 'Knowledge Institution for Disaster Management' shall be set up as a branch of the Training Institute with the following objectives:.

- i) To collect information on the disaster immediately after its occurrence and its analysis by the multi-disciplinary expert team.
- ii) To engage experts of related fields, if required, for ascertaining the causes of disaster.
- iii) To set up a knowledge bank on the disaster causes and its mitigation procedures.
- iv) To interact with other Governments, both inside the country and abroad to update the knowledge base.
- v) To interact with the disaster management training centre for dissemination of knowledge to the District Level Disaster Management Cells.

2) *Identification of knowledge institutions and mechanism of knowledge sharing;*

The 'Knowledge Institution for Disaster Management' shall be entrusted with the responsibility of identification of other knowledge institutions of the country and abroad and devise mechanism for its knowledge sharing with them.

3) *Documentation of lessons learnt;*

'Knowledge Institution for Disaster Management' shall document the lessons learnt from past and conduct workshop for the trainers to keep them updated with the current practices of disaster management.

4) *Documentation of best practices and uploading of the same in the departmental websites;*

'Knowledge Institution for Disaster Management' shall document the best practices and upload the same in the departmental websites.

CHAPTER - 7

Review and Updation, & Dissemination of Plan

- i) **DM Plan is a “living document”:**

Regular improvement and up-dating of the same will be required at least once a year. Disaster Management Plan will be subject to review each year by the Revenue & Disaster Management Department with new suggestions and new addition of improved mechanism.
- ii) **System of updation – who, when and how ?**

Plan Updation: The Nodal officer of the State Level Disaster Management Cell shall update all data in the R&DM Department web-site regularly. The District Level Disaster Management Cell will also update its database on mining activities and action plans for disaster management in consultation with the officers/managers of the mines under its jurisdiction. The Steel & Mines Department will authorise an officer who will monitor the updation of Disaster Management Plans from time to time and notify the same in the Departmental website.

Mock Drill: The QRT under each District Level Disaster Management Cell will organise mock drills during first week of June and December every year suitably to evaluate the effectiveness of the action plan to be implemented in the field during any disaster. The Nodal Officer of the District Level Disaster Management Cell will convene such mock drills in co-ordination with other concerned departmental officers. Based on the experience gained out of such mock drills the action plans may be updated suitably to meet any exigencies.
- iii) **Dissemination Plan to stakeholders – how? –Printing of document, uploading in departmental website, meetings, seminars, etc:**

In the mining sector, since the stake holders are many in numbers, they will be asked to upload their documents in to the R&DM Department web-site so that all the information on the disaster analysis and preventive measures taken thereof by the lessees will be available in a common platform. Information on capacity building by the lessees should also be uploaded into the website for everybody's knowledge. Periodicall seminars/workshops on the preparedness and skill development shall be arranged by the Training Institute. Seminars on the matters will also be organised by the Training Institute calling experts of the national and international repute in handling disasters.

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Annexures:-

Annexure I:	Manpower position of the Directorate of Mines and Directorate of Geology.
Annexure II:	Present position of vehicles of Directorate of Mines
Annexure III:	Present position of vehicles of Directorate of Geology
Annexure IV:	Mineral Map of Odisha
Annexure V:	Contact Numbers:
	Director of Mines: 0674-2391537
	Director of Geology: 0674-2392374
	Email id of Directorate of Mines: dirmines_odisha@rediffmail.com
	Email id of Directorate of Geology: directorgeology_orissa@yahoo.co.in
	Deputy Director, Mines, Koira: 9437322401
	Deputy Director, Mines, Rourkela: 9437058447
	Deputy Director, Mines, Talcher: 8895549543
	Deputy Director, Mines, Sambalpur: 9861078100
	Deputy Director, Mines, Koraput: 9437918141
	Deputy Director, Mines, Jajpur Road: 9178145036
	Deputy Director, Mines, Joda: 9437402587
	Mining Officer, Keonjhar: 9437686674
	Mining Officer, Baripada: 9437200033
	Mining Officer Cuttack: 9439259021
	Mining Officer, Berhampur: 9937125617
	Mining Officer, Phulbani: 9937142078
	Mining Officer, Bolangir: 8895081666
	Mining Officer, Kalahandi: 9437332594
	Joint Director, Geology, Keonjhar: 06766-255566
	Joint Director, Geology, Sambalpur: 0663-2410906
	Joint Director, Geology, Berhampur: 0680-2291878
	Joint Director, Geology, Koraput: 06852-251383
	Joint Director, Geology, Bolangir: 06652-250936
	Joint Director, Geology, Dhenkanal: 06762-226605