DISASTER MANAGEMENT

Class Notes for IAS and PCS

Disaster Management

Definition of DM

- DM is series of events which response to causality & Damage by effect of climate, geological, chemical industries, nuclear industries, and biological events. These disaster events/ effect may be due by natural or man – made.
- Disaster results loss of life, property, degradation of environment, nature. so, Disaster Management is required & at Priority
- A disaster occurs when a hazard impacts on vulnerable people.

Categories of DM

- GP1 – Water & climate related
- GP2 – Geology Related
- GP3 – Chemical, Industries & Nuclear Related
- GP4 – Accident Related
- GP5 – Biological Related

Water & Climate Related DM

Disaster related to climate & water

- Cyclone
- Floods
- Cloudburst
- Storms
- Hot & cold wave
- Soil erosion
- Drought
- Thunder stone & lighting
- Forest fire
- Famine

Geology Related DM

- Earthquake
- Tsunami
- Land sliding

Chemical, Industries & Nuclear Related DM

- Chemical factories
- Explosion factories
- Atomic power plant

- Nuclear bomb plant (defense)

Accident Related DM

- Rail accident
- Airplane accident
- Road accident
- Oil spils
- Ship accident in ocean
- Building collapse
- Fire in factories
- Festival related

Biological Related DM

- Virus attack
- Pest attack
- Food poisoning related
- Epidemic disease
- Genetic/ mutation problem
- Radiology related problem

Mitigation Program

Mitigation Program divided into 2 parts

a. Structural mitigation
b. Awareness mitigation

Management of Every Disaster can handle by Structural Mitigation (always security assessment & or assessment after disaster) & Awareness (already assessment)

Structural Mitigation

Mitigation provide before & after disaster physically preparation to take disaster before or after occur.

Ex. Fire fighter station, primary health assistance, DAM formation against floods, Biological labs to tackle in epidemic situation, defense & security system in case of accident, warning system for climate related problems.

Ex. Risk/ tackle/ step taken by DMA during disaster occurred

Awareness Mitigation

This mitigation taken before/ after disaster occur basically it based on risk assessment. It is primary guidelines, knowledge and information about disaster.

Ex: Step taken during floods, fire, earthquake.

Ex: Sign & Notation regarding disaster.

Ex: Mock drills in school to react in disaster.

Some Common Mitigation Measures

1. Hazard Assessment
2. Vulnerability Analysis
3. Risk Assessment

4. Awareness among the community
5. Preventing degradation of environment
6. Disaster – resistance building
7. Adopt Technology in Disaster Management

Institutional Framework of DM

GoI has well established structure for DM, earlier DM was under ministry of Agriculture but after it shifted under ministry home

In 2005, NDMA enacted under this DM of India approach is holistic approach.

Chairperson of NDMA is PM, NDMA has 9 senior member. NDMA is Autonomous body. It is responsible to laid down policy regarding DM.

State home primary responsibility of DM & state government followed guidelines formed by NDMA, union government support state government.

Under NDMA Act – Institution of DM divided in 3 stage

a. Union Government – NDMA work under union government, NDMF, NDRF, NIDM came under NDMA. PM is chairman of NDMA.
b. State Government – SDMA work under state government. SDMF, SDRF, SIDM came under SDMA. CM is chairman of SDMA.
c. District Administration – District DMA work under district administration. DM is chairman of DDMA at Panchayat & Municipalities work under DDMA.

NDMA Institution (Part of NDMA)

1. NDMF – National Disaster Mitigation Fund
2. NDRF – National Disaster Response Force
3. NIDM – National Institutional Disaster Management

NIDM

- Develop Training Module
- Research for every state on DM
- Publish Journals related DM
- Laid down Policy

NDRF

- Force of Trained Manpower equipped with latest technology.
- It is force of 16 Battalions, BSF, CRPF, LSIF, ITBP, SSB & Assam Rifles.
- Special trained to tackle to chemical, biological, radiological & nuclear related disaster.
- Carry out mock drills.
- Joint exercise with various stakeholders.

NDMF

- This fund is exclusively for mitigation purpose
- Responsibility to release fund by community consisting of Member of NDMA, Ministry of Home, Ministry of finance, NITI Aayog.
- Fund is utilize by state & union.

NEC

National executive committee, work under home ministry chaired by secretary

SEC

State Executive committee, work under state home ministry. Each district have DDMA under DM

DDMA

- DDMA is most important organization who look after mitigation & relief operation in district.
- DDMA chaired by DM with member of SP, CMO, other

Flood Management Guidelines in India

FM is state subject

India is disaster prone & top 10 in world

Floods problem in India, due to Man – made & Natural Reason

Narmada Region, Ganga Basin, Brahmaputra Belt & Krishna Godavari belt is responsible for floods in India.

Nodel Agency of flood management is CWC (Central Water Commission) under ministry of water Resources.

CWC dedicated look after floods control. It have two organization

1. Brahmaputra flood control commission
2. Ganga flood control commission

FM is state subject but CWC work to connect state as flood management became rivers flaws state to state.

SDMA is highest body to management flood in India.

Role of Centre

- Provide fund
- Provide link between states
- Helping create infrastructure
- Provide expert advice
- Provide policy related DM
- Providing international help
- Help of National Remote sensing centre for Information at Hyderabad
- Provide NDPF, NDFR, to coordinate with SDMA.

Mitigation

Structural Mitigation

- Structural Mitigation of CSC [Cyclonic Strom Centre]
- Rehiblization centre/ Banc should by above water level.
- Away from approve $1\frac{1}{2}$ km from coast
- CSS should be connected to road.
- CSS should have basic amenities like – water, food, medical, power, communication, cooking facilities & sanitation.
- It should be designed as No. of families may live here for 4 – 5 days.
- It should be designed for multipurpose design shelter as in hard situation, for education centre, community centre & place for workship etc.
- Periodic maintenance & inspection by officer.
- Animal should be placed from one place to another for safe side.
- Recovery from disaster.
- Provide TV & Newspaper etc.
- Budget should be Increase to tackle flood disaster under FYP

Awareness Mitigation/ Preparedness

- Identify most prone areas of flood by latest technology.
- Educated peoples regarding floods & warning.
- Creating awareness among vulnerable communities.
- Risk assessment & flood control policy prepared by CWC.
- Change in priority in use of storage space for Reservoir.
- Flood control centre & forecasting & warning centre should be updated with latest technology.
- Prone flood Area, Primary knowledge for mitigation should be include.
- There should be a Primary response to flood from local that amount of education among communities.
- Ministry of environment & forest [MUEF] has launched ICZMP [Integrated Coastal Zone Management Program]. It assist government for coastal management.

Earthquake Management

India is disaster Prone & Top 10 in world.

It is due to Natural reason of collision between plates & tectonical plates. Earthquake is due to energy release of sesmic wave produced by colliding & movement of Technical Plates.

In India, Indian plate, Euromian Plate, Australian Plate & Barma Plate, cause earthquake.

Recently, highest intensity earthquake came in Nepal by 7.3. It may be caused by colliding Indian & Euramian Plate or movement of Himalaya plate.

Intensity of earthquake measured by Richter scale.

Country is divided in 5 zone, I, II, III, IV & V Zone of sesmic zone. I – zone is least severe & V is most severe.

Awareness Mitigation/ Preparedness

- Identify earthquake zone prove Area, according to severity & take Mitigation Program according to it.
- Learning what do people should before, during and after earthquake. It should be in syllabus & educated local people standels to what do or not do? & Mock drill also part of it.
- Earthquake resistance building for new construction under guideline of National Building code.
- Warning system & Broadcast system on TV, Radio & social networks about do or do not during earthquake & after & before.
- Capacity development after earthquake to restore.
- Emergency response should be upto date.
- Air route should be more use & prepare during earthquake.
- NDRF & SDRF & DDRF should be equipped with latest technology.
- Need to be establish link between NDRF, SDRF, Government, Civil Society, Local self – d institution, government in disaster mitigation & recovery.
- Release fund by centre & state to prone area of earthquake in advance so not to be late to Release fund, mean no delay or paper formalities, it should be completed on paper already.
- Primary response to earthquake should be from local so that amount of education among communities.
- Connectivity to earthquake prone area up to date

Drought Management

Drought is a temporary reduction in water or moisture availability significantly & resulting in prolonged shortages in water supply, whether in atmospheric surface water or ground water.

Various Cause of Drought

- Natural causes
- Global warming
- Climate change
- Hunger & famine
- Deforestation & soil degradation
- Excess water demands

National Rainfed Area Authority in Ministry of Agriculture has been set up to address the Issue of drought Mitigation.

Mitigation

1. Implementation of water harvesting conservation.
2. Artificial recharge of ground water.
3. Improve use of water by farmer – by driping & sprinkles irrigation system
4. Maximizing efficient use of available surface in drought prone area.
5. Identify drought prone area, connectivity to that place should be good, in case of drought supply of water easily transport.
6. Artificial lake, river can be made by linking of rivers & area to address highly prone drought area.
7. Agriculture & irrigation pattern need to change.
8. Water – intensive industries should be away from water deficient region.
9. Awareness among society will be there.

10. Resolve & dutopment to monitor drought. By updated technology.
11. Exploring practice such as harvesting cereal crops for fodder.

Separate drought monitoring cell (DMC) will be created at state level with adequate staff under control of State Disaster Management Authority (SDMA).

State DMC will make preparation of vulnerability maps for their respective states use of ICT & NIC.

There should be agreement between states in the case of drought states will help each other.

Separate storage department should be which work under central NDMA, when all essential vegetable stored in case of drought which should be available for all state in the case of drought.

Land sliding Management

Land sliding are mass movement of rocks, debris or earth down a slope under influence of gravity. They often take place in conjunction with earthquakes, floods & volcanoes.

Land sliding includes heavy rainfall, erosion.

It block road & break transport system.

Main Cause

1. Earthquake
2. Urbanization
3. Mining
4. Heavy rainfall
5. Shifting cultivation
6. Deforestation

Risk Assessment and Mitigation

1. Hazard Mapping – It is mapping to know consolidating position.
2. Food plain mapping
3. There should be divide zone on risk A, B & C & facilities provide according to their priority.
4. Public awareness program what do or not do during land sliding.
5. Air route should be good, mean – helicopter, small chopper always ready in case of land sliding.
6. In the time of land sliding, there should be separate department which work under SDMA & NDMA which provide technology (heavy machine like – JCP) in cleaning road.
7. Agreement between states to help.
8. Centralized data with update technology to monitor.
9. Fund pass – already
10. Increase forest area & stop mining on slop area.
11. Should be proper urban planning for urbanization.
12. People must restrict grazing of their animals.
13. Reduce dam formation.
14. Implement of public awareness

Nuclear Disaster

Nuclear radiation mean, effect of radioactive substance & emit of radiation from Nuclear plant during any disaster will create lot of damage to life and to environment & effect water & food chain.

It is persist for longer time.

It is very dangerous in case of leak/ explosion in environment.

Atomic bomb & hydrogen bomb & nuclear reaction & nuclear substance are source of disaster of nuclear.

If quality of radiation have body accept than it more ND

Transportation of Nuclear Material is also a source of ND in the case of Accident.

Use

1. Nuclear substance used in daily life like – Hospital, X – Ray, MRI
2. Nuclear substance used in power plant for making electricity & generating power.
3. Nuclear substance used in R & D & making batteries.
4. Nuclear substance used in atomic bomb, hydrogen bomb. Actually, it based on fusion reaction & carried by chain reaction. If it is uncontrolled & it made high level of disaster.

Atomic Energy Commission (AEC) is Nodel agency & atomic energy regulatory body (AERB) is Responsible & ensure maintain record of Nuclear Material & laid down the safety policy bound on more than one layer protocol. It is responsible in the case of Mitigation.

Government should be planned to join air force to form NDMA & SDMA air force may be last/ Ist option in the case of any disaster so then should be separate air force which work for disaster & handle the situation in case of safety.

Mitigation of ND

1. Approx. 3 level security must be there, at place of store of material, power plant & nuclear bomb.
2. There should be separate department which responsible to handle the waste of nuclear reactive, because it can part of food chain & cause long term impact.
3. Update latest technology to kept material & automatic system to detect radiation.
4. In the case of leakage, in short time, stoppage of leakage & clean the air in short time, then should be update technology.
5. A separate & trained man power then under NDRF & SDRF whose capable with latest suit & technology to handle the situation in short time.
6. In hospital, there should be a separate security force whose responsible to guard the room of store of nuclear material.
7. Agreement between the states in case of ND.
8. Common data & platform which can be access in the case of disaster & solution to handle of radiative substance on basis of their category.
9. Plant nuclear, store room of nuclear material should be away from river area & urbanization.
10. Air force should be alert in case of transportation of people.

Sendai Framework for DRR (2015 – 2030) Disaster Risk Reduction

Important Link:

Website Link:
www.raheineducation.com

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