DISASTER MANAGEMENT

HSS F363: Disaster and Development

Comprehensive Theoretical Summary for Exam Preparation

Complete Notes covering all definitions, concepts, frameworks, and theories

Chapter 1: Historical Perspective of Disasters

What is History of Disaster?

History of disaster goes beyond just recording the cost of damage, total number of deaths, and total number of affected people. It examines management approaches, vulnerability and resilience patterns, and impacts on specific groups like women, children, elderly, and disabled people. Historians investigate major societal 'shocks' and develop interpretations to explain the origins and impact of these shocks, and regional variations in their frequency or intensity.

Four Interpretative Frameworks

Historians developed four main interpretative frameworks to explain economic growth, prosperity, crisis, and collapse:

1. Malthusian Approach

This framework views hazards and shocks as 'positive checks' that stem from the pressure between growing populations in a world with finite resources. According to Malthus, population grows in geometric progression (2, 4, 8, 16...) while food production grows in arithmetic progression (2, 4, 6, 8...). This creates a disequilibrium between population and food supply. The correction happens either through Positive Checks (natural checks like earthquakes, epidemics, wars, famines, floods) or Preventive Measures (late marriages, celibacy, self-restraint, family planning).

2. Social Distribution of Power and Property

This approach focuses on the social distribution of power and property as determinants of disaster vulnerability. It examines processes of land grabbing, expropriation, and privatization of formerly common resources and how they eroded the sustainability of peasants' livelihoods. This framework emphasizes that disasters are not natural but are socially constructed through unequal power relations.

3. Smithian/Modernization Approach

This framework focuses on economic growth through commercialization and markets. It suggests that expanding markets gave producers incentives to specialize, and the growing division of labor allowed economies of scale and productivity gains. This

approach views market dynamics as the main mechanism for understanding crises and disasters, and their prevention or mitigation.

4. Institutions Framework

This framework identifies the nature of political regimes (democratic or dictatorial) and accompanying 'inclusive' or 'extractive' institutions as the main determinants of success or failure in disaster management. Democratic regimes with inclusive institutions tend to be more successful in preventing and managing disasters compared to dictatorial regimes with extractive institutions.

Historical Examples

The Black Death (bubonic plague) in the middle of the 14th century affected Eurasia and parts of Africa, and these frameworks have been applied to understand its origins and impacts. The Bengal Famine of 1943 is another major historical example that demonstrates how political and economic factors, rather than natural causes alone, contributed to massive deaths.

Chapter 2: Understanding Vulnerability

Definition of Vulnerability

UN/ISDR Definition (2004): Vulnerability is the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

Wisner et al. Definition (2004): Vulnerability is the characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard.

Kofi Annan (2003): Hazards only become disasters when people's lives and livelihoods are swept away.

Types of Vulnerability

1. Physical Vulnerability: Involves what in the built environment is physically at risk of being affected. The choices societies make to build structures, transportation routes, and settlement of people determine physical vulnerability. Examples include building houses in flood-prone zones or settling in high-risk disaster areas.

2. Social Vulnerability: Includes factors such as religion, age, gender, literacy, health, politics, security, human rights, government and governance (including social services), social equality and equity, traditional values, customs, and culture.

3. Economic Vulnerability: Includes Gross Domestic Product, debt, access to credit, insurance coverage, sources of national income, funds reserved for disasters, social distribution of wealth, and business continuity planning.

4. Environmental Vulnerability: Related to the natural environment and ecosystem conditions that affect community susceptibility to disasters.

Components of Social Vulnerability (Cannon et al., 2003)

1. Initial Well-being: Nutritional status, physical and mental health of the population.

2. Livelihood and Resilience: Assets and capitals, income and qualifications available to individuals and households.

3. Self-Protection: Capability and willingness to build a safe home, use a safe site.

4. Social Protection: Preparedness and mitigation measures, social and political networks and institutions (social capital and institutional environment).

Characteristics of Vulnerability (Vogel and O'Brien, 2004)

Multi-dimensional and Differential: Varies across physical space and among and within social groups.

Scale Dependent: With regard to time, space and units of analysis such as individual, household, region, or system.

Dynamic: The characteristics and driving forces of vulnerability change over time.

Chapter 3: Understanding Risk

Definition of Risk

Etymology: The Latin word 'RISICUM' describes a specific scenario faced by a sailor to avoid the danger posed by barrier reef. Like hazards, risk also depends on time and context.

UNISDR Definition (2002): Risk is the probability of harmful consequences, or expected losses resulting from interactions between natural or human-induced hazards and vulnerable/capable conditions.

Risk Formula

Risk = Hazard × Vulnerability / Capacity

Risk Acceptability (ALARP Principle)

Disaster managers must make decisions about what risks to treat, what risks to prevent at all costs, and what risks can be disregarded because of either low consequence, low frequency, or both. The ALARP (As Low As Reasonably Practicable) principle divides risk into three levels:

Intolerable Level: Risk cannot be justified except in extraordinary circumstances.

Tolerable Level (ALARP Region): Risk is tolerable only if risk reduction is impracticable or costs are grossly disproportionate to improvement.

Broadly Acceptable/Negligible Level: Risk is negligible and does not require further measures.

PAR Model (Pressure and Release Model)

The Pressure and Release Model shows that a disaster is the intersection of two opposing forces: processes generating vulnerability on one side, and physical

exposure to a hazard on the other. The 'release' concept suggests that to reduce disaster, vulnerability has to be reduced.

Progression of Vulnerability in PAR Model

1. Root Causes: Economic, demographic, and political processes that affect allocation and distribution of resources. These include economic structure, legal definitions of rights, gender relations, and ideological elements.

2. Dynamic Pressures: Processes and activities that 'translate' the effects of root causes into vulnerability of unsafe conditions. These channel root causes into particular forms of insecurity.

3. Unsafe Conditions: The specific forms in which vulnerability is expressed in time and space, such as dangerous locations, unprotected buildings, fragile livelihoods, and lack of local institutions.

Access Model

The Access Model is an expanded analysis of the principal factors in the PAR model relating to human vulnerability and exposure to physical hazard. It focuses on how unsafe conditions arise in relation to the economic and political processes that allocate assets, income, and other resources in a society. Unlike the PAR model, it integrates hazards with social systems rather than treating them separately.

Chapter 4: Political Economy of Disaster

Two Main Theories of Famine

1. Food Availability Decline (FAD): This theory attributes famine to an aggregate decline in food supply. Natural events like drought cause crop failure which reduces the aggregate amount of food available, so famine is seen simply in terms of there not being enough food to go around.

2. Food Entitlement Decline (FED): This theory by Amartya Sen (1981) argues that famine is a result of the many and complex ways in which people's access to food is reduced because of social or political processes that deny or lessen their 'entitlement' to food.

Sen's Five Entitlement Relationships

1. Production-based Entitlement: The right to own the food that one produces with one's own or hired resources.

2. Trade-based Entitlement: The rights associated with ownership when they are transferred through commodity exchange.

3. Own Labour Entitlement: The trade-based and production-based entitlements when one sells one's own labour power.

4. Inheritance and Transfer Entitlement: The right to own what is given by others (gifts) and transfers by the State such as pensions.

5. Extended Entitlements: Entitlements which exist outside legal rights and are based on legitimacy and expectations of access to resources.

Key Terms in Political Economy

Endowment: What a person owns, described by Sen as the person's own resources.

Exchange Entitlement: What a person can exchange their resources for to obtain food or other commodities.

Pull Failure: The failure of effective demand which can cause famines when people need to purchase food but don't have the necessary cash or other exchangeable resources.

Response Failure: Market failure where the market does not respond to demand signals to distribute food where it is needed.

Chapter 5: Sustainable Livelihood Approach

Definition of Livelihood

A livelihood comprises the capabilities, assets (both natural and social) and activities required for a means of living.

Sustainable Livelihood Definition (Chambers & Conway)

A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.

DFID Sustainable Livelihood Framework

The Department for International Development (DFID) framework identifies five types of capital assets:

1. Human Capital (H): The skills, knowledge, health, and labour available to households in order to pursue alternative livelihood strategies.

2. Natural Capital (N): Stocks and flows of natural resources that underpin smallholder livelihoods, including land, common pastures, trees, water sources, atmosphere, and biodiversity.

3. Financial Capital (F): Available stocks of money, savings, and regular cash income from earnings and remittances.

4. Social Capital (S): Social networks of bonding (family, kin), bridging (external group), and linking (government) ties constituting trust, norms, and reciprocity.

5. Physical Capital (P): Access to buildings and infrastructure (water, transport, energy, communication) and producer goods (tools, machinery) necessary to support productive livelihood activities.

Components of DFID Framework

Vulnerability Context: The external environment including shocks, trends, and seasonality that affect people's livelihoods and asset availability.

Transforming Structures and Processes: Levels of government, private sector, laws, policies, culture, and institutions that influence access to assets.

Livelihood Strategies: The range and combination of activities and choices that people make to achieve their livelihood goals.

Livelihood Outcomes: Achievements including more income, increased well-being, reduced vulnerability, improved food security, and more sustainable use of natural resources.

Main Characteristics of DFID's Sustainable Livelihood Approach

People-centred: Focuses on people as the primary stakeholders.

Holistic: Considers multiple factors affecting livelihoods.

Dynamic: Recognizes that livelihoods change over time.

Building on Strengths: Focuses on existing assets and capabilities.

Macro-micro Links: Connects local realities with broader policies.

Sustainability: Ensures long-term viability of livelihoods.

CARE's Household Livelihood Security (HLS) Approach

HLS is described as 'sustainable and adequate access to income and other resources to meet basic needs, and to build up assets to withstand shocks and stresses'. The approach presents a tool for understanding how households live by examining how they access resources/services, overcome barriers, meet immediate basic needs, build up assets (social, physical, financial, human), and use assets to buffer against stresses and shocks.

Chapter 6: Hazard Profile

Definition of Hazard Profile

A hazard profile is a description and analysis of a specific type of local hazard. It is based on frequency, duration, and speed of onset of a hazard. Hazard profile was designed by examining the physical characteristics that natural hazards possess (Natural Hazards: Explanation and Integration by Graham A. Tobin and Burrell E. Montz, 1997).

Classification of Hazards

Primary Hazards: Earthquakes, floods, and wildfires.

Secondary Hazards: Landslides, tsunamis, and other human-caused hazards.

Parameters for Hazard Profile

Geographic Area Affected: Measured in terms of magnitude.

Previous Occurrences: Measured in terms of frequency within the state.

Duration of Event: How long the hazard persists.

Countdown Interval/Speed of Onset: How quickly the hazard develops.

Chapter 7: Factors of Vulnerability

Key Factors Affecting Vulnerability

Socio-economic Status: High status may increase or decrease vulnerability depending on context. Low income or status generally increases vulnerability. Wealth enables communities to absorb and recover from losses through insurance, social safety nets, and entitlement programs.

Gender: Women have more difficulty recovering from disasters than men due to sector-specific employment, low wages, and family care responsibilities.

Race, Caste and Ethnicity: Increases vulnerability through language and cultural barriers, limited access to post-disaster resources and support, and residential location at risk.

Age: Extremes of the age spectrum (elderly and children) affect the ability to move out of harm's way.

Vulnerability Assessment Methods

Index-based vulnerability analysis helps in explicit vulnerability assessment by integrating various indicators manifesting different vulnerability scenarios. Methods include:

Gap Analysis, Human Development Index (HDI), Composite Vulnerability Index, Sustainable Livelihood Security Index, Fuzzy Logic Methods

Selection of suitable site-specific indicators is required to address multifaceted issues for vulnerability assessment.

Chapter 8: Disaster Management Planning

Types of Planning

1. **Development Planning:** Long-term planning for overall development.
2. **Strategic Planning:** Planning for achieving organizational goals.
3. **Preparedness Planning:** Planning for being ready before disaster strikes.
4. **Contingency Planning:** Planning for specific potential scenarios.
5. **Operational Planning:** Day-to-day operational activities planning.

Disaster Management Cycle

Before Disaster: Mitigation and Preparedness activities.

After Disaster: Relief, Rehabilitation, and Reconstruction activities.

Chapter 9: Disaster Prevention

Definition: Disaster prevention refers to outright avoidance of adverse impacts of hazards and related disasters. It expresses the concept of avoiding disaster risks through anticipatory measures.

Limitation: Full prevention of losses is not always possible, but their scale can often be substantially reduced through various strategies and actions.

Chapter 10: Disaster Mitigation

Definition (UNDRO, 1989)

Mitigation is the action which lessens the impact of natural disasters on a nation, community or municipality. Actions may include building codes, land use management, crop diversification, livestock management, public education, warning systems, communication systems, emergency plans, emergency training, emergency equipment.

Seven Principles of Mitigation

1. Vigorously Manage Mitigation: Strong management to integrate all elements into a cohesive pattern is essential.

2. Integrate Elements of Mitigation: The order in which risk-reduction measures are developed is critically important.

3. Use Active Approaches: Focus on active measures like incentives, resource transfers, training programmes, and institution building rather than passive measures like laws alone.

4. Focus on Priority Sectors: Prioritize maximum number of people to be protected, 'lifeline' services, elements of long-term economic importance, food stocks, and cultural monuments.

5. Sustainability Principle: Ensure mitigation measures can be maintained over time.

6. Integration with Normal Practices: Embed mitigation in regular development activities.

7. Political Commitment: Requires strong political will and commitment for effective implementation.

Chapter 11: Disaster Preparedness

Definition: Disaster preparedness involves activities and measures taken in advance to ensure effective response to the impact of hazards, including issuing timely and effective early warnings and temporary evacuation of people and property from threatened locations.

Elements of Preparedness

1. Early Warning Systems: Mechanisms to detect and communicate threats.

2. Policies and Plans: Documented guidelines for response.

3. Public Awareness: Community education about risks and responses.

4. Institutional Arrangements: Organizational structures for response.

5. Contingency Planning: Scenario-based response plans.

6. Capacity Building: Training and resource development.

Chapter 12: Disaster Recovery

Definition: The restoration and improvement, where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Twelve Principles for Managing Disaster Recovery

1. Recognize and integrate the coping mechanisms of disaster survivors and local agencies.

2. Avoid arbitrary relief assistance.

3. Beware commercial exploitation.

4. Avoid relief dependency.

5. Decentralize decision-making when possible.

6. Recognize disasters as political events.

7. Recognize pre-disaster constraints.

8. Balance reform and conservation.

9. Avoid rebuilding injustice.

10. Accountability is the key issue.

11. Relocation is the worst option.

12. Maximize the transition from relief to development.

Chapter 13: Community Based Disaster Management (CBDM)

Definition

CBDM is an approach to build people's capacity of coping with disaster risks and reducing their vulnerability, thereby developing safer and more resilient communities. CBDM changes the focus from emergency response to planned activities that would mitigate or prevent disasters.

Why CBDM is Needed

The need for CBDM stems from:

• Inadequacy of top-down management approaches in addressing the needs of vulnerable communities.

• Increase in disaster occurrence and disaster-related loss.

• Communities are considered the best judges of their own vulnerability and are in better position to make decisions for their well-being.

Essential Features of CBDM

• Community is a key resource in disaster risk reduction.

• Disaster risk or vulnerability reduction is the foundation of CBDM.

• Contributes to people's empowerment through physical safety and guaranteed access to resources.

• Promotes community participation in decision-making related to risk reduction.

• Links vulnerable communities with key systems such as early warning mechanisms and resource mobilization.

CBDM in India

GOI-UNDP DRM Programme (2002-2009): Community-based disaster preparedness was first introduced at a large scale in India through this programme, executed by the Ministry of Home Affairs. It was implemented in 176 multi-hazard districts in 17 States/UTs at a total estimated cost of Rs 153 Crore (US$ 41 million) - the largest such programme in the world.

Legal Framework: The Disaster Management Act, 2005 and National Policy on Disaster Management, 2009 mandate every segment of governance to have effective disaster management strategies with strong association of community and civil society.

Chapter 14: Ecosystem-based Disaster Risk Reduction (Eco-DRR)

Definition

Eco-DRR is the sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and by increasing livelihood resilience.

Key Points

• The degradation of ecosystems (such as forests, wetlands, coastal and marine systems, and drylands) is a major driver of disaster risk and a key component of vulnerability to disasters.

• Ecosystem-based Adaptation (EbA) and Eco-DRR share common approaches and objectives.

Main Targets: Disaster prevention and recovery, hazard mitigation, climate change adaptation.

Potential Co-benefits: Biodiversity conservation, carbon storage and sequestration, stabilization of regional climate, water and soil protection, support to heritage conservation and identities, contribution to sustainable livelihoods.

Chapter 15: Corporate Social Responsibility and Disaster Management

Origin of CSR

The concept of Corporate Social Responsibility (CSR) was first initiated by Howard R. Bowen, published in 1953 in his book 'Social Responsibilities of the Businessman'.

Relevance of CSR to Disaster Management

• Increasing number of business activities lead to number of hazards.

• Business activities are affected by disasters.

• Business activities are an integral part of society; therefore, it is also their responsibility to take care of themselves as well as society.

CSR in India - Section 135 Companies Act, 2013

Every company having net worth of rupees five hundred crore or more, or turnover of rupees one thousand crore or more, or a net profit of rupees five crore or more during any financial year shall spend at least 2% of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy. India is the first and only country to have made CSR expenditure mandatory.

Chapter 16: Global Frameworks - IDNDR and Yokohama Strategy

International Decade for Natural Disaster Reduction (IDNDR)

The UN General Assembly designated 1990-2000 as the International Decade for Natural Disaster Reduction (IDNDR), launched following Resolution 44/236 (22 December 1989). The main objective was to reduce loss of lives, property damage and social and economic disruption through concerted international action.

Yokohama Strategy for a Safer World (1994)

Outcome of the First World Conference on Natural Disasters in Yokohama (23-27 May 1994). It provides guidelines for natural disaster prevention, preparedness and mitigation, endorsed by the UN General Assembly. It was the main outcome of the mid-term review of IDNDR and established 10 principles.

Ten Principles of Yokohama Strategy

1. Risk assessment is a required step for adequate disaster reduction policies.

2. Disaster prevention and preparedness are of primary importance in reducing the need for relief.

3. Disaster prevention and preparedness should be integral to development policy and planning.

4. Development and strengthening of capacities to prevent and mitigate disasters is a top priority.

5. Early warnings and effective dissemination are key factors to success.

6. Preventive measures are most effective when they involve participation at all levels.

7. Vulnerability can be reduced through proper design, development patterns, education and training.

8. Technology should be shared freely and in a timely manner.

9. Environmental protection as a component of sustainable development is imperative.

10. Each country bears primary responsibility for protecting its people.

Chapter 17: Hyogo Framework for Action (HFA) 2005-2015

Overview

The HFA, titled 'Building the Resilience of Nations and Communities to Disasters', was the outcome of the Second World Conference on Disaster Reduction in Kobe (2005). It was the first plan to explain, describe and detail the work required from all different sectors and actors to reduce disaster losses.

Five Priorities for Action

Priority 1: Making disaster risk reduction a priority - ensuring it is a national and local priority with a strong institutional basis.

Priority 2: Improving risk information and early warning - identifying, assessing and monitoring disaster risks and enhancing early warning.

Priority 3: Building a culture of safety and resilience - using knowledge, innovation and education to build a culture of safety at all levels.

Priority 4: Reducing the risks in key sectors - reducing underlying risk factors.

Priority 5: Strengthening preparedness for response - strengthening disaster preparedness for effective response at all levels.

Key Emphasis

HFA stresses the need to develop indicators of vulnerability as a 'key activity'. This includes developing indicators of disaster risk and vulnerability at national and sub-national scales, and assessing the impact of disasters on social, economic and environmental conditions.

Chapter 18: Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030

Paradigm Shift

The Sendai Framework for Disaster Risk Reduction (SFDRR) puts forth that the responsibility of disaster risk reduction and disaster risk management is upon all of society and all of its institutions. The advent of SFDRR has shifted the paradigm from 'disaster management' to 'disaster risk management'.

Key Features

- Broader scope including man-made hazards.
- Focus on disaster risk management rather than just disaster management.
- Responsibility of entire society and all institutions.
- Greater emphasis on understanding disaster risk.

Chapter 19: Disaster Management Act, 2005 (India)

Institutional Framework

NDMA (National Disaster Management Authority): Apex body for disaster management at national level, headed by Prime Minister.

SDMA (State Disaster Management Authority): Apex body at state level, headed by Chief Minister.

DDMA (District Disaster Management Authority): Authority at district level for planning and implementation.

NDRF (National Disaster Response Force): Specialized force for disaster response.

Key Mandates

- Every segment of governance must have effective disaster management strategies.
- Strong association of community and civil society in awareness generation, capacity building and training.
- 73rd and 74th constitutional amendments recognize PRIs and ULBs as 'institutions of self-government' with decision-making at grassroots level.

Chapter 20: Participatory Rural Appraisal (PRA)

Overview

PRA is a methodology developed by Robert Chambers ('Putting the Last First') that emphasizes genuine listening to local people and awareness of how power relations

can block participation of the most vulnerable. It represents a participatory method where outsiders and local people are equal learners and teachers.

Types of Mapping in PRA

1. Social Mapping: Gathers information on caste distribution, ethnic distribution, social institutions and economy, family structure, government institutions, education background, social groups, and accommodation practices.

2. Resource Mapping: Documents natural resources and their distribution in the community.

3. Mobility Mapping: Shows movement patterns of community members for various purposes.

4. Infrastructure Mapping: Provides overview of services and infrastructure available in the village to different communities.

Key Definitions and Terms

Disaster: A serious disruption of the functioning of a community or society, causing widespread human, material, economic, or environmental loss which goes beyond the day-to-day ability of the affected people or community or society to cope using its own resources (UN-ISDR 2002).

Coping Capacity: A combination of all strengths and resources available within a community or organization that can reduce the level of risk, or the effects of a disaster (UN/ISDR, 2002).

Resilience: The ability of a system, community or society to resist, absorb, accommodate and recover from hazard effects in a timely and efficient manner.

Hazard: A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Governance: A system of values, policies and institutions by which society manages its economic, political and social affairs through interaction among the state, civil society and the private sector. It includes economic governance, political governance, and administrative governance.

UNDRO: United Nations Disaster Relief Organization - the precursor to current UN disaster-related bodies.

UNISDR/UNDRR: United Nations International Strategy for Disaster Reduction, now United Nations Office for Disaster Risk Reduction.

DFID: Department for International Development (UK) - developed the Sustainable Livelihood Framework.

CARE: An international humanitarian organization - developed the Household Livelihood Security (HLS) approach.

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