

EAFm Capacity Plus Module 4: Disaster Risk Management,

EAFm & ToT training Yangon, Myanmar- August 2019





Module objectives

- Define the key terms and concepts related to DRM such as hazard, vulnerability, risk, DRR

- Discuss the key components/processes of DRM
- Understand the links between risk, hazard occurrence and vulnerability
- Explain the links between CCA and DRM, similarities and differences



Source: FAO, based on data from PDNAs

The impact of disasters on agriculture

Share of disaster impact absorbed by agriculture in developing countries, 2006–2016

(based on 74 PDNAs in 53 developing countries)

An FAO study in 2017 found that the agriculture sector absorbed 23% of all Damage and Losses caused by natural hazards

Includes assets and infrastructure

2 PDNAs from Myanmar (includes Fisheries and Aquaculture)

Cyclone Nargis (2008) where agriculture damage and losses as % of total: 17%

Floods and landslides (2015) where agriculture damage and losses as % of total: 37%

Food ant Application Organization of the United Nations



PDNAs distinguish damage – the total or partial destruction of physical assets – from losses, which are changes in economic flows.

2/ Fisheries and Aquaculture in Emergencies

What is a Disaster: Terminology



Fisheries and Aquaculture Response to Emergency



Basic definitions

 ✓ A hazard is a potentially damaging physical event, phenomenon or human activity



What type of hazards?



Basic definitions

✓ A disaster is a serious disruption of the functioning of a community/society that causes widespread human, material, environmental and economic losses, which exceeds the ability of the affected community/society to address it using its own resources





Disaster = hazards x conditions of vulnerability x insufficient capacity to reduce the potential negative consequences of risk

→ The **purpose of disaster prevention, mitigation and preparedness** is to reduce the number of hazards that turn into disasters

Risk = hazards occurrence x vulnerability

- the probability of harmful consequences or expected losses (*deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged*).
- ✓ Vulnerability: refers to unpredictable events that can undermine livelihoods and cause households to fall into poverty



Basic definitions

Vulnerability results from conditions determined by physical, social, economic & environmental factors



Defining Vulnerability

Vulnerability components



Sources: Allison et al. (2005); Allison et al. (2009).

Zin Mie Mie Sein/Aung Htun Oo

I think you have a customized slide like this also? Please replace so we will have a clearer diagram.

Vulnerability of Fisheries community vulnerabilities

- Fishing communities are often located in remote places that are at high risk of extreme events.
 - Coastal communities subject to cyclones and tsunamis
 - Inland communities affected by droughts and floods.
- Multiple Impacts on fisheries dependent livelihoods
 - Severe weather events destroy infrastructure and productive assets such as boats, landing sites, postharvesting facilities and roads.
 - decrease in harvesting capacity and access to markets, affecting both local livelihoods and the overall economy.
- Remoteness can hinder recovery efforts

Vulnerability and The Sustainable Livelihoods Framework (SLF)



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Vulnerability and

The Sustainable Livelihoods Framework (SLF)



Shocks – examples – extreme temperatures (high, low), cyclones, pest and disease outbreaks; can be minor or major, and even recurrent/repeating Seasonality – delayed monsoon season, unusually active Bay of Bengal conditions; seasonal events that deviate or do not deviate from the long term average Trends – higher annual average air and SSTs observed over the past 10 years Zin Mie Mie Sein/Aung Htun Oo

Please Insert asset pentagon from one of the pilot villages (or ideally Mee Pya to be Consistent with the map) just to illustrate the concept.



Hazard and Resource Mapping in Mee Pya Village



Example: vulnerability as a function of exposure (geography, proximity to hazard sources, etc.)





Lower elevation areas (yellowish) in the village have higher vulnerability to floods, storm surges, tsunamis



Vulnerability and Natural Resource Health: Ecosystems that are less healthy are more sensitive and more vulnerable to disaster risks and long term climate change impacts.

High-risk groups. including raft workers.



There are about 20,000 to 40,000 fishers at work on rafts and another 4,000 to 7,000 workers working on carrier vessels.

Photo. c/o Yin Nyein, NAG

Disaster Risk Reduction (DRR)

Refers to programs, actions targeted **to avoid** (prevention) or **to limit** (mitigation) and to anticipate (preparedness) the adverse impacts of hazards

Disaster Risk Management (DRM)

Refers to institutional, legal, policy frameworks and administrative mechanisms and procedures related to the management of both risk (*ex ante*) and disasters (*ex post*).

DRM includes, from a management perspective, prevention, mitigation, preparedness as well as response, recovery and rehabilitation

 \rightarrow Seeks to reduce the underlying factors of risk; to prepare for and initiate an immediate response should a disaster hit.



Prevention, mitigation and preparedness in AG:

e.g. establishing early warning systems, risk reducing technologies, institutional capacity development, local disaster prevention plans

e.g. erosion control structures, fish feed and seeds reserves, insurance schemes

e.g. issuing hazard warnings and alerts, moving animals and seeds to safe places; stocking food, feeds, water and basic medical/veterinary packages

\rightarrow <u>Response</u>: savings lives, property, providing relief

e.g. distributing seeds, fertilizer, fish feeds, fishing equipment, livestock feed, veterinary medicines, farm tools and machines; training and equipping community animal health workers to save livestock.

\rightarrow <u>Recovery/Transition</u>: from relief to development

"recovery" encompasses both rehabilitation and reconstruction e.g. restoring and rebuilding small- scale agricultural and rural infrastructure including hatcheries, ice plants, jetties/landing sites, seed multiplication, capacity building on improved or new diversified species to be farmed, cage cultured, etc.

DRM preparedness

Issue	Pre Nargis	Present Time	
Warning system	no	Yes	
Shelter	no	2	
Communications	no	Mobile phones, solar power	
		batteries	
Population	More	Less through migration	
Disaster frequency	Less	More unpredictable	
Mangroves	<mark>Abundant</mark>	Degraded	
External help	No	Some	
DRM training	No	Yes	
Migration	No	Yes	
Fisher Association	No	Yes	

Examples of risk sensitive livelihood technologies and strategies for building resilience against natural hazards

Fisheries

- Adoption of ecosystembased approach
- Implementation of the Code of conduct for responsible fisheries
- Sustainable livelihoods approaches/diversification
- Support to the development of financial mechanisms, such as insurance
- Early Warning SystemsEnhancing Safety at SeaCyclone shelters

Agriculture

- Conservation agriculture
- Crop diversification
- Appropriate crop selection (drought/saline/flood tolerant)
- Adjust cropping calendars
- Local seed multiplication systems

Water

- Rainwater harvesting, conservation & storage
- Water reserves to buffer droughts

Livestock

- Fodder conservation
- Proofing of storage facilities and livestock shelters.
- Resilient animal breeding
- Pest management to cope with threats

Forests

- Forest pests prevention
- Agro-forestry
- Integrated Fire Management
- Afforestation /reforestation
- Catchment area Mgt

Land

- Restoration of degraded lands
- Land use/access, tenure & territorial planning
- Land and soil management

Prevention Mitigation Preparedness	Response	Recovery	Transition









Lessons learned from disaster impact and response

Case study- The Cyclone Nargis Disaster



The Damage done

- Nargis severely affected the lives of approximately 2.4 million people.
- An estimated 140,000 people were killed.
- 790,000 houses were destroyed (57%) or badly damaged.
- 800,000 people were displaced, who sought shelter with extended family, friends or in relief camps.
- 4,000 schools were destroyed. (a few temples).
- Food stocks, livelihood related equipment, infrastructure were lost.
- Significant psychological trauma of survivors.

130,000 boats & fishing gears were destroyed





Response and Recovery

Under Productive Lives > 130,000 sets of fishing gear given to fishing households

More than 14,500 small boats were built and distributed.

Many villages were rebuilt from scratch.

6/ Fisheries and Aquaculture Policy and Management (FAPM)

Response

 Aims to balance fishing capacity and effort with the capacity of resources to sustain this.

Build Back Better in the context of Fisheries Emergency

- Avoids oversupply of vessels and gear.
- Opportunity to introduce more selective gear/methods with lower ecosystems impacts
- Improved siting and regulation of aquaculture
- Careful use of subsidies, grants, soft loans, etc. as incentives for improvement





6/ Fisheries and Aquaculture Policy and Management (FAPM)

Fisheries and Aquaculture Response to Emergency



Build Back Better in the context of Fisheries Emergency Response



- Increased participation in policy and management decisions and implementation
- Improved risk assessment and contingency planning
- Building resilience and improvements into the supply chain
- Developing robust management information systems especially:
 - Fisher/farmer registration, vessel/farm registration
 - Asset supply



Linkages between DRR and CCA



- Analysis based on past and current events
- Short-term focus
- Hyogo Framework for ActionSFDRR

- Builds on current baseline to define actions for the future
- Short + long-term focus

-NAPAs , NAPs Bali action plan, COPs of UNFCCC

SHARED COMMON OBJECTIVE: Scale-up and accelerate DRR and CCA actions to build resilience. Support the achievement of the SDGs.

Common concern with climate-related risks and hazards Cross-sectoral perspective Poverty reduction and sustainable NRM Increase of resilience and building response capacity Addressing similar drivers of vulnerability Capacity-building and awareness-raising



Linkages between DRR and CCA



DRM is the first line of defense to increase resilience against impacts of climate change

Media response

Key messages

- Climate change is likely to increase the frequency and intensity of extreme climatic events
- DRM provides the solution to manage the impacts of extreme climatic events while also reducing vulnerability to long-term gradual changes.
- In this sense, DRM is a first line of adaptive action (climate variability and DRR are entry points to address CCA)
- The link to CCA provides new challenges and opportunities: severe disasters often catalyze the resources and momentum necessary to introduce policy reform and to strengthen the national DRM systems and prepare to better address CC
- Others?

Plenary Discussion

• Discuss ways that DRM could be integrated into the EAFM planning cycle in Myanmar?