Assessing Socioeconomic Impacts of Flooding: Case study in the East Coast of Peninsular Malaysia

Chamhuri Siwar
Institute for Environment and Development (LESTARI)
Universiti Kebangsaan Malaysia (UKM)
csiwar@ukm.edu.my

Introduction

- Climate change and variability may come in the form of slow onset and extreme events, including sea level rise, storms , typhoons and tsunami which caused floods that caused losses and damages around the world, particularly in the least developed countries (LDCs), small island developing states (SIDS) and in the Pacific and Southeast Asia countries.
- Malaysia is not spared from the occurrence of extreme events, which is likely to increase and the need for approaches to address these destructions is an increasingly urgent task (Shamsuddoha, Roberts, & Hasemann, 2013).

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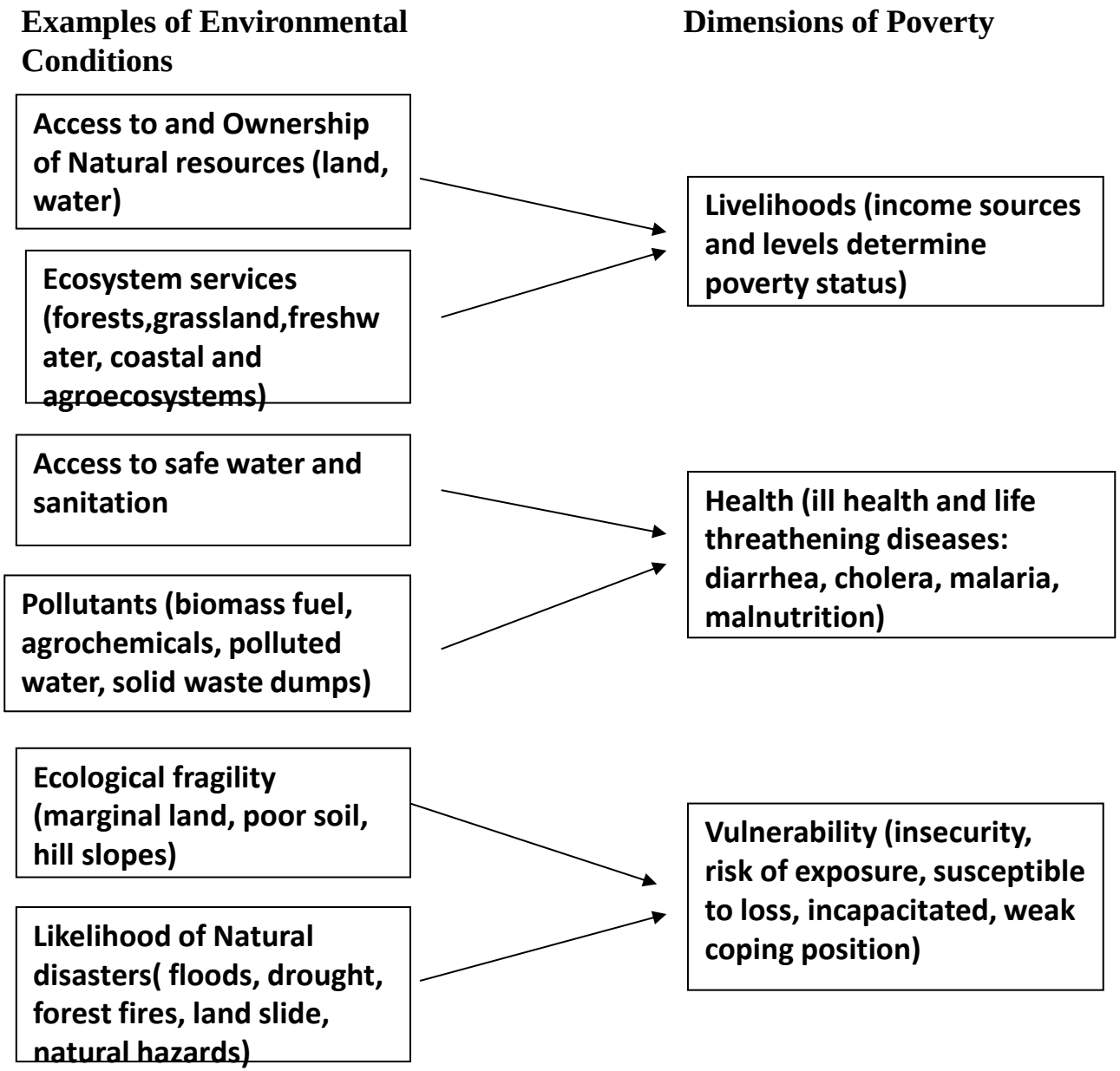
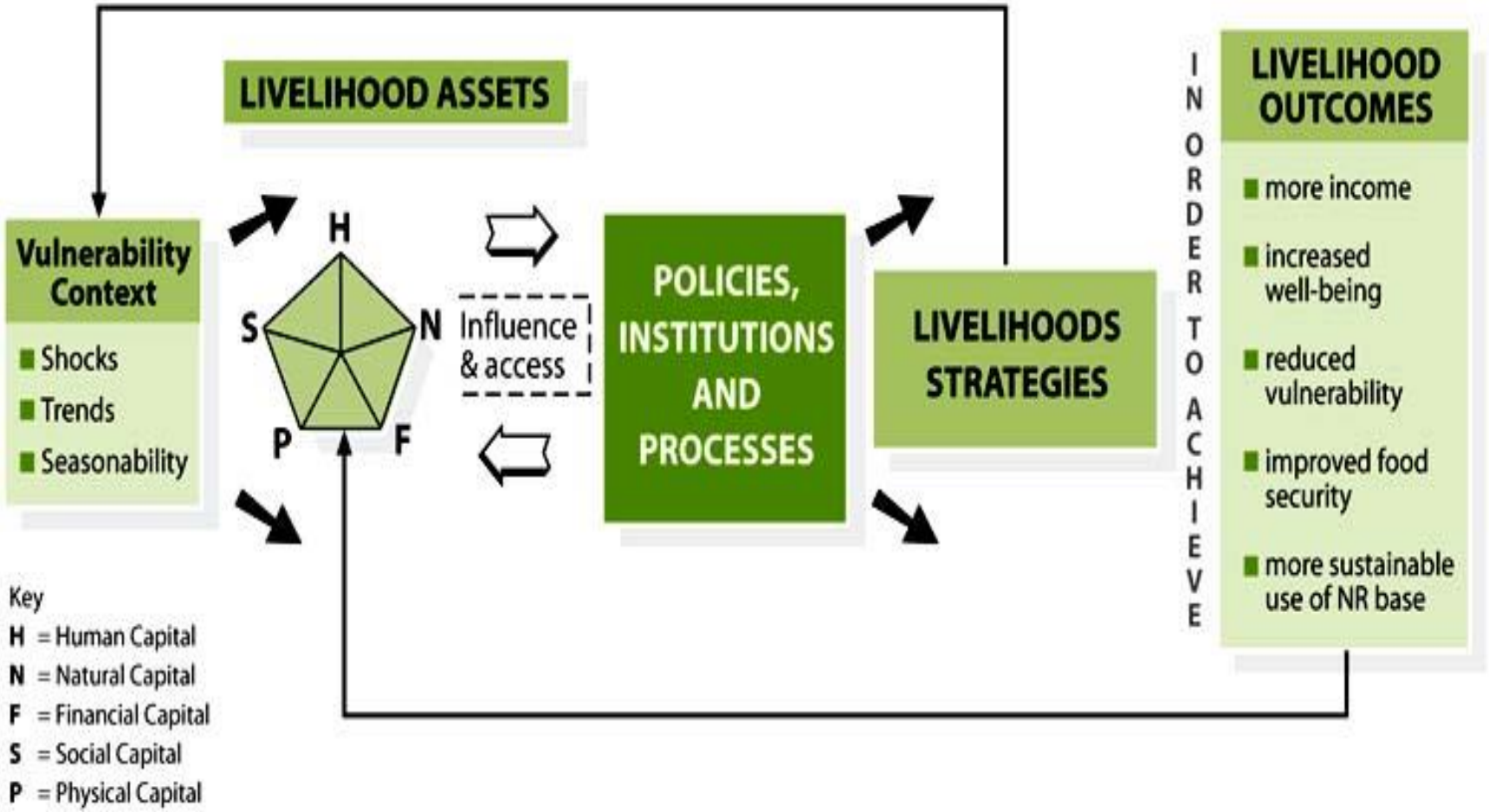
- It is recognised that neither mitigation nor adaptation efforts will be enough to avoid losses and damages.
- The most vulnerable groups affected by climate change are people residing along the river basin and coastal line especially women and children of poor.
- High level of vulnerability reflect a lack of or inappropriate adaptations and therefore low levels of resilience (Oliver-smith, 2009).

Poverty and environment Linkages



Sustainable Livelihood Framework



Socioeconomic Impacts

- **The socioeconomic impacts** affects the livelihood and wellbeing of those affected. People lose jobs because of flooding. Business has been damaged and destroyed. A related concern is that job losses and unexpected expenses will increase financial stress for households and the state alike. The number of unemployment workers is sure to increase. Lower household incomes will also lead to higher enrolments in the e-Kasih program (cash assistance).
- The socioeconomic impact study will cover loss and damages inflicted by the floods, in the rural/agricultural areas as well as town areas. These include:
- Physical damage- houses, buildings, institutions, bridges and other infrastructures that were washed away, or collapsed due to inundation or damaged by floating debris. Landslides may occur from saturated soils. Damage is often greater in valleys than in open areas. Household possessions are damaged or lost.
- Water supplies – contamination of wells and groundwater is possible due to flooding. Unavailability of clean water has serious implications on health and livelihood of communities.
- Crops and food supplies including fisheries and livestock- harvests and food stock may be lost due to inundation. Animals, farm tools and seeds might be lost.

Key Concepts

- **Damage**
- According to World Bank by Guidance note on post-disaster and loss assessment, it is a total or partial destruction of physical assets existing in the affected area.
- Damage occurs during and immediately after the disaster and is measured in physical units (i.e. square meters of housing, kilometers of roads, etc.).
- Their monetary value is expressed in terms of replacement costs prevailing at the time of the event.

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- **Losses**
- Guidance notes also define the losses as a change in the economic flows arising from the destruction of assets. They occur until full economic recovery and reconstruction of assets has been achieved, in some cases over several years. Typical losses include the (i) decline in output in productive sectors (agriculture, livestock, fisheries, tourism, industry and commerce) and the (II) lower revenues and higher operational costs in the provision of basic services (water and sanitation, electricity, transport), as well as the (iii) unexpected expenditures to meet humanitarian needs during the post-disaster emergency phase.
- Losses are expressed in current value.
- Information to manage and reduce the risk of loss and damage requires public information concerning each of the key elements affecting the risk of loss (Kovacs & Sandink, 2013)

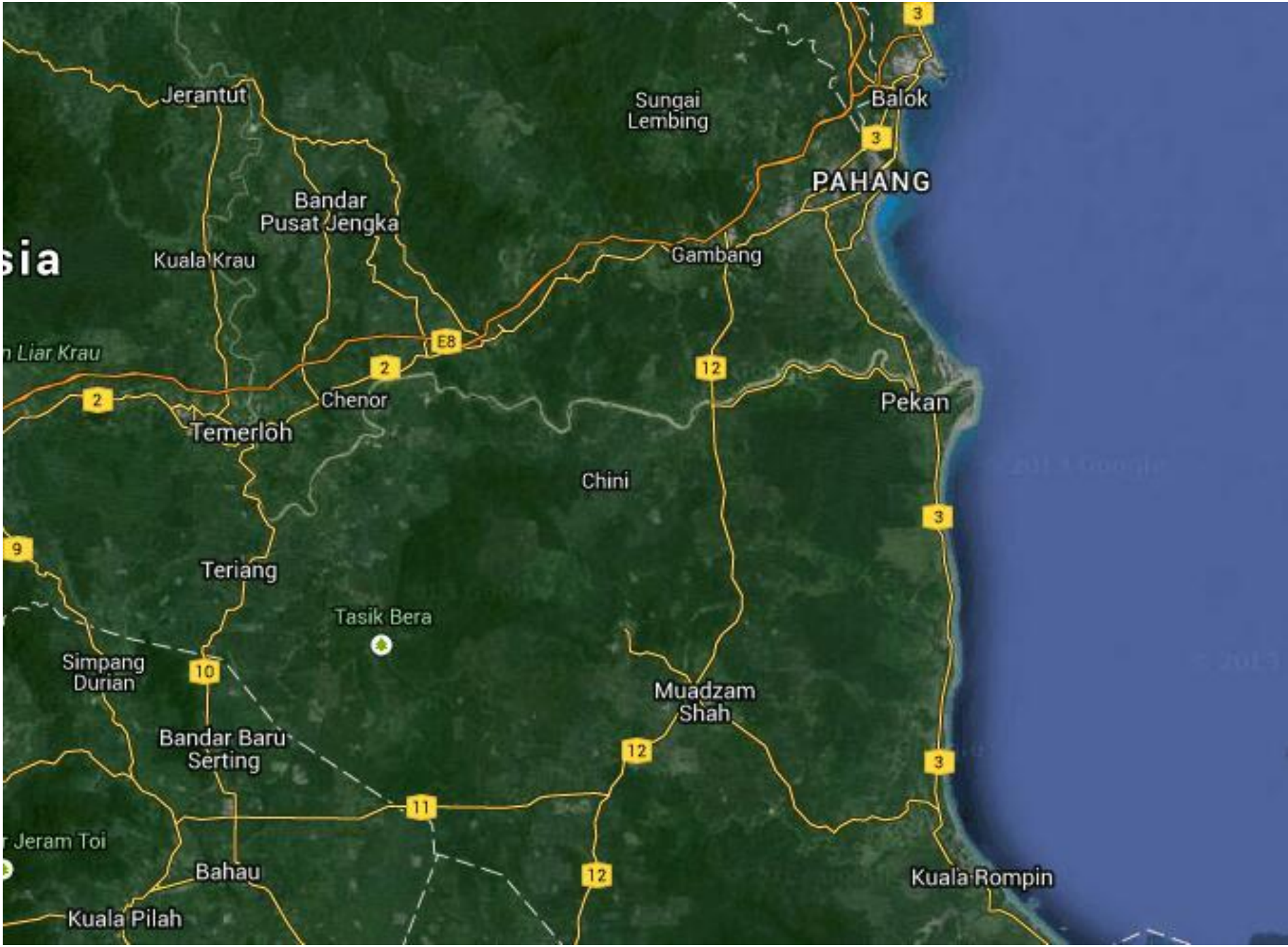
Loss and damage assessment

- Structures and Buildings
- Houses
- Farm land
- Infrastructures- roads, parks, play ground
- Home appliances
- Transport

Case study

- **Study area.**
- 1. Kelantan River Basin stretching from Kota Bahru to Gua Musang
- 2. Pahang River Basin stretching from Pekan, Kuantan and Temerloh

- (affected sectors include village-rural-agriculture, urban-industry, Tourism, households)


Jerantut
Sungai Lembing
Balok
PAHANG
Bandar Pusat Jengka
Kuala Krau
Gambang
E8
2
12
3
Chenor
Temerloh
Pekan
Chini
9
Teriang
Tasik Bera
Simpang Durian
10
Muadzam Shah
Bandar Baru Serting
11
Jeram Toi
Bahau
Kuala Rompin
Kuala Pilah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Methods

- CVCA (Climate Vulnerability and Capacity Analysis) methodology provides a framework for analysing vulnerability and capacity to adapt to climate change at the community level.
- It provides local knowledge on climate risks and adaptation strategies in the data gathering and analysis process.

Vulnerability assessment

- Vulnerability is "the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard". It is constraints that effect a household, community's or society's ability (or inability) to absorb losses after a disaster and to recover from the damage.
- It is also complex combination of interrelated, mutually reinforcing and dynamic factors. Five different types of factors that affect vulnerability are commonly identified: physical, socio-cultural, economic, environmental, and governance factors.

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- **Household survey**

- The household surveys will be conducted through the baseline study provided relevant data and analysis of the current situation.
- The study, collecting demographic information of the participating areas, socioeconomic data, which is included an exemplifies of current livelihoods and potentials, climate risks, disaster preparedness measures, factor effecting resiliency and adaptive behaviours.
- The design of the quantitative household survey is a complementary to CARE's CVCA and to gather baseline data from change/impact in relation to the project indicators can be measured.
- It is also to assess the current livelihood situation of the target areas and to assist in directing program activities.
- This methodology also can be easily replicated for future monitoring and evaluations, so that a genuine assessment of changes can be made over time and the impact can be measured.

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- **Purposive Sampling Methods**

- From those affected by the floods
- The direct face-to-face interview
- The structured questionnaire
- Random sampling method.
- Farmer's perception of impacts of climate change was measuring by using a 5-point scale with 1 as a very low and 5 as very high impact.
- The study utilise the Statistical Package for Social Sciences (SPSS) version 21 to analyse the data.

Disaster risk reduction (DRR)

- Disaster risk reduction (DRR) is a holistic approach to reducing the chances that hazards will impact on people and societies and increasing the capacity to manage risks. This includes building disaster resilience into development processes, by taking steps to minimize or even avoid the impacts of future hazards. It is an approach that informs strategies, policies and practices, and emphasizes that tackling disaster risks should be an integral part of development, not a separate or one-off action that takes place only at the time when a hazard event occurs.

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- The purpose of DRR is therefore to decrease people's underlying vulnerabilities and increase their capacities to better cope with and withstand hazards thus ensuring that their health and wellbeing, safety, livelihoods and assets are protected.
- Good DRR also continues after a disaster, building resilience to future hazards.
- DRR aims to achieve sustainable, lasting and effective reduction of risk leading to safer and healthier individuals, families and communities, efficient and diversified livelihoods and the protection of cultural and heritage assets.

DRR Framework

DRR comprises the following priorities areas for intervention:

- 1. **Risk awareness and assessment** including hazard analysis and vulnerability/capacity analysis
- 2. **Vulnerability reduction**- focusing on support to at-risk group including pregnant/lactating women, single headed households, young children, the elderly and the ill.
- 3. **Capacity building** in order that local people can better manage their own risk and develop and implement their own protective measure.
- 4. **Knowledge development** including education, training, research and information.
- 5. **Public commitment an institutional frameworks**, including organizational, policy, legislation and community action
- 6. **Application of measures-** including environmental management, land-use and urban planning, protection of critical facilities, application of sciences and technology, partnership and networking, and financial instrument.
- 7. **Early warning system**- including forecasting, dissemination of warnings, preparedness measures and reaction capacities.

Implications of the impacts on livability

- Special attention needs to be given to the question of people's livability and sustainability which is more crucial to enhance their quality of life at the local level. This study will examine the challenges to the livability - focusing on their sustainability and the people's quality of life.

- THANK YOU