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Disaster Risk Management – planning for resilient and sustainable societies

INTRODUCTION

It is generally accepted that disasters are having an increasing impact on our lives, property, environment, infrastructure, and economic and social activities. Globally, severe weather and other natural phenomena, as well as human activities, are exacting a heavy toll on us and the environment we depend on.

The results of disasters are human suffering, and damage to the resources and infrastructure on which humans rely for survival and quality of life. In the aftermath of a disaster, it is critical to rapidly determine the exact nature of the impacts and what will be required to restore the situation, or preferably to improve the situation by reducing vulnerability to future impacts.

It is even more important to intervene pro-actively, before disasters occur, to influence the process by which disaster and

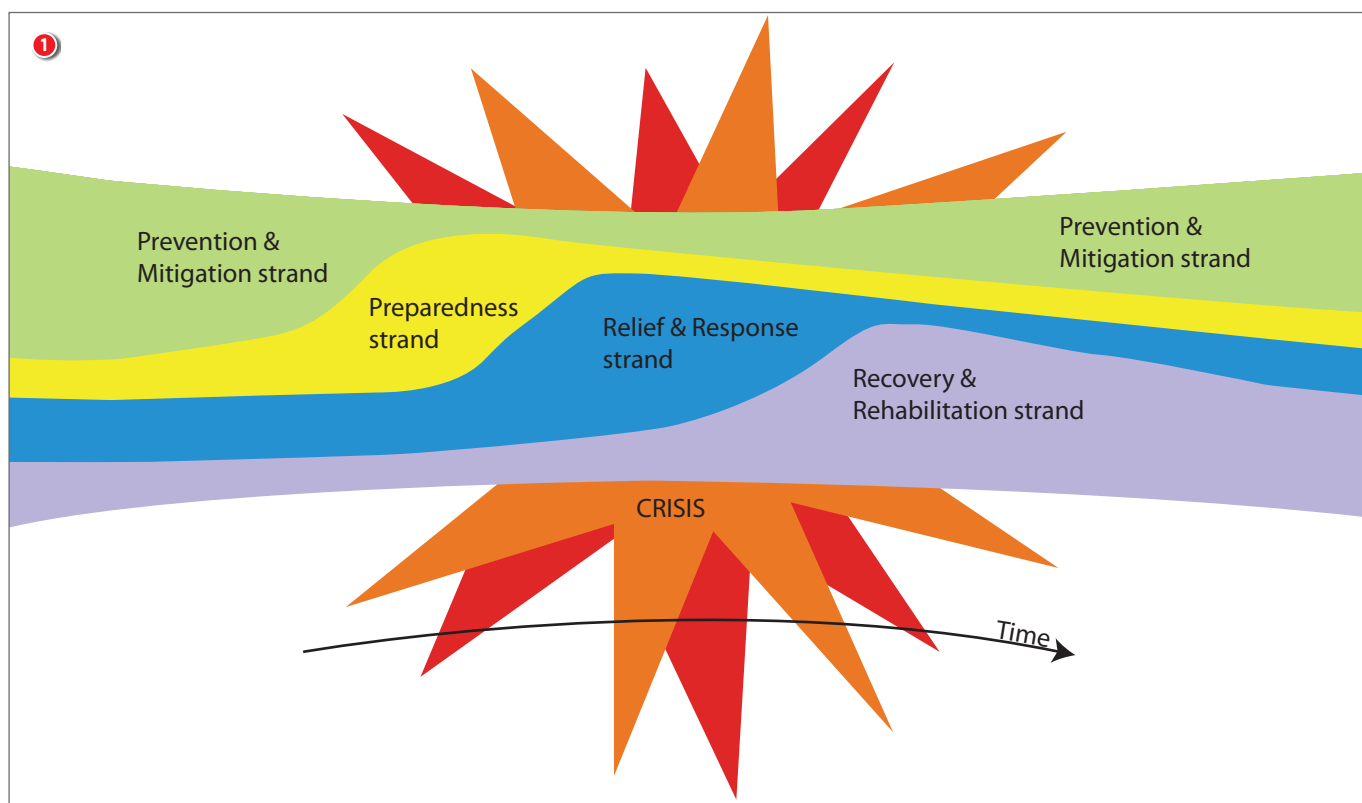
operational risks develop, due to increasing vulnerability, resulting in decreasing coping capacity.

DISASTER RISK MANAGEMENT – AN OVERVIEW

As defined by the South African Disaster Management Act (Notice 654 of 2005), Disaster Risk is defined as the possibility, or chance, of harmful consequence, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural and human-induced hazards and vulnerable conditions. It is important to note that not all disasters happen with a sudden onset, such as earthquakes or tsunamis. It is often the slow onset disasters (e.g. environmental degradation, drought, changes in flood prone areas / flood lines) that pose the higher risk if not identified and planned for in the Disaster Risk Management (DRM) process.

Although generally perceived as such, DRM is not only reactive (the so-called response paradigm). The South African Disaster Management Act (Act 57 of 2002) defines DRM as a

- ① The Disaster Risk Management continuum
- ② The relationship between disasters (risk) and development



“continuous and integrated multi-sectoral, multi-disciplinary process of planning and implementation of measures aimed at:

- (a) preventing or reducing the risk of disasters
- (b) mitigating the severity or consequences of disasters
- (c) emergency preparedness
- (d) a rapid and effective response to disaster, and
- (e) post-disaster recovery and rehabilitation.”

Figure 1 illustrates this life cycle of Disaster Risk Management – the DRM continuum – illustrating a strong paradigm shift from response towards risk reduction, shown as a continuous process (the green strand), even during an event.

Internationally, governments have committed themselves to taking action against disaster risk, and have adopted a guideline to reduce vulnerabilities to hazards. This guideline is known as the Hyogo Framework for Action, as defined by the United Nations International Strategy for Disaster Reaction (UNISDR 2004). The first step for action is to make risk reduction a priority with a strong institutional basis for implementation. In South Africa, DRM is now regarded as ‘everybody’s business’, emphasising the responsibilities of all role-players, and is especially not limited to those historically associated with DRM. The Act (Act 57 of 2002) also recognises that disasters know no boundaries and that plans and strategies should be finalised in conjunction with neighbouring municipalities and higher/lower spheres of government to curb, where practical, the onslaught of disaster risk.

DISASTER RISK AND INTEGRATED PLANNING

The Act (Act 57 of 2002) requires that the disaster management plan forms an integral part of the Integrated Development Planning (IDP) process. This inter-relationship is also reflected in Section 26 of the Municipal Systems Act (Act 32 of 2002). The National Spatial Development Perspective has broadened the functionality of the IDP. It focuses on development planning within a spatial extent, not a managerial entity, irrespective of the sphere of government responsible for certain

functions. This new approach gave rise to the so-called second generation IDP, where integrated development planning is performed through the implementation of a systematic process, targeting distinct deliverables portrayed in the IDP to be addressed by councils for implementation (Louw 2007). It is within this planning context that disaster risk must be identified, quantified, planned for and implemented.

A FOCUS ON RISK REDUCTION

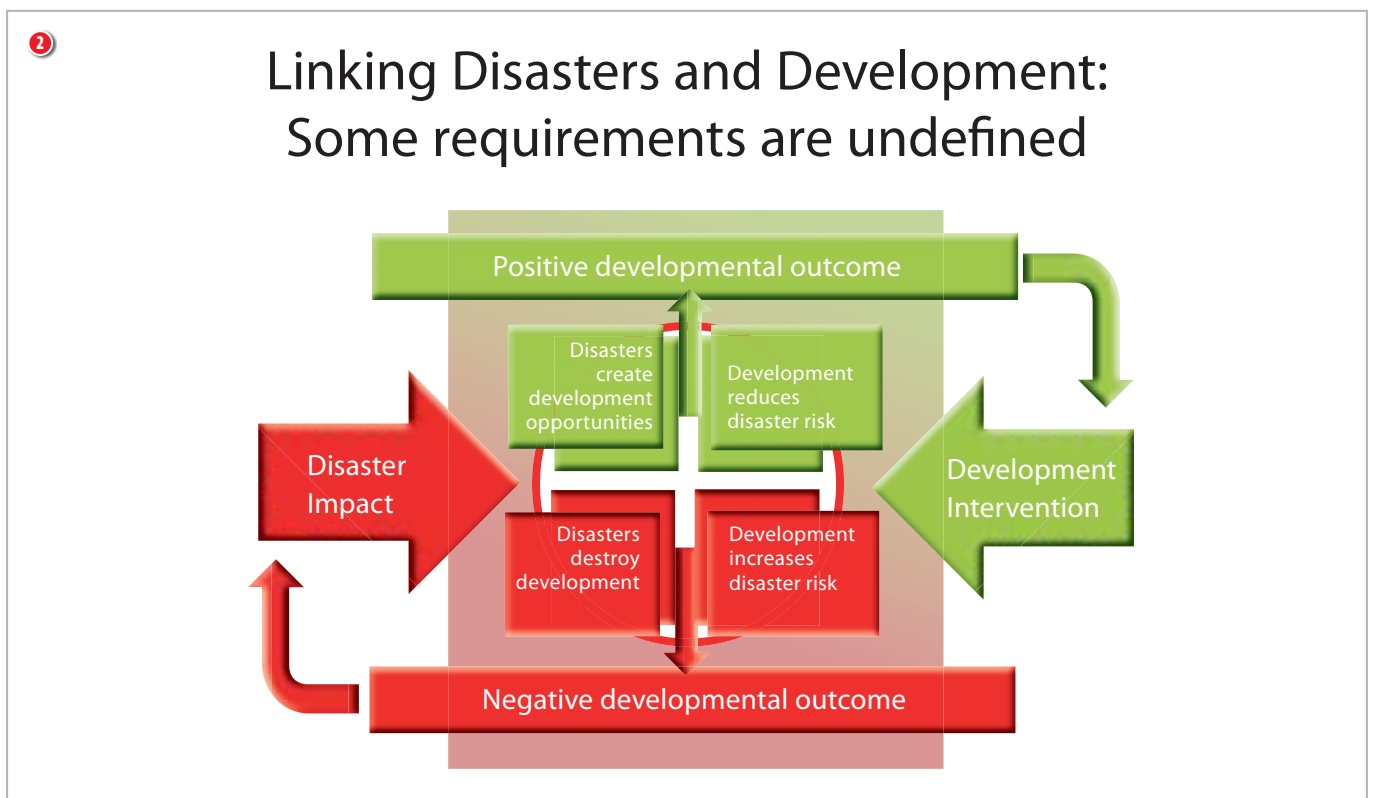
Risk reduction initiatives are essential as they form the first ‘real’ barrier that, if nothing else, acts as a buffer by lowering the vulnerability of the area impacted. Furthermore, reduction is pre-emptive and is based on the perceived ‘anticipated’ risk supplemented by historical data.

A disaster risk assessment is the first step towards risk reduction. Disaster risk assessments, supported by effective monitoring, are essential for:

- effective risk management planning
- sustainable development planning
- identifying potential threats that can undermine a development’s success and sustainability, making it possible to incorporate risk reduction measures into project design prior to implementation
- identifying high risk periods and conditions, and
- activating response and preparedness actions.

Relevant national organs of state must execute systematic disaster risk assessments in the following instances:

- prior to the implementation of any risk reduction, preparedness or response programme
- as an integral part of the planning phase for large-scale housing, infrastructure or commercial/industrial developments of national significance
- as an integral component of the planning phase for nationally significant initiatives that affect the natural environment, and



■ when social, economic, infrastructural, environmental, climatic or other indicators suggest changing patterns of risk. Risk assessments must be undertaken to ensure that development initiatives maximise their vulnerability reduction outcomes. The relationship between development and Disaster (Risk) is illustrated in Figure 2.

Theoretically, the measures that can be considered for reducing the risk of an area are five-fold, taken from Botha and Louw (2004) and summarised in Louw (2007):

1. Physical planning measures

Physical planning measures include the location of public sector facilities that can reduce the vulnerability of an area, such as schools, hospitals, major infrastructural elements like wastewater treatment works and power transformers. However, the consideration of disaster risks in spatial planning is extremely important. The development of residential areas and the supporting infrastructure should always aim to reduce risk.

2. Engineering/construction measures

Two types of engineering measures are possible. The first option results in stronger individual structures which are more resistant to hazards, while the second option creates structures to protect and alleviate against hazards, e.g. dykes, levees and dams.

3. Economic measures

Risk reduction measures that increase the capacity of a community to cope with future losses create resilience in

dealing with losses and recovering from it. Examples include incentive grants, tax rebates and economic diversification. Economic development should be one of the main focuses of regional planning.

4. Management and institutional measures

Institutional measures are very important and a longer term initiative, requiring institutional buy-in. Education, training, professional and technical competence, as well as budget allocations, are crucial for success. It includes measures such as the regulation of building below flood lines.

5. Societal measures

Public awareness is a key component of reducing risk. The creation of a safety culture is encouraged, where the community reaches consensus that risk reduction measures are desirable, feasible and affordable.

CONCLUSION

The risks involved in disasters are determined by our 'everyday' living conditions through the vulnerabilities created by such conditions (Wisner *et al* 2004). Disasters are therefore a complex mix of natural and other hazards and human action (and vulnerabilities). They consist of a combination of factors that determine the potential for people to be exposed to particular types of hazard. The impact of the disaster also depends fundamentally on how social and political systems interact in different societies. These factors determine how groups of people differ in relation to income (economy), health, employment, housing and social environment.

Resilience can also be impacted (positively or negatively) by risk reduction initiatives and measures. DRM therefore entails a holistic and considered approach which includes, amongst others, risk management planning, advisory services and engineering innovation. Assessing risk is the first step towards planning for it. Risk reduction measures must be inter-sectoral, inter-departmental and be part of a continuous process. DRM is a coordinating function, recognising that solutions towards risk reduction are a team effort – therefore, 'everybody's business'.

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