

Disaster Management Capacity from a National Perspective

What general aspects affect a country's Disaster Management Capacity and to what extent are these covered by assessment models, with a national perspective, used by agencies such as the United Nations and the International Federation of the Red Cross and Red Crescent Societies in disaster prone countries?

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Abstract

Capacity development projects must be based on a thorough understanding of the situation within the subject country. However, the assessment phase is a very complex process and should cover a great number of aspects that both in time and space could affect the outcome of a triggering event. This project tries to identify what general aspects that could affect a country's Disaster Management Capacity, and to what extent these are covered by assessment models, with a national perspective, used by agencies such as the United Nations and the International Federation of the Red Cross and Red Crescent in disaster prone countries. Our main conclusion, based on previous research, relevant literature and semi-structured interviews, was that no holistic model for capacity assessments exist to this date. Thus, less detailed guiding documents and models with limited scope were analysed. We also constructed a framework of central aspects that could affect a country's DMC. The input to the framework was based on literature and semi-structured interviews. We found that the analysed documents only covered a limited number of aspects and that in order to achieve an as holistic assessment as possible; different documents needs to be combined

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Happy reading,
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Executive Summary

All around the world people face the threats and consequences of disasters. The losses, both in human lives, suffering and monetary terms, are immense. During recent years we have also been made aware of that factors such as globalisation and climate change are likely to introduce “new risks” and increased consequences from the “old ones. Furthermore, disasters are not a separate issue; it affects people in their everyday situation and the close link between disasters and development as well as between disasters and poverty are today rather well acknowledged. Albeit the rather depressing remarks above, research has also established that measures to reduce risks do pay off. Accordingly, there has been a shift within the realm of Disaster Management from a more response-driven approach to one that in a more direct and outspoken way also includes risk reduction.

Many international organisations have thus initiated capacity development projects aiming at strengthening disaster prone countries’ own capacities to handle the threats and consequences of disasters. These projects must be based on a thorough understanding of the current situation within the subject country, making the assessment phase a fundamental part of such projects. However, the assessment phase is a very complex process, which has to cover a great number of aspects that could, both in time and space, affect the outcome of a triggering event.

The Swedish Rescue Services Agency (SRSA) has, with a new mandate from the Swedish Government, initiated a project called “Capacity Development for Disaster Risk Reduction, Response and Recovery”. This master thesis, “Disaster Management Capacity from a National Perspective”, constitutes a smaller part of the larger SRSA project and the research question for this project reads:

What general aspects affect a country’s Disaster Management Capacity and to what extent are these covered by assessment models, with a national perspective, used by agencies such as the United Nations and the International Federation of the Red Cross and Red Crescent Societies in disaster prone countries?

The objectives of this project comprise four main parts, where the first one is to map what aspects that affect a country’s Disaster Management Capacity. The second part concerns studying what models that are currently being used by different actors within the field of international Disaster Management when assessing capacities. The third part relates to analysing what aspects in time and space these different models cover and the fourth and final part is to obtain an understanding of why the models are constructed the way they are, the logic behind them and the predicaments surrounding the assessment phase.

Disaster Management within this project includes Disaster Risk Reduction, Response and Recovery, i.e. all work related to handling disasters prior, during and after the triggering event, also referred to as the time-dimension of disasters. In addition, due to the multi-sectorial characteristics of disasters, Disaster Management must also consider the potential effects of a disaster within all areas of society, or the space-dimension of disasters. The latter should in our opinion include an all-of-society, whole-government and all-hazard approach. Accordingly, Disaster Management Capacity refers to the total capacity to handle disasters, both in time and space. Furthermore, capacity is seen as the opposite to vulnerability, and the two phrases are used as the antipodes one single, relative scale. These two phrases are used within all areas of society.

The target groups of this project are all persons active within any or all phases of Disaster Management, SRSA personnel and others who wish to enhance their understanding related to capacity assessment and what aspects in time and space that could affect a country’s Disaster Management Capacity.

Since disasters do not strike an international organisation, but in fact a country and its population, the main actors within national Disaster Management are the Government and the National Disaster Management Agency of each country. Each state should therefore evaluate the Disaster Management Capacity, and if needed obtain assistance by international organisations. Both countries and international organisations thus have a need for a model, with a national perspective, providing guidance on how to conduct a capacity assessment.

However, the main conclusion, which was based on previous research within the field of Disaster Management Capacity Country assessments, other relevant literature and interviews with persons active, experienced and knowledgeable within different areas of the Disaster Management realm, was that no such model exist to this date. Instead, the scope of the project were expanded to include less detailed guiding documents alongside with models limited to a smaller area within Disaster Management. Six types of documents were included in the project: the Words into Action guide to the Hyogo Framework for Action, case studies, index methods, community-based assessment methods, documents originating from the IFRC and checklists/questionnaires.

In line with the first objective of the project and to enable a structured analysis of the models, a framework of central aspects, and sub-aspects, which in our opinion could in a direct way affect a country's Disaster Management Capacity were created. The input to the framework was based on literature and semi-structured interviews. Even though using "disasters of natural origin" as a starting point for the framework the intentions were that by excluding specific hazards in the discussions, the framework would be as generally applicable as possible. The framework was structured under four profiles: the Physical/Environmental Profile, the Cultural/Social/Political Profile, the Institutional/Legislative Profile and the Economical Profile. Due to the rather large body of text, the contents of the framework was summarised in a checklist comprising the essence of each aspect and a three-graded scale rendering it possible to give a better representation of the degree of coverage in each model.

According to the results of the analysis, neither one of the analysed documents succeeded in including all relevant aspects that in our opinion should be a part of a capacity assessment. Furthermore, the analysed documents were all designed with different objectives, origins and limitations and based on different prerequisites, which has to be considered should these documents be used in an another context than they originally were intended to.

With the current lack of more guiding documents, it is considered that capacity and vulnerability assessments will vary greatly depending on the person conducting them and that it is important to find a way to combine the available material to be able to conduct an assessment in an as holistic manner as possible. Much is gained from adopting the Hyogo Framework for Action, and to really embrace the essence of this document. However, being a framework the Hyogo Framework for Action, or its guiding document Words into Action, does not provide enough details of guidance on how to conduct the assessment. Hence, it needs to be complemented with other documents. Nevertheless, combining different documents puts rather high demands on the user, including that he or she knows what to look for. It is therefore considered that there are some substantial benefits and consequently a need for a single, generally applicable model with a national perspective, ensuring that all central aspects are covered and thus adequately support further development projects. The framework constructed is considered to constitute a good base to build on but it needs to be complemented with additional information related to how the information should be gathered, how hazards should be handled and how the performance of the country can be quantified.

Sammanfattning

Människor runt om i världen ställs dagligen inför både hot om och konsekvenser av katastrofer. Förlusterna i människoliv, lidande och pengar, är enorma. Under senare tid har vi även blivit allt mer uppmärksammade på att faktorer såsom globalisering och klimatförändringar med stor sannolikhet bidrar till att introducera ”nya risker” till de redan kända. Katastrofer är inte heller ett isolerat problem, utan har förutom en stor påverkan på människors dagliga liv, även en nära kopplingen till länders utveckling och fattigdom.

Trots denna ganska dystra bild har forskning visat att riskreducerande åtgärder ger resultat. Katastrofhantering har därför skiftat fokus från att framförallt varit inriktat på den akut avhjälpande fasen till att i en större utsträckning även inkludera förebyggande åtgärder. Många internationella organisationer inom katastrofhantering har därför initierat så kallade kapacitetsutvecklande projekt som syftar till att stärka utsatta länders egen kapacitet att hantera katastrofer. För att lyckas med detta måste projekten baseras på en grundlig värdering av redan befintlig kapacitet samt en gedigen förståelse för de givna förutsättningarna inom landet. Att utvärdera kapacitet är därför en fundamental men mycket komplex del av kapacitetsutvecklande projekt då det finns ett stort antal faktorer som i tid och rum kan påverka utfallet av en utlösande händelse.

Svenska Räddningsverket (SRV) har genom ett nytt mandat från svenska regeringen initierat ett projekt kallat ”Capacity Development for Disaster Risk Reduction, Response and Recovery¹”. Detta examensarbete, ”Disaster Management Capacity from a National Perspective²”, utgör en mindre del av SRV’s projekt och forskningsfrågan lyder:

Vilka generella faktorer påverkar ett lands förmåga att hantera katastrofer, och i vilken utsträckning täcks dessa in av utvärderingsmodeller med nationellt perspektiv, som används av organisationer så som Förenta Nationerna och Internationella Federationen för Röda Korset och Röda Halvmånen, vid utvärdering av katastrofbenägna länder?

Projektets syfte kan delas upp i fyra områden där det första avser att kartlägga vilka faktorer som påverkar ett lands förmåga att hantera katastrofer. Det andra området är se över vilka modeller olika aktörer inom internationell katastrofhantering använder vid utvärdering av kapacitet. Den tredje delen syftar till att analysera vilka faktorer, i tid och rum, dessa modeller inkluderar och det fjärde och sista målet syftar till att skapa en förståelse för modellernas bakgrund, varför de är konstruerade som de är, logiken bakom dem samt en del av den problematik som omger kapacitetsbedömningar.

Katastrofhantering inkluderar risk reduktion, akut avhjälpande och återuppbyggnad, dvs. allt arbete relaterat till hantering av katastrofer innan, under och efter den utlösande händelsen. Detta kallas tidsdimension av katastrofer i rapporten. På grund av katastrofers multifacetterade natur anses även att samtliga potentiella effekter inom alla samhällets delar måste inkluderas vid utvärdering (dvs. hela rumsdimensionen). Rumsdimension bör inkludera tre viktiga synsätt: hela samhället kan drabbas, ledning på alla nivåer måste inkluderas och alla tänkbara hot måste beaktas. Sårbarhet ses därtill som motsatsen till kapacitet och de två fraserna ses som motpoler på en relativ skala.

Rapporten riktar sig till alla personer verksamma inom någon eller alla områden av katastrofhantering, Räddningsverkets personal samt alla som vill öka sin förståelse för kapacitetsutvärdering och vad som i tid och rum kan påverka ett lands förmåga att hantera en katastrof.

¹ Svensk översättning: Kapacitetsutveckling för risk reducering, akut avhjälpande och återuppbyggnad.

² Svensk översättning: Analys av utvärderingsmodeller av kapacitet relaterat till katastrofhantering.

Eftersom katastrofer drabbar enskilda länder och dess invånare, och inte internationella organisationer, är det de styrande organen inom varje enskilt land som utgör huvudaktörerna inom nationell katastrofhantering. Varje land har ett ansvar för att bedöma sin befintliga förmåga att hantera katastrofer och internationella organisationer bör endast bistå med hjälp till ländernas eget arbete. Under det inledande skedet av projektet eftersöktes därför efter en holistisk utvärderingsmodell, framtagen av internationella organisationer, som från ett nationellt perspektiv kan ge konkreta råd i hur en kapacitetsutvärdering kan genomföras.

Baserat på tidigare forskning inom området, annan relevant litteratur samt intervjuer med erfarna och kunniga personer verksamma inom olika delar av katastrofhantering, drogs slutsatsen att ingen sådan modell existerar. Analysens omfång fick därför utökas till att även inkludera mindre detaljerade vägledande dokument samt modeller som endast spänner över ett begränsat område inom katastrofhanteringsprocessen. Detta ledde fram till att sex olika grupper av dokument analyserades inom projektet: ramverket "Hyogo Framework for Action" och dess guide "Words into Action", fallstudier, indexmetoder, lokalt baserade utvärderingsmetoder, dokument härstammande från International Federation of the Red Cross and Red Crescent Societies samt checklistor/frågeformulär.

I enlighet med projektets första problemområde och för att kunna analysera modellerna inleddes projektet med att sätta ihop ett ramverk av centrala faktorer (och underfaktorer) som anses kunna påverka ett lands katastrofhanteringsförmåga på ett direkt sätt. Ingångsdata baserades på litteratur och semistrukturerade intervjuer. Trots att resonemanget baserats på tänkbara konsekvenser av främst naturrelaterade katastrofer, är tanken att genom att exkludera diskussioner om specifika hot, skall det ramverk som skapats vara så generellt applicerbart som möjligt.

Ramverket strukturerades kring de fyra profilerna: the Physical/Environmental Profile, the Cultural/Social/Political Profile, the Institutional/Legislative Profile and the Economical Profile³. Pågrund av ramverkets relativt stora textmassa summerades huvuddragen av faktorerna i en checklista för att underlätta analysen och innehållet i checklistan kompletterades även med möjligheten att bedöma modellernas täckningsgrad via en tregradig skala.

Enligt resultatet av analyserna inkluderar ingen av de ingående modellerna samliga faktorer som anses bör ingå i en kapacitetsbedömning. Samtliga modeller har dessutom tagits fram med olika motiv, bakgrunder, begränsningar och förutsättningar, vilket måste tas i beaktande om dessa ska användas i ett annat sammanhang än vad som var ursprungstanken.

Det anses att, med tanke på den rådande bristen på modeller, så kommer kapacitets- och sårbarhetsbedömningar att variera beroende av personen som utför utvärderingen. Det material som trots allt finns tillgängligt måste därför kombineras på bästa sätt för att bidra till en holistisk bedömning. Det finns mycket att vinna på att anamma Hyogo Framework for Action, och att verkligen sträva efter att uppnå den verkliga innebörden i dokumentet. Dokumentet har dock inte en tillräcklig detaljeringsgrad, utan behöver (förutom Words Into Action) kompletteras med andra dokument. Att kombinera olika modeller ställer dock höga krav på användaren och att denna vet vad han eller hon letar efter. Det finns därför stora fördelar med en generellt applicerbar modell med ett nationellt perspektiv, som försäkrar att alla centrala aspekter inkluderats och alltså ger tillräckligt underlag för beslut. Det ramverk som konstruerats bör kunna vara en bra grund att bygga en modell från men behöver kompletteras med information om hur utvärderingar ska genomföras, information om hur hot ska hanteras samt information om hela landets förmåga kan kvantifieras.

³ Svensk översättning: den Fysiska/Omgivande profilen, den Kulturella/Sociala/Politiska profilen, den Institutionella/Lagstiftande profilen samt den Ekonomiska profilen.

Acronyms

ALNAP	The Active Learning Network for Accountability and Performance in Humanitarian Action
BCPR	Bureau for Crisis Prevention and Recovery
CADRI	Capacity for Disaster Risk Reduction Initiative
CBDRM	Community Based Disaster Risk Management
CRA	Community Risk Assessment
DDI	Disaster Deficit Index
DM	Disaster Management
DMC	Disaster Management Capacity
DMOs	Disaster Management Organisations
DRCP	Disaster Response and Contingency Planning
DRR	Disaster Risk Reduction
EOC	Emergency Operations Centre
FEMA	Federal Emergency Management Agency
FPH	Field Practitioner's Handbook
GDP	Gross Domestic Product
HFA	Hyogo Framework for Action
IADB	Inter-American Development Bank
IASC	Inter Agency Standing Committee
IDEA	Instituto de Estudios Ambientales
IEC	International Electrotechnical Commission
IFRC	International Federation of Red Cross and Red Crescent Societies
ILS	Institutional and Legislative Systems
LDC	Less Developed Countries
LDI	The Local Disaster Index
ISDR	International Strategy for Disaster Reduction
MDC	More Developed Countries
NDMA	National Disaster Management Agency
NGO	Non Governmental Organisation
NS	National Societies
OCHA	Office for the Coordination of Humanitarian Affairs
PCAPHA	Participation by Crisis-Affected Populations in Humanitarian Action A Handbook for Practitioners

PVI	Prevalent Vulnerability Index
RC	Red Cross/Red Crescent
RMI	The Risk Management Index
SIDA	Swedish International Development Cooperation Agency
UN	United Nations
UNDAC	United Nations Disaster Assessment and Coordination
UNDP	United Nations Development Programme
VCA	Vulnerability and Capacity Assessment
WIA	Words into Action

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1. INTRODUCTION

Disasters are a major part of many peoples' lives. Approximately 75 percent of the world's population live in areas that have been affected at least once by an earthquake, tropical cyclone, flood or drought during a 20 years time period⁴ and 184 deaths are recorded every day due to natural hazards in different parts of the world (UNDP, 2004:1-8).

"Natural disasters" are also intimately linked to the process of human development (Ibid.). Annual international losses from natural catastrophes exceeded \$100 billion during 1999 and 755 large loss events were noted during the same year (data reproduced from Munich Reinsurance report by Jeggle, 2001:316-341). Furthermore, the number of major catastrophic events has increased threefold when comparing the 1990s with the 1960s and the economic losses have increased by a factor nine during the same time period (Ibid.). Unfortunately, there is no data pointing towards a change in this trend, instead data and current research seems to indicate an increase in both the losses from- and the number of disasters (Dilley et al., 2005:1, Wisner et al., 2004:64).

Many might presume that disasters only affect developing countries, and although overrepresented in the statistics (UNDP, 2004:1-8), such simplification is not rectified. Disasters happen everywhere, including more developed countries. Hurricane Katrina in the USA 2005, the Indian Ocean Tsunami in 2004, and the smaller scale Hurricane Gudrun in Sweden in 2005, are all recent examples of this. These events also constitute good examples of that disasters affect the entire society and not only the most exposed people or villages. Disasters cause consequences such as immediate victims, destroyed buildings and infrastructure, but also consequences such as destroyed livelihoods, damaged social structures and destruction of environmental values.

The many characteristics of disasters make it everyone's responsibility to partake in Risk Reduction, Response and Recovery⁵. The government of each country carries the overall responsibility for such work and should be the "engine" driving Disaster Management efforts forward, but awareness about the wide impact of disasters needs to be raised within all areas susceptible to damage. This in turn means that relevant stakeholders extend far beyond the authorities or organisations assigned with the main responsibility to deal with disasters. Disaster Management requires a holistic approach stretching beyond the most obvious response phase, including mitigation, preparedness and risk assessment measures.

Up until recently the response phase has been the major focus within the "disaster agenda". However, there has been a noticeable shift from a more response-driven approach to one that in a more direct and outspoken way also includes risk reduction (Jeggle, 2001:316-341). This shift in focus encourages countries to engage in more preventive measures and to not only focus on taking actions after a disaster has occurred. Accordingly, countries need to enhance their capacity to manage all phases of disasters. Many international organisations (such as the United Nations and the International Federation of the Red Cross Red Crescent) play an important role in assisting countries with such capacity development projects.

In order to design well-suited capacity building project it is crucial to identify needs as well as recognise local capacities and pooling demands. Thus, how the assessment of existing prerequisites within all areas of society is conducted can make the difference between a meaningful programme and a project that is of little interest to the affected population (The Active Learning Network for

⁴ Between the year 1980 and 2000.

⁵ Definitions will be discussed in more detail in Section 4.

Accountability and Performance in Humanitarian Action [ALNAP], 2003:91). As the assessment becomes the foundation for all projects intended to develop Disaster Management capacity, the models used for guidance in conducting such assessments become an important component.

The Swedish Rescue Service Agency (SRSA), as one of the organisations working within the international DM field, has recently been given an extended mandate from the Swedish government assigning them the responsibility to initiate and participate in projects involving any or all components of Disaster Risk Reduction, Response and Recovery. In accordance with this new mandate, a project called “Capacity Development for Disaster Risk Reduction, Response and Recovery” has been initiated. This project, “Disaster Management Capacity from a National Perspective”, constitutes a smaller part of the larger SRSA project.

The objectives of this project were both to create a framework of aspects that could affect a country’s Disaster Management Capacity and to analyse models that are used by different agencies when assessing a country’s Disaster Management Capacity. The models were thus analysed with regards to their coverage of aspects against the framework. Input to the framework was gained both from literature and from interviews with persons experienced within the different areas of the Disaster Management realm. The interviews were also conducted to gain further insight in problems surrounding the assessment phase. All persons that we have been in contact with through meetings, telephone discussions or e-mails are listed in Appendix A.

The report comprises four main parts where the first part includes discussions on the background and the method, identifies the research question, objectives, target group and outlines a conceptual structure for the report. The second part comprises a framework of aspects that could affect a country’s Disaster Management Capacity. The third part is where the actual analysis of the models is undertaken and within the fourth part we elaborate on the results of the analysis and discuss some general findings made throughout the course of the project. Prior to the Contents list there is also a compilation of the acronyms used within the report.

2. BACKGROUND

This section is intended to, in more detail than within the Introduction above, outline the background to this project. We will therefore explain why Disaster Management (DM) is important and how assessment is the foundation for all Disaster Management. Additionally, previous research undertaken with regards to assessments of countries' Disaster Management Capacity (DMC) will be discussed.

2.1 WHY DISASTER MANAGEMENT IS IMPORTANT

Disaster Management concerns everyone. At this time of day, we cannot afford to see DM as a separate domain, but have to consider the potential effects of a disaster in all areas of society if we do not want to face a very unpleasant wake-up call.

We live in a continuously changing world and we cannot rely on previous work or statistics. Instead, we need to have an open mind and always strive to improve our knowledge and capacity within the DM field. "New risks" are introduced alongside with the "old ones" and low frequency/high consequence risks, which have derived from our ways of living, should not be neglected. Further attention also needs to be given to the close link between disasters and development as well as disasters and poverty. Furthermore, experience has shown that measures taken to avoid and limit risks and prepare to handle a triggering event reduce the likelihood that an incident develops into a disaster.

The above are but a few of the factors highlighting the importance of DM. Below we will address these in more detail.

The link between disasters and development

Poverty and a low level of development within a country are phenomenon that often are described as contributing factors to the magnitude of consequences caused by a natural hazard (UNDP, 2004:1-8). However, lately more and more organisations are starting to look at the relationship between poverty, development and disasters from the "opposite" perspective as well. Such perspective suggests that disasters would be a restricting factor to development and hence increase poverty (UNDP, 2004:1-8). Wisner et al. (2004) discuss this view when emphasising that disasters must be considered in the context of daily life and not as separate events. Such reasoning makes sense when considering that it is impossible to reduce the likelihood of a triggering event to zero and the triggering events must therefore be a part of daily life. Reducing disaster risk is therefore closely linked to reducing poverty. In agreement with this, Dilley et al. (2005:1) write that disasters represent a major source of risk for the poor. Dilley et al. (ibid.) also state that disasters can wipe out development gains and accumulated wealth in developing countries, an issue also pointed out by Coburn, Spence & Pomonis (1994:15). Further recognition to the link between development, poverty and natural disasters is given from donor organisations, such as the Swedish International Development Cooperation Agency (Sida) as they are currently working with mainstreaming Disaster Risk Reduction into all development programs when relevant (M Hauer, direct communication⁶ on the 26th of April 2007).

The link between poverty and development might not always appear clear. The "profit" of DM work might differ especially between Less Developed Countries (LDCs) and More Developed Countries (MDCs). In MDCs, it is often a matter of saving large sums of money, whilst it is more a matter of saving lives and creating the foundation for development in LDCs. The "profit" might therefore differ

⁶ For a list of all persons that we have been in contact with throughout this project see Appendix A.

but nevertheless, the discussion above regarding the “development perspective” of DM is fundamental no matter the current status of the subject country and thus adds weight to the importance of DM.

A continuously changing world

As previously mentioned, both the number of disasters and their consequences are increasing. We therefore consider that DM will be of even greater importance in the future. Globalisation has created conditions that place more critical assets at risk including corporate facilities, financial or trade relations, transportation systems and other essential forms of social infrastructure which may not have been exposed previously (Jeggle, 2001:316-341). There are also trends of increased urbanisation and expanding Mega-cities with densely populated areas which thereby increase the susceptibility to disasters (Mileti, 1999:119-121). Additionally, most of these fast growing cities are situated in the vicinity of coastlines, which further increase their susceptibility to tropical storms (Wisner et al., 2004:243).

Another reason for paying further attention to DM is the currently much talked about issue of global warming. Threats caused by human actions related to climate change are responsible for both the increase of people’s vulnerability and the increased level of hazard (Wisner et al., 2004:136). We are now dealing with the effects of our “consumption” some 20 years ago (L. Mattsson direct communication on the 25th of April 2007). Since then, our habits have changed and we can today only see hints of more severe consequences to come. To base our prediction of what we will face in the coming 20 years on historical data might therefore be dangerous. And accordingly, excuses of previously being spared from disasters of natural origin (as could be the case for countries typically not classified as “disaster prone countries”) are in our point of view not legitimate.

The need for DM is hence getting increasingly important due to the “new risks” that we are already facing today, but also due to the risks we will face “tomorrow”. It is our responsibility to ensure a sustainable development for future generations.

Different consequences in different areas

Obviously, different countries are facing different risks, which make it difficult to judge whether or not a country’s DMC is sufficient just by making comparisons between countries. However, some general points can more or less be considered applicable to most country’s DM process. Research has shown that even though considered “hazard prone areas”, this does not by automation mean that the population living within that area has been subjected to disasters. For example, areas within Europe and North America, which are highly exposed to natural hazards, have not experienced correspondingly high mortality compared to other areas facing the same types of hazardous threats (Dilley et al., 2005:2). Furthermore, the United States are noteworthy in that more than one-third of its population lives in hazard-prone areas but only one percent of its land area ranks high in mortality risk (Ibid.). Therefore, although countries may have similar levels of exposure, they are often exposed to widely different levels of risk (UNDP, 2004:31).

Twigg (2004:320) addresses the issue of development and disasters when stating that underdevelopment and ineffective or inappropriate development programs increase vulnerability to hazards and hence lead to more disasters. In turn, development is more difficult for disaster-affected communities that have lost their livelihood assets and thus also for the institutions which are assisting the people in their recovery. Further recognition to this is given if considering that national authorities, local communities, or elements of civil society can reduce potential disaster losses only by developing a continuous program of hazard assessment and risk management practices (Jeggle, 2001:316-341).

Thus, the consequences of disasters do not only depend on the triggering event, but the ability to manage disasters is crucial and a “good” DMC leads to less severe consequences.

Low frequency, high consequences and sustainable development

Within any business, risk management in general and low likelihood-high consequences accidents in specific are problems that need to be addressed in a structured way. Such events are problematic since they often require costly prevention or mitigation measures that might never be put to the test. Costly investments will reduce the immediate winnings of a company and could therefore easily be down prioritised. However, should the hazardous threat materialise, the consequences for the company would be devastating with huge costs, loss of clients and credibility or even force the company into bankruptcy. Hence, a long-sighted managing director should therefore not put his company at such risk and must act to handle even the low probability and high consequences events. A sustainability approach should be adopted were such risks are dealt with in a structured way, catering for informed decisions and an optimisation of the company’s resources. Recent trends also broaden the spectrum in which the company leader must consider risks so that risk management ideas are mainstreamed into all areas of the company. Such work is often referred to as Enterprise Risk Management (ERM) (The Committee of Sponsoring Organizations of the Treadway Commission, 2003).

The discussion regarding ERM above could very well be applied in the context of DM. And even though all disasters are not low frequency events, they per definition cause high consequences as well as causing set-backs in development projects. There is a need to address disasters with a sustainability approach. For Disaster Risk Reduction (DRR) (or risk management) measures to be sustained, these practices need to be integrated into overall planning and development strategies (Jeggle, 2001:316-341). To be able to do so, disaster risks must be recognised by the country’s government at the highest level possible, and be mainstreamed into policies in all areas of society. The country must have a plan on how to develop capacity to manage possible disasters and in order to initiate any capacity development project it is essential to have a fundamental understanding of both the country’s capacities as well as its vulnerabilities. Thus, to achieve sustainability within the country’s development, DM can not be neglected. Someone must assume responsibility also for the low frequency and high consequence events.

The list of arguments of why DM is important could be made much longer but the intention with these short discussions was just to highlight that DM is an important issue today. Problem arises when there is not enough capacity to handle disasters within a country. Such deficits cause unnecessary consequences and the need to strengthen the capacity within the most exposed countries is currently being addressed by a number of organisations.

2.2 DEVELOPMENT OF- AND ACTORS WITHIN DISASTER MANAGEMENT

DM is not a new phenomenon, although its focus has shifted over the years. Jeggle (2001:316) states that:

During the past 40 years, there has been a continuous evolution in the common understanding and practice of what may be called generically “international disaster management”. To various constituencies and at particular times, organised efforts to address catastrophic circumstances have been considered as emergency relief or disaster assistance, civil defence, civil protection, Disaster Management, humanitarian assistance, disaster prevention, and, most recently, risk and Disaster Management.

Consequently, there has been a shift from a more response-driven approach to one that in a more direct and outspoken way also includes risk reduction. Jeggle (2001:336) concludes that “the shift from responding to hazards after they have occur to assessing human and societal vulnerability to

various and changing risks is key to effective Disaster Management in the future". This development is also recognised and emphasised by other authors. For example, Wisner et al. (2004:327) discusses the Millennium Development Goals and maintains that the road map for the implementation of these goals announces a fundamental shift from reaction and response to prevention and mitigation⁷. Thus, although response to disasters still constitutes a crucial part of DM, the scope has been expanded to include a much broader and more holistic perspective.

When discussing relevant actors within DM, it is first and foremost important to realise that a disaster does not strike an international organisation, it strikes a country and consequently, the main actors are the government and the National Disaster Management Agency (NDMA)⁸ of the affected country. Coppola (2007:337) states that "citizens throughout the world look to their governments – elected or not, nationally, regionally or locally based – to provide safety and security".

In addition, there is also bilateral Disaster Management assistance, where foreign governments provide monetary assistance, equipment/supplies and expertise to help countries to increase their capacity (Coppola, 2007:356-362). Non Governmental Organisations (NGOs) and multilateral organisations also provide similar assistance. Coppola (2007:387) writes that "a NGO is an organisation independent of the government whose primary mission is not commercial but focuses on social, cultural, environmental, educational, and other types of issues". A multilateral organisation is composed of the central governments of sovereign nations. This means that member states come together under a charter of rules and responsibilities of which they have agreed upon. The United Nations (UN) is probably the best known of these organisations within the field of DM.

Moreover, the Red Cross/Red Crescent (RC) is another important actor with its National Societies present within 185 countries around the world (Internet 2). Finally, private businesses and the local population must not be forgotten as they will be in the centre of the disaster. Consequently, there are a number of actors within DM. In order to provide the most effective and efficient assistance, all these actors must find a way to evaluate and prioritise where capacity development efforts would provide the most benefits with regards to a country's DMC.

2.3 ASSESSMENT, THE FOUNDATION FOR CAPACITY DEVELOPMENT

Over time there has been a shift in terminology for the type of projects striving to strengthen countries capacity to manage disasters, where the old phrase "capacity building" has been replaced with the phrase "capacity development" (Organisation for Economic Co-operation and Development [OECD], 2006:9). This shift has been made since capacity building as a metaphor indicates a process that starts with a plain surface where a construction can be raised accordingly to a pre-chosen drawing (OECD, 2006:9). Capacity development on the other hand implies that projects to strengthen capacities are based on already existing capacities, and hence, that these must be identified and acknowledged. The latter approach thus stresses that the process of identifying such existing capacities is crucial as it would be impossible to develop capacity if there was no knowledge of what was there in the first place (e.g. ALNAP, 2003:91, International Federation of the Red Cross and Red Crescent Societies [IFRC], 1996:8, De Dios, -:52).

⁷ The eight Millennium Development Goals (MDGs) are ranging from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015. They form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest (Internet 13).

⁸ NDMA is discussed under Section 7.3.2.

Central documents

There are a number of central documents addressing and emphasising the importance of conducting capacity assessments. First and foremost, whenever discussing DM, and especially actions conducted prior to a disaster strikes, there is particularly one document that is of interest – the “Hyogo Framework for Action”, (HFA) (International Strategy for Disaster Reduction [ISDR], 2005). The HFA (Ibid.) originates from 2005 and aims at building the resilience of nations and communities to disasters. The document is well-recognised within the field of DM and has been adopted by 168 countries throughout the world.

The HFA comprises an overview of three Strategic Goals and five Priorities for Action, however, it does not include any details on how to achieve these goals or conduct the listed actions. As a result, the HFA has been complemented with an explanatory guide, “Words into Action” (WIA) (ISDR, 2007), which also has taken a central position amongst DM practitioners. According to the WIA, the HFA describes the responsibilities of different agents for implementing the HFA. The primary responsibility for the implementation is assigned each respective state, however WIA is stressing that the collaboration and co-operation amongst all stakeholders, including NGOs, will be crucial in order to improve the resilience of communities. The contribution of regional and international organisations is also emphasised as vitally important.

As the government of a country is ascribed with the main responsibility for DM, in accordance with the HFA (ISDR, 2005), one of their assigned tasks is to conduct a baseline assessment on the current status of disaster risk reduction. A similar task is, according to the WIA, also assigned regional organisations, being to conduct regional baseline assessments and review progress (ISDR, 2007). Furthermore, one of the roles and responsibilities assigned international organisations concerns integrating actions taken prior to a disaster into their programmes and to assist disaster prone countries. Consequently, in accordance with the three examples above, both states and regional organisations should assess the baseline data and international organisations should assist the disaster prone countries in conducting this task.

Additional references

On the United Nations Development Program’s webpage (Internet 12) it is stated that “UNDP supports countries in disaster risk issues and in the assessment of national capacities to address these risks. These include human-, financial-, technical- and legislative capacity; civil society awareness and preparedness; and the institutional-, operational- and co-ordination systems required for effectively managing and reducing risk. The assessment of these resources plays an important role in determining priorities and translating them into plans and programmes”.

Furthermore, the Inter Agency Standing Committee (IASC), which is formed by all fourteen leading UN and non-UN humanitarian agencies and three NGO consortia⁹ (Inter-Agency Standing Committee, [IASC] -), has developed a Self-Assessment tool for their in-country teams. Although not used consistently by the different in-country teams (R Mena, direct communication on the 4th of July 2007), the document was developed to guide the team’s assessment of the organisation’s situation within the country and their capacities with regards to the DM process. Thus, in order to evaluate the organisations capacity and given prerequisites, one of the 10 main actions that the in-country team should conduct is an inventory of the national capacities that the subject country possesses, i.e. assess the DMC from a national perspective.

⁹ IASC is formed by the following agencies, providing a broad representation of today’s DM community: FAO, ICRC, ICVA, IFRC, InterAction, IOM, OCHA, Office of the Special Representative of the Secretary General on Human Rights of IDPs, OHCHR, SCHR, UNDP, UNFPA, UNHCR, UNICEF, WFP, WHO, and the World Bank.

Complexity of assessments

All the references given above highlight the importance of conducting assessments, and also indicate that assessments are being conducted. But “assessment” is a very broad concept, which could mean everything from counting the number of fire trucks at the local fire station to holistically assess all areas within society that could affect the DMC of a country. Thus, assessments can vary widely in their contents, level of details and their focus. As will be strongly emphasised throughout this report, to establish a comprehensive understanding of the current situation within a country based upon an assessment, the information required is substantial and the information needs to span over a wide range of areas. Wisner et al. (2004:238) only hint at a small portion of an assessment’s complexity when discussing how different mechanisms within society could turn flood hazards into disasters:

These include the location of homes (and their proneness to inundation) and the structure and type of housing and workplaces (and their resistance to floods). Both of these are a function of household income, legal or social limitations on land-use, availability or cost of building materials, and the location of livelihood activities. These variables not only affect the risk of death and injury but also the potential for the destruction of assets, and of livelihood opportunities.

Thus, in order to assess the current situation and determine the risk for a disaster related to flooding, all such aspects (among many others) need to be considered in order to fully understand a country’s capacity.

Furthermore, people’s vulnerability will depend on social processes and underlying causes that may be quite remote from the disaster itself (Wisner et al., 2004:238). This is addressed by Twigg (2004:3) who states that “Risks are located at the point where hazards, communities and environments interact, and so effective risk management must address all of these aspects. Hence disasters are no longer seen only as unfortunate one-off events to be responded to, but also as deep-rooted and longer-term problems that must be planned for”.

Consequently, assessing capacity and risks are not limited to only involving the triggering event of a disaster; instead a much broader perspective must be adopted. This perspective must also extend over time to fully capture the effects of a disaster. As discussed by Bethke, Good & Thompson (1997:44):

Be it earthquake, flood, cyclone, or drought, it’s often not the disastrous event itself that causes the highest number of deaths but the aftermath, when affected individuals are located in overcrowded, inadequate shelter, with insufficient food, contaminated water supplies, and no sanitation. It’s in these awful post-disaster conditions that epidemics and disease take their toll – especially on women, children, the sick and the elderly.

In summary, we argue that all capacity development projects need to be based on a thorough understanding of the current situation of the subject country. Furthermore, the assessment phase is a very complex process which must cover a great number of aspects that could affect the outcome of a triggering event. Such aspects will be discussed in more detail later in the report (see section 7, Framework).

2.4 PREVIOUS RESEARCH WITHIN THE FIELD OF DMC COUNTRY ASSESSMENT

As with any project, the natural starting point is obviously to study what has previously been written within the field of research, as there is no need to start from scratch if someone already has laid the foundation.

With regards to aspects that could affect a country's DMC, almost all publications related to Disaster Management touches upon the subject to some extent. Since the Framework created within this project is a compilation of what has previously been written in relation to the subject, combined with the outcome from the interviews and our own thoughts, it is considered that the Framework itself is a review of previous research. This will hence not be discussed further here.

Prior to starting the project we did have some indications that the number of models and the literature written specifically addressing capacity assessment from a national perspective would be limited, indications which were quickly confirmed both through literature and from the conversations with various people active within the DM field. Wisner et al. (2004:339) for example state that:

...an agreed inter-agency or inter-governmental methodology for social vulnerability assessment remains elusive, other than the growing general acceptance of the need to firmly link vulnerability to capacity. One reason for the lack of an agreed methodology is the paucity of information concerning the different assessment approaches used as well as concerning their relative effectiveness as assessment tools. This gap will only be closed by applied, interdisciplinary research that compares assessment approaches across different hazard categories within different country and cultural contexts in order to identify the key variables that are needed relative to different hazards.

The quote clearly indicates that these authors, who have published a number of well-recognised publications within the DM field, know of no commonly accepted model used to assess capacities and vulnerabilities; that there is a gap in the information regarding what assessment models are currently used; as well as the respective effectiveness of such models¹⁰. Thus, we assumed that there would not be much literature available compiling and discussing models used to holistically assess capacities and vulnerabilities within countries. This suspicion was also reinforced during discussions with J. Burke (direct communication on the 6th of July 2007) as we were informed that one of the potential tasks for the Capacity for Disaster Risk Reduction Initiative (CADRI), launched at the National Global Platform Meeting in Geneva June 2007, could comprise compiling assessment methodologies used by different agencies or individual countries. Since CADRI is a recently initiated co-operation between United Nations Development Programme's Bureau for Crisis Prevention and Recovery (UNDP BCPR), the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) and the secretariat of the International Strategy for Disaster Risk Reduction (ISDR), which all have long histories within the DM field and with working at a national level, we argue that if there was any model which could be used to assess capacities and vulnerabilities in an adequate and holistic manner at a national level, personnel from CADRI would be the ones knowing where to find such a model.

Additional to the above, the Inter Agency Standing Committee (IASC) (as mentioned previously) does not provide any details on what should be studied in order to complete the self-assessment checklist or how to conduct such assessment. References are instead given to case studies, risk indexes and

¹⁰ That is a model from a national perspective which includes a holistic assessment of all areas that affects the Disaster Management Capacity.

community based assessment models to mention a few. It is our belief that if there were any recognised and comprehensive models, or compilations of models; they would have been given as references within the subject document.

In summary, it seems like no commonly accepted holistic capacity and vulnerability assessment model with a national perspective exists to this date. This conclusion caused us to expand our initial scope to include not only models within the analysis but also other types of guiding documents (this will be discussed in more detail within the section Method).

Since we could not find any compilation of different models used for country assessments, we could neither find any analysis of such models and we were unable to find any document describing what aspects are covered by different country assessment models. The information that we did find were indicating that the area of country assessments is very complicated and as Twigg (2004:39) writes “Everyone acknowledges that it is a very difficult task to find a method that is comprehensive enough to capture the different elements of vulnerability and capacity, without becoming too complex and cumbersome an exercise”.

3. RESEARCH QUESTION, OBJECTIVES AND TARGET GROUPS

Within the following section we will outline the Research Question upon which this project is based on. Furthermore, in our point of view, the Research Question generates four major research areas, which will be addressed under the heading Objectives. We will also discuss the main target groups of this report and who we additionally believe could benefit from the findings herein.

3.1 RESEARCH QUESTION

Assessing and understanding the current conditions within a country is an important part of any capacity development project. Consequently, when the SRSA was conducting background research as an initial step in developing their project¹¹, they saw a need to map what aspects that could affect a country's DMC, to identify how different actors within the DM field conduct their assessments and also to study what aspects such assessments cover. These queries are what initiated our study and the Research Question for our project was formulated to comprise the following:

What general aspects affect a country's Disaster Management Capacity and to what extent are these covered by assessment models, with a national perspective, used by agencies such as the United Nations and the International Federation of the Red Cross and Red Crescent Societies in disaster prone countries?

3.2 OBJECTIVES

The first objective of this project was to map what general aspects that could affect a country's DMC. When discussing Disaster Management Capacities from a national perspective, anything from climate and geography to human resources within the National Disaster Management Agency (NDMA) and the population's own capacity to sustain a livelihood might affect the outcome of a disaster. Thus, it is not easy to identify and frame such aspects in a straightforward way. Considering that we wanted to analyse different models regarding to what extent they include such central aspects, we decided to try to map these aspects in a structured way. Consequently a framework of aspects that we consider could affect a country's DMC was created. The Framework was thus partly put together to facilitate the later analyses, but we argue that this framework also could be used as the basis for discussions on what aspects throughout society, in time and space that could affect a country's DMC and as a result, constitute a good starting point for discussions on the entire DM process.

The second objective of this project was to map the models used by different actors to assess a country's ability to manage disasters¹². As will be discussed in much more detail later on within this report, the scope of the word "model" had to be expanded during the course of the project to also include guiding documents that could be of assistance when conducting an assessment (see section Method).

The third objective was to analyse what general aspects (that could affect a country's DMC) these models and guiding documents cover. Our ambition was to analyse the models and guiding documents with an as holistic approach as possible regarding the number of aspects included, as well as their ability to cover the time dimension of these aspects, i.e. how they could affect a country's DMC before, during and after a disaster.

¹¹ The SRSA project is mentioned in the Introduction section.

¹² To manage disasters and Disaster Management will be discussed more in details under section 4, Conceptual Structure.

The fourth and final objective was to obtain a broader understanding of why the models/guiding documents have been developed, by whom and what the intentions with them were. Further, we also wanted to get a better understanding of the problems surrounding the assessment phase of a capacity development project. It is our opinion that such information could complement the information gained by the analysis of aspects and thereby broaden the use of this report. The information could also be the foundation for suggestions on how new models could be developed and existing ones improved.

An important point to make in relation to the objectives discussed above is that we had no intention to neither rank the models nor suggest any priority of importance with regards to the aspects. Such judgement will have to be made by the user of this report, based on the context of the country in question and the relevant hazard profile. Hence, our objective was to maintain an as unbiased perspective as possible, thereby catering for wide applicability of the results from this project.

Although the project includes a number of semi-structured discussions with various people relevant to this project, the objective was not to compare the outcome from these discussions with what was found in the literature. Instead the discussions were only considered to give complementary information to the literature.

3.3 TARGET GROUPS

This report is aimed at all persons working within the DM field. For instance, the Framework could be used for discussions regarding what aspects that could affect a country's DMC, the Analysis to get an understanding on what models and guiding documents that are currently available and the Discussion summarises the results and discusses some of the problem areas related to the assessment phase. Thus, depending on area of interest, different persons might find various sections of the report useful. The target groups could therefore include everything from disaster managers, working for the government or for an organisation active within the DM field, to students who wish to broaden their knowledge regarding aspects that could affect a country's DMC or models for assessment of a country's DMC.

Since the report is written as a part of a larger SRSA project, the personnel of the SRSA and participants within their projects also constitute target groups for the report. It is also our hopes and believes that other actors than those mentioned above will find the content of the report useful.

4. CONCEPTUAL STRUCTURE

The area of Disaster Management (DM) is a complex area that has undergone a rapid development during recent years – a development that might cause confusions since several words have been given a new meaning or an expanded scope. Terminology could have diverse meanings depending on the user’s field of expertise and there is also no common consensus on how risk management will feed into the process of DM or on the full extent of its relevance. We have therefore found it necessary to clearly define how we look at the DM process as well as outline how we intend to use different expressions and wordings within this report.

4.1 WHAT IS DISASTER MANAGEMENT?

Answering the question: What is Disaster Management? is not as straightforward as one initially might think or hope. Firstly, there is an abundance of different terminology used by various organisations and actors, which is likely to cause confusion if words are not specifically defined each time they are used in different contexts (Abrahamsson & Magnusson, 2005:17-28). Secondly, there is no consensus amongst all actors on what different notions cover. Hence, to avoid any confusion or misinterpretation further on in this report, we will define the contents of and how we intend to use the term “Disaster Management” (DM). We will also try to explain why we have chosen a specific definition. In accordance with the holistic perspective on DM that is emphasised herein, we will address both a time- and a space dimension of DM. But first, we will discuss what a **crisis**, an **emergency** or a **disaster** actually is from a national (or international) perspective. A few examples of the meaning of these words are given below.

Sundelius et al. (referenced in Abrahamsson & Magnusson, 2005:18) defines¹³ a national **crisis** as “...when central actors find the situation characterised by:

- significant values are at stake;
- a limited amount of time is at disposal; and
- the circumstances are characterised by significant uncertainties.”

Alexander (2002:1) uses the word **emergency** and defines it as “...an exceptional event that exceeds the capacity of normal resources and organisations to cope with it”. Alexander (2002:2) further explains that emergencies can be categorised into four levels and that “the final level is that of the national (or international) **disaster**, an event of such magnitude and seriousness that it can be managed only with the full participation of the national government, and perhaps also international aid.”

Another definition of a **disaster** is given by the IFRC (International Federation of Red Cross and Red Crescent Societies [IFRC], 2000:6) as “...an extreme disruption of the functioning of a society that causes widespread human, material, or environmental losses that exceed the ability of the affected society to cope using only its own resources. Events such as earthquakes, floods, and cyclones, by themselves, are not considered disasters. Rather, they become disasters when they adversely and seriously affect human life, livelihoods and property.”

For the purpose of this report we have chosen to use the notion **disaster**. Within this term we include all contents of the definitions above, but put extra emphasises on that such an event only occurs when the capacities of the affected people are exceeded (for definition of capacity, see Section 4.2) and that a disaster affects people in their social context. From the discussions regarding

¹³ Translation by the authors of this report

the broad impact within various parts of society, we further conclude that disasters are of a multi-sectorial nature.

In relation to discussing the notion of disaster, it could be in place to here discuss the concept of “**natural disasters**”. Such disasters derives from natural events (with either a geological, meteorological, oceanographic, hydrological, or biological origin), as oppose to disasters caused by either technical (hazardous materials, dangerous processes or devices, machines or installations) or social (terrorism or crowd) incidents (Alexander, 2002:3). It is however important to distinguish between a natural hazard and a disaster. A natural hazardous event does not become a disaster unless it affects people within their social context (Wisner et al., 2004:50). Thus disasters are not only caused by natural events, but are products of social, political, economical environments (Ibid.). It could therefore be argued that there is no such thing as a ‘natural’ disaster (Hewitt referenced in Wisner et al., 2004:128). In line with this argument, we will use the phrase “disaster of natural origin” instead of “natural disaster”.

4.1.1 The “time-dimension” of Disaster Management

The notion “time-dimension” of DM is used to describe the different phases of a disaster, i.e. prior to, during and after the triggering event of the disaster, phases which all should be included in the work related to the DM process. This “work” could constitute anything from evaluating, detecting and analysing hazards, values and vulnerabilities, taking action to avoid and limit consequences to rehabilitate and reconstruct the affected area to a more resilient society should a hazard materialise. We use the word management, which can be defined as “the act, manner, practice of managing, handling, supervision or control” (The American Heritage Dictionary, 2004). Thus, DM comprises managing, handling and supervising the entire process of disaster-related work.

We have chosen not to include the word risk in the phrase Disaster Management, which is sometimes done in other publications (e.g. ISDR 2004). Coming from a technical background, it is to us fairly evident that any later step within dealing with disasters (such as preparedness, response or recovery) certainly requires that a thorough risk assessment has been executed. Thus, we argue that “risk” could be excluded from the name, and that the process of handling disasters simply could be referred to as Disaster Management (DM). Furthermore, if the word risk is included, it could be interpreted as excluding the “during and after phases” of a disaster. Consequently, to keep the terminology as simple as possible and to define a single phase referring to the entire process of handling disasters we have chosen to use the notion Disaster Management (DM).

One reason for using a single name for the entire process is that it enables discussions about what we consider being the components of DM and how they interact and are dependent on each other. Below we will try to explain the different notions and how we see the different components of DM fit together. To facilitate the reading the terminology used has been structured in Figure 1 below. In accordance with the figure, the DM process is made up by three major parts; Disaster Risk Reduction (DRR), Response and Recovery and their respective sub categories.



Figure 1 The components of the Disaster Management process

Prior to continuing the discussions on the different phases of DM, we would like to highlight that we do not see these phases as separate activities following each other in a subsequent order. Instead, we argue that they all take place more or less at the same time (with the exception of response, which only occurs in the vicinity of the triggering event) but with the main focus, and consequently the effort put in to the various phases, shifting between them. For example mitigation and preparedness must also be present during the response and recovery phases, although with less focus than before a triggering event has occurred. Activities conducted within the response and recovery phases might otherwise not be appropriate from a more long-term perspective. This can be illustrated with an example of building shelters during a dry season. If an appropriate risk assessment is not conducted it might be tempting to build them on a flood plain, potentially causing a second disaster should these shelters remain to next the wet season. Hence, risks must be mitigated and risk reduction measures must be present at all times. The overlap of the different phases should thus be kept in mind during the continuing discussions of this report.

Disaster Risk Reduction

The process of managing disasters is often divided into the four phases: Mitigation, Preparedness, Response and Recovery (see models from US Federal Emergency Management Agency and the Canadian Centre for Management Development as referenced in Abrahamsson & Magnusson, 2005:18-22). Even though the contents of the four phases differ somewhat depending on which framework one chooses to look at, risk reduction is often included within the mitigation phase. In our opinion, the need for a structured and systematic approach to hazards, capacities and vulnerabilities is thereby not given sufficient attention. Hyogo Framework for Action (ISDR, 2005) instead uses the term Disaster Risk Reduction (DRR) for the initial steps in DM (i.e. risk assessment, mitigation and to some extent preparedness), which clearly emphasises the importance of preventive work. The importance of DRR is further emphasised by Jeggle (2001:336), who claims that “the shift from responding to hazards after they occur to assessing human and societal vulnerability to various and changing risks is key to effective Disaster Risk Management¹⁴ in the future”. DRR is defined (ISDR, 2007:9) as: “the conceptual framework of elements considered with the possibilities to minimise vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development”. DRR is thus, as strongly emphasised throughout this report, a prerequisite for all work related to disasters.

¹⁴ i.e. Disaster Management according to this report.

Not until recently recognised as an important part of DM, risk reduction initiatives have been acknowledged and practised for a long time within other areas such as the nuclear industry as well as the flight industry (Grimvall, Jacobsson & Thedéen, 1998). DRR is thus not a “new” concept and is, if its contents are compared with the risk management process as defined by the International Electrotechnical Commission (IEC), very familiar for professionals from the more technical field of risk reduction.

Furthermore, within the term Disaster Risk Reduction, the word “risk” is worth an extra moment of consideration. The word risk is in itself a very complex word used in a broad manner and with many different meanings depending on if used for example in a technical or social context. When defining the word from a technical perspective the quantitative definition of risk (Kaplan & Garrick, 1981:12-13) is often used. The definition of risk is then the answer to the following three questions:

- What can happen?
- How likely is it that that will happen? and
- If it does happen, what are the consequences?

ISDR (2007:35) has defined risk slightly differently to better fit their field of expertise and instead use the definition: “the probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environmental damage) resulting from interactions between natural or human-induced hazards and vulnerable conditions”.

It is however interesting to compare the two definitions cited above, which comes from two rather different perspectives, i.e. the technical view vs. the view of disaster of natural origin. Kaplan and Garrick’s (1981:12-13) first question “What can happen?” is answered by ISDR (2007:35) in that it concerns “interactions between natural or human-induced hazards and vulnerable conditions”. The second question “How likely is it that that will happen?” is included in the very beginning of the definition as “the probability of...”. Finally, the third question “If it does happen, what are the consequences?” is outlined as “harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environmental damage”. Consequently, the definition used by the ISDR (2007:35) answers the questions posed by Kaplan and Garrick (1981:12-13) and thus, both definitions would be applicable to how the notion “risk” is used within this report.

As per Figure 1 above, the first component under DRR is Risk Assessment, comprising the two sub-categories Risk Analysis and Risk Evaluation. The two remaining categories of DRR are then Mitigation and Preparedness.

Risk Analysis describes the initial phase of evaluating hazards, capacities and vulnerabilities. This information is then, depending on the type of analysis chosen, organised, multiplied or aggregated into information that decisions can be based upon. Risk Evaluation is the subsequent process where different risks and alternative options of action are weighed against costs, benefits and what could be deemed as an acceptable level of risk. Decisions on how these risks should be addressed are then taken.

We are well aware of that the words “analysis” and “assessment” might be used in the opposite manner elsewhere, but we have chosen to use the definitions as outlined in IEC (1995) as this is the definition that we are most familiar with and since it suited our project.

Mitigation and Preparedness are the two other phases within the DRR process. These two phases are considered to represent the more concrete actions taken before a disaster strike¹⁵. These actions can be explained in the words: “to avoid or limit risks and to be well prepared” (P. Becker & M. Nilsson, direct communication on the 14-15th March 2007). One could argue that preparedness should not be included in the concept of DRR, a view that for example is advocated by L. Fredholm (direct communication on the 13th of April 2007). Fredholm argues that since risk assessment and mitigation comprises actions taken to avoid an event, whereas preparedness refers to actions taken to limit the consequences if the event, in spite of mitigation efforts, do materialise, they are separate processes. Notwithstanding this argument, we argue that there are at least three reasons for including preparedness in the DRR process:

The first reason is that we think that Preparedness must be based on the risk assessment process as much as Mitigation is. In order to know what to prepare for, one obviously needs to examine for example the risks, vulnerabilities, capacities as is done within the risk assessment phase. The second reason is that we do not distinguish between primary and secondary consequences of a disaster. If such approach would be adopted, one could argue that mitigation efforts limit the primary consequences of the impact (such as limiting the number of victims, number of destroyed roads and buildings) whereas preparedness limits the secondary consequences (such as loss of social structures, loss of environmental values and the spread of diseases). We argue that when adopting a holistic approach to managing disasters in order to achieve a sustainable development, one need to address the secondary affects just as much as the primary ones. A third reason is that we consider that a country should be working on an everyday basis with:

- Analysing hazards, vulnerabilities and capacities;
- Taking informed decisions regarding disasters and what risks to avoid, limit or prepare for as well as optimising the use of resources;
- Base decisions on the multi-sectorial nature of disasters and an all-hazard-, whole-government- and all-of-society approach;
- Factor in how a sustainable approach is taken with regards to the development of the country; and
- Evaluate the different options within DRR context to safeguard that they contribute beneficially.

The third reason given above adds further weight to the argument that the process of risk assessments is creating the base for further work within the DM process and should therefore, in our opinion, not be included as a sub part of another phase within the DM process. To summarise, we consider DRR to constitute of Risk Assessment, Mitigation and Preparedness and in common for all of these components is that the main focus takes place prior to the triggering event of a disaster.

Response and Recovery

The other two phases of the DM process, in addition to the DRR phase, are the Response and the Recovery phases. Due to the objectives of this project, we do not consider it necessary to go into any detailed discussions on these phases, and we only briefly address them below. We find it obvious that these phases should be incorporated within DM work and therefore need no further motivation and at the same time, there seems to be less confusion of the meaning with these phases and their contents.

¹⁵ Other words that could be linked with these phases could be planning, adjustment, and prevention (I. Kelman, direct communication on the 3rd of May 2007)

Response is defined by the ISDR (2007:123) as: “the provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be an immediate, short term or protracted duration”. We acknowledge that even though much is gained when investing in disaster prevention, it is impossible to foretell exactly what hazards we need to face in the future. Additionally, as per the types of disasters discussed within this project, triggering events are “natural” and will therefore continue to happen. Consequently, it is likely that disasters will continue to occur and hence, it is crucial to have an organisation capable of handling the consequences. Such an organisation must be developed based on the expected needs, which in turn only can be estimated through DRR work.

Since the response phase always has been a natural part of DM, the knowledge regarding response is extensive. However, when conducting a capacity assessment there are many factors such as organisation, co-ordination, communication, resources, training and planning that need to be considered. To fully understand a country’s capacity, with regards to response, these aspects also need to be assessed and we therefore discuss these in further detail later in this report.

The ISDR (2007:156) definition of **Recovery** is as follows:

Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

In the context of recovery, we find it important to once again emphasise on the need and significance of previous work within the DRR phase. To be able to recover in an adequate way, it is fundamental to base such actions on the results of the risk assessment process, and it must be done with sustainability in mind.

Summary “time-dimension” of DM

In line with the holistic approach strongly emphasised throughout the project, and with regards to the “time-dimension” of disasters, DM comprises of the entire process of handling a disaster: from managing risks, to response to a disaster event and to recover afterwards. The different notions of DM and the importance of the different parts included have been outlined above. We have also tried to explain how we see that the different parts interact with each other as well as emphasising that Risk Assessment in combination with Mitigation and Preparedness makes the foundation for the latter stages of managing disasters.

4.1.2 Space dimension of Disaster Management

The holistic approach to DM also needs to, in our opinion, consider the multi-sectorial nature of disasters (Twigg, 2004: 9-21) and thereby include what we refer to as a “space-dimension” in addition to the “time-dimension” discussed in the previous section. Experiences from past disasters show that, even though sprung from different triggering events, disasters many times affect a wide range of areas within the society, from individuals to private businesses and government departments, as well as the natural environment and the built infrastructure. Therefore, when addressing issues related to disasters, only addressing the “time dimension” of disasters and only considering the most obvious actors within DM organisations is insufficient. Instead, we argue that “all sectors of society” have to take some responsibility since they most certainly will be affected to at least some extent. S. Hodge (direct communication on the 4th of May 2007) further highlights this viewpoint as she argues that DM must have an all-of-society-, whole-government- and all-hazard approach.

All-of-society approach

Due to the so-called “multi-sectorial nature” of disasters, disasters per definition cause widespread impact within all of society. Disasters cause consequences such as immediate victims, destroyed buildings and infrastructure, but also consequences such as destroyed livelihoods, damaged social structures and destruction of environmental values (Twigg, 2004:9-21). Thus, if the purpose is to adopt a holistic approach to DM, it is essential to look at possible impacts within all parts of society, including the social-, cultural-, environmental-, physical-, economical- and institutional realms.

Accordingly, awareness of the wide impact of disasters needs to be raised within all areas susceptible to damage, which in turn means that relevant stakeholders extends far beyond the authorities or organisations assigned with the main responsibility to deal with disasters. If there is no awareness, there is less chance that sufficient measures are taken prior to a disaster strikes. From a national perspective, it is important to “see beyond the obvious” to be able to understand the links and networks within the society and how different areas interact. Basically, it is necessary to be able to understand how a disaster could unfold within all of society and base DRR decisions upon such information. In our opinion, there are few actors within society that will not be affected during a disaster. Hence, all should consider their possible role and make preparation to their best abilities. The majority of such work has to be done prior to any signs indicates an upcoming disaster as to give sufficient time for these actors to prepare and to establish networks. Actions must also go far beyond obvious mitigation and preparedness actions, such as ensuring essential necessities (food and water), and meet the needs induced by the disaster at all levels and within all areas.

Understanding the extent of disasters is also essential in order to be financially prepared. It is not simply a question of clearing roads, repairing destroyed buildings and infrastructure and providing medical care for physically wounded people. The costs of a disaster can widely exceed these more “hands on” costs (e.g. costs associated with for example loss of livelihood and loss of production).

The all-of-society approach is not only crucial when addressing DRR related issues, but should also be part of both response- and recovery related matters. Experience has shown that in order to prioritise adequately on how resources are to be spent during the response phase, as well as how to allocate resources during rehabilitation and reconstruction, it is crucial to understand the social contexts (A. Enander, direct communication on the 19th of April 2007). The all-of-society approach must therefore also incorporate the time dimension of DM.

Whole-government approach

Although disasters will affect the entire society, there must be a person/organisation assigned with the outermost responsibility for assuring the adequacy, completeness, and function of a country’s DM process. Obviously, the private sector and individuals have responsibilities for their own actions with regards to the DM process, but it is still considered that the government of the country carries the overall responsibility for such work. The government should be the “engine” driving DM work forward and is therefore considered to be a fundamental actor. This statement can always be discussed, especially if focusing on the response phase at a more local scale where the government’s actions might not always be as noticeable. But to emphasise upon the importance of the government as a lead actor, we have chosen to separated associated discussions from the all-of-society heading where its role in DM otherwise could have been included. With the term “Government”, we refer to the superior controlling body within the country, with no further specifications on the type of structure of the national institutions.

The whole of government approach refers to governance at all levels of society (from national to local level) and within all sectors of society (from education and health care to infrastructure and finances). It is important to remember that risk reduction initiatives must be multi-disciplinary

partnerships involving a range of stakeholders (Twigg, 2004:61). These partnerships should be vertical (between national and local actors) and horizontal (between government, the private sector and civil society) (Ibid.). This includes DRR as well as response and recovery and thus, although perhaps being the most fundamental actor, the government's actions must be in accordance with the all-of-society approach and cover all phases discussed within the time dimension above.

The responsibilities of the government are widespread but our view is that since they are directly responsible for DM measures, the government should actively work towards that actions are taken to limit, avoid and to prepare for disasters, as well as actively participate in both the response and recovery phases. Furthermore, all such actions should be done with sustainability in mind (M. Svensson direct communication on the 23rd of April 2007) and be based on the needs of the affected people (Fredholm & Göransson, 2006:15-30). Another important point to make is that all DM related work is to a very high degree linked to development issues within the country (Dilley et al., 2005:1, UNDP, 2004:1-2).

All-Hazard approach

The final one of the three approaches addresses the “triggering events” of a disaster, i.e. the hazards or the threats. But before going into any further discussions, let us first highlight the importance of having a thorough understanding of the threats that a country is exposed to. Coppola (2007:31) discusses, rather extensively, the importance of assessing all the potential hazards that a country faces and states that: “the first step that must be taken in any effective Disaster Management effort is the identification and profiling of hazards. It is only logical that a Disaster Manager concerned with treating a community's or nation's risks must first know what hazards exists and where they exist.”

The combination of all hazards, together with capacity, comprises the fundamental components of a risk analysis, which is the basis for the risk assessment. Thus, for a risk assessment to have any actual meaning, to for example decision-makers, capacities must be put in relation to the relevant hazards. To fully understand hazards it is important to include comprehension of how hazards arise; probability of occurrence and magnitude and physical mechanisms of destruction (Coburn et al. 1994:16). Coburn et al. (1994:15), also discusses the importance of understanding the hazards in their specific context, a discussion which is quoted below:

The most critical part of implementing mitigation is the full understanding of the nature of the threat. In each country and in each region, the types of hazards faced are different. Some countries are prone to floods, others have histories of tropical storm damage, and others are known to be in earthquake regions. Most countries are prone to some combination of the various hazards and all face the possibility of technological disasters as industrial development progresses. The effects these hazards are likely to have and the damage they are likely to cause depends on what is present in the region: the people, their houses, sources of livelihood and infrastructure. Each country is different. For any particular location or country it is critical to know the types of hazards likely to be encountered.

Thus, when calculating and estimating the potential consequences of various hazards, all hazards must be analysed in relation to how they exist within the specific country and community (Coppola, 2007:35). The space dimension hence becomes crucial when assessing hazards.

Summary “space-dimension” of DM

The reasoning above has intended to explain why we consider that an all-of-society, a whole-of-government and an all-hazard approach should be adopted within the DM process. The discussion regarding the “space-dimension” of this report is apparently shorter than the previous discussion on the “time-dimension” of DM. This does not however suggest that the importance of the time-

dimension is superior to the importance of the “space-dimension”, only that there are more elements and definitions that we found necessary to discuss within the time dimension. The two factors are equally important, and we argue that it is crucial to consider both of them whenever dealing with DM.

The importance of the all-of-society, whole-of-government and all-hazard approach have been more or less agreed upon by all literature we have encountered and through all interviews that we have conducted. This said, depending upon what background people have, different people will always emphasise upon different parts within the space dimension and also group the different components into slightly different categories, a matter which will be further addressed within the section Methods below.

4.2 CAPACITY AND VULNERABILITY

Similar as for the terminology discussed in Section 4.1, the phrases “capacity” and “vulnerability” can be found in various contexts, assigned with somewhat differing meanings. Since these two words will be very important for the continued reading of this report, their meaning and contents as we intend to use them, needs to be clarified. Since the final objective of this project was to analyse different models that are used to determine a country’s Disaster Management Capacity (DMC), we will start this section by outlining what it is we mean by DMC.

Disaster Management Capacity (DMC)

The concept of Disaster Management (DM) has already been defined as the entire process of dealing with disasters. Looking up the word capacity in a dictionary, it can be defined as “actual or potential ability to perform, yield or withstand” (Dictionary.com, -). Combining the two gives, according to us, something very similar to ISDR’s (ISDR, 2007) definition of capacity which reads:

A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability. (p 127)

When referring to a country’s capacity to deal with disasters, (with regards to time and space), we will therefore from now on use the ISDR’s definition as outlined above, but refer to this concept as Disaster Management Capacity (DMC) or just capacity.

Capacity is closely linked to vulnerability

A commonly applied word in the context of DM, and often used together with capacity, is “vulnerability”. Twigg (2004) for example defines capacity and human vulnerability as the opposite sides of the same coin, as well as discussing vulnerability and capacity as opposites with regards to physical and material resources. However, there are differing opinions as to what the meaning of the word vulnerability is and there are those who consider it being applied too bluntly (Buckle, 1999:22). For that reason, we will below outline how the definition and contents of the notion vulnerability is used within this report.

Buckle (Ibid.) defines vulnerability as “a propensity to loss”. ISDR (2007:35) defines vulnerability as: “the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards”. Haines (2006:293) uses a similar definition: “Vulnerability is the manifestation of the inherent states of the system (e.g., physical, technical, organisational, cultural) that can be exploited to adversely affect (cause harm or damage to) that system”. Although there are numerous of other definitions of vulnerability (e.g. IFRC, 1996 and Abarquez & Murshed, 2004), when discussing vulnerability on a national level, we will

refer to either one of the latter two definitions, with a strong emphasis on the inclusion of both the time and space features. Furthermore, since vulnerability and capacity are considered to be the opposite sides of the same coin (which is also indicated by the two definitions above), whenever discussing one of the words, there is a strong connection to the other.

Relation to hazards

The definition of “disaster” used throughout this report refers to events that in general will affect the country on a national level. Johansson & Jönsson (2007:9-10) uses the “quantitative definition of risk” to explain the concept of vulnerability on a system level, i.e. from a national perspective if applied to the context of this report. The quantitative definition of risk is (as previously discussed within Section 4.1.1), described as the answers to Garrick and Kaplan’s three questions; What can happen?, How likely is it that that will happen? and If it does happen, what are the consequences? If using these questions to determine whether or not a country is “vulnerable”, the questions obviously have to be asked in the context of specific threats to really give an adequate answer, all possible threats and scenarios have to be considered. This is further emphasised by the ISDR (2007:35) definition of vulnerability, which states that vulnerability is specific to a hazard. The potential hazards thus constitute the factor that decides where on a relative scale a country’s DMC is situated. In other words, two countries could have “the same number of fire trucks” but depending on what hazards the country is exposed to, their respective DMC could be deemed differently, one country’s DMC being considered “adequate” whereas the other could be deemed to insufficiently correspond to the threats. To summarise, it is not considered possible to determine an entire system’s (e.g. a country’s) capacity and/or vulnerability without defining and including all possible hazards, a task that lies outside the scope of this project.

Entity or smaller parts

Looking at the definitions of capacity and vulnerability above, both seems to be made up by smaller parts that if put together create the complete picture. (Capacity is the combination of all the strengths and resources. Vulnerability is conditions determined by physical, social, economic and environmental factors or processes and manifestation of the inherent states). But is it, from a national perspective, relevant to discuss capacity and/or vulnerability within only smaller parts of society or should focus instead be directed towards the overall picture?

The end product, and most important part for this project, is obviously to discuss capacity and vulnerability on a national level (system level), since it is the performance of the country as one entity that will determine the consequences of an impact from a national perspective. Further, it is the performance of the country that relates to the arguments about why DM is important and it is the performance of the whole country that is linked to development. Capacity and vulnerability to a specific hazard must therefore be discussed for the whole country to be meaningful in the context of this project.

Unfortunately, problems arise when a system of such magnitude as an entire country needs to be assessed. We argue that dividing up the system into smaller parts is inevitable, as the system otherwise will become too complex. It is therefore necessary to first study the parts that comprise the entity and then compile the result into encompassing all parts. Thus, as will be discussed in the Method section, we have chosen to discuss capacity and vulnerability with regards to the smaller parts that together build the entity of a country’s DMC.

Capacity and vulnerability within this report

We consider that all areas included within the space dimension are related to the level of capacity and vulnerability. If the circumstances within an area of society have a positive effect on the DMC, such circumstances are considered to constitute a capacity. On the other hand, if the circumstances have a negative impact, they create vulnerability. In accordance with a holistic approach, the creation of either capacity or vulnerability is also discussed with consideration to the “time-dimension” of a disaster (i.e. prior to, during and after the triggering event, that is during both the DRR, Response and Recovery phases). With this approach, vulnerability and capacity are thus antipodes on a single scale, and should when conducting an assessment be put in relation to the hazards. This said, we would once again like to emphasise that an entire country’s capacity or vulnerability, which always has to be judged in the context of the specific hazards that the subject country is facing, is the end product and the most important part. However, to be able to analyse a country’s DMC it is necessary to first approach the problem on a lower scale. This could be done through identifying different areas and analyse how they could affect vulnerability and capacity and as a final step aggregate the findings from all areas so that the result encompasses the entire country’s DMC. How to do so is outside the scope of our project and will therefore not be discussed further but nevertheless, we do recognise its importance.

5. METHOD

Since we could not find any specific literature already addressing the analysis of models, we had to “start fresh” and there are probably a “million ways” in which a project like this could have been conducted. Furthermore, since this project was based on a qualitative study, there were also a number of ways in which this report could have been structured (Backman, 1998:61-62). Nevertheless, one method and one report structure had to be chosen. Since we thought that the four problem areas within our Research Question required a fairly step-by-step approach the project method was based on a chronological order. We also decided that, as much as possible, structure the report in accordance with the same chronological approach.

5.1 CONSTRUCTION OF FRAMEWORK

One of the problem areas of the Research Question was to map and compile aspects that could affect a country’s DMC into a framework. Such information can be useful when discussing DMC in general, and was also a necessity for us to be able to analyse the models later on in the project. This since if we first did not have a clear picture in our own minds on what areas in society that could affect the DMC and consequently, what areas that should be covered by the models, it would be impossible to conduct the analyses in a structured way. With constructing the Framework we therefore wanted to get a thorough understanding of how different factors throughout society could affect the DMC. Only then, with guidance from the Framework, could we determine what the models cover. Nevertheless the Framework was considered to be more than just a tool for analysis as it can be a good base for further discussion.

Basis of the Framework

In order to form a solid foundation for the Framework we chose to base it on both a literature review as well as discussions with experienced and knowledgeable persons active within different areas of Disaster Management (DM). There were both pros and cons with this approach. The positive side was that it enabled us to gather a large amount of information through different publications and then complement the gained information with more specific discussions with people knowledgeable within the area of interest. On the other hand, it was difficult to find literature specific enough to the research area and the time required for the literature study reduced the time available for conducting interviews. Nevertheless, we found the combination of a literature review and interviews to be the best optional method, this since we considered that the available literature relevant to the subject was sufficient and because we were given the opportunity to meet with persons experienced within the field.

Thus semi-structured interviews¹⁶ were used as a complementary method to the literature review, this to get an as holistic picture as possible. The interviews were conducted to: “fill a gap in knowledge that other methods, such as observations or the use of census data, are unable to bridge efficaciously; and collect a diversity of meaning, opinion and experiences” (Hay, 2005: 80). The discussions were conducted either face-to-face or via telephone. Additionally, correspondence via email has been used where distance or time made a meeting unfeasible. The reason for choosing semi-structured interviews, in lieu of any other interviewing method, was that we did not want to have a set of pre-written question. Instead, we chose a few larger areas in which we wanted to gain further insight, and we argued that interviews more in the shape of discussions would be the best approach.

¹⁶ “The questions are focused and deal with the issue or areas judged by the researcher to be relevant to the research question” and “The semi-structured interview is organized around ordered but flexible questioning” (Hay, 2005, p. 88).

To fulfil the purpose of conducting the interviews, or rather the discussions, we tried to get people experienced, knowledgeable and active within different areas of the Disaster Management field to participate (see Section 4.1, for further explanations about different areas of DM). The information from these discussions has been incorporated within the report and where necessary, specific information was referenced to the person quoted. For a review of the people that we have been in contact with, see Appendix A.

One important note to make is that we did not conduct the discussions with the purpose being to enable any comparison of aspects covered within the literature with the general opinion of DM professionals. Instead, the purpose of the discussions was only, as discussed previously, to broaden our perspective gained from the literature and to assure that the Framework we had created was broad and comprehensive enough. Since we did not consider that resumes or transcripts would provide further value for the given purpose of the interviews, we decided not to use any type of recording device during the discussions; neither did we transcribe the discussions word by word¹⁷. We do believe that without the input gained from the interviews, the contents within the report would have been less comprehensive and we would have felt less confident that we were able to provide the holistic perspective that we strived towards.

When constructing the Framework, we chose not to make any distinction between input gained from the literature review and input from the interviews, the main reason being that such a separation would in our opinion not serve any purpose for our project objectives. Furthermore, since the interviews mainly were directed to general questions in relation to the interviewed persons' area of knowledge, such input would not be relevant presented on its own. Thus, the intention with the chosen structure of the Framework was to emphasise a holistic perspective and only the sum of all input consequently mattered, not where different viewpoints came from.

Furthermore, we wanted to base our Framework on a "fresh mindset", without being influenced by what aspects were included within different models. Therefore, we chose to set up the Framework prior to studying potential models. We argued that if we instead had chosen to look at the models and guiding document first, and what aspects they cover, we would perhaps miss essential parts that were not incorporated by those documents.

In summary, we tried to create an as holistic framework as possible, based on literature review and complementing interviews. We do not suggest that our version is all-encompassing, i.e. that it includes all areas that could affect a country's DMC, but hopefully we have at least managed to cover the most general areas, thereby making the Framework suitable for the analysis of the models and for further discussion related to DMC from a national perspective.

Profiles and Aspects

What soon became clear to us, when trying to map the different areas of society that could affect a country's DMC, was that the majority of them were closely linked to each other. We found this to be a problem since we wanted to create a framework characterised by being as easily understandable and transparent as possible, that to the least possible extent duplicated information and at the same time ensured that it did not lose any coverage. The image of trying to represent a complex spider web with separated "squared boxes" soon came to our minds, an image not very encouraging. Nevertheless, to facilitate discussion and enable the models to be analysed in a relatively structured way, we found it necessary to create such boxes, and as a first approach, we decided to divide the entity into four categories, which we named "profiles".

¹⁷ Accordingly to Minichiello et al. (referenced in Hay, 2005:96) a transcript is a written 'reproduction of the formal interview which took place between researcher and informant.

Accordingly, all parts of society that could affect a country's DMC were thus to be represented by these four profiles (covering the space-dimension as discussed previously). We found that different authors had divergent viewpoints on both the names and contents of such profiles. Coppola (2007: 149-158) has identified the following four profiles: the physical profile; the social profile; the environmental profile; and the economic profile. Mileti (1999:3) has identified the physical environment; the social and demographic characteristics; and the buildings, roads, bridges and other components of the constructed environment. Benson and Twigg (2007:103) have listed environmental; economic; social; cultural; institutional; and political areas. ISDR (2007:35) has identified the physical; social; economical; and environmental factors.

We decided to use a combination of the identified profiles above since we found that they all highlighted important areas that should not be omitted. After a bit of trial and error on some alternative arrangements, the four profiles that we chose to use within this report were: *The Physical/Environmental Profile*, *The Cultural/Social/Political Profile*, *The Institutional/Legislative Profile* and *The Economical Profile*. With these profiles we thus endeavoured to, in a holistic way, represent "the spider web" of factors throughout society that could affect a country's DMC. More details about how these profiles were divided and their respective contents are discussed under each separate heading (See Section 7.1, 7.2, 7.3 and 7.4 respectively).

Although considered a good start, dividing all areas of society (that could affect the DMC) into four main areas did not constitute a representation of the society on a scale that was detailed enough for an analysis of the models or more detailed discussions. The profiles were therefore further divided into a number of smaller areas, and the sum of them was intended to cover the respective profiles. We chose to call these smaller areas "aspects", referring to "aspects that could affect a country's DMC". These were then divided into "sub-aspects" where we found that an even more detailed discussion was necessary. The selection of aspects was, in a similar way as discussed for the profiles, based on the literature review and the outcome of the interviews. Furthermore, the choice of what aspects to include in the Framework was also based on our view of the DM process, as described within Section 4.1 and consequently was it intended to cover both the time- and the space dimension of the DM process.

We do not by any means suggest that the four profiles as listed above constitute the optimal representation of the "spider web", and we are well aware of that the profiles overlap in some (or even many) areas. Additionally, further to debating over suitable names of the profiles, the areas that should be included within each profile could also be discussed. Nevertheless, we found that no matter how we divided the profiles, the problem remained. Therefore, it is worth pointing out that the four profiles and their content suggested herein is simply one alternative representation that we found suitable for the purpose of this project.

What is further important to clearly underpin, is that we had no intentions to either rank the aspects relative importance or suggesting anything about how much capacity or vulnerability could be created through them. Such judgement must be based upon context of the country. Some aspects might be highly relevant to some countries but not as relevant to others and consequently, such discussions were outside the scope of this report. Furthermore, in some aspects all parts mentioned need to be included in order for the aspect to create capacity, whereas in other aspects only some areas are enough to create at least a low level of capacity.

Difficulties in Choosing Aspects

The process of identifying relevant aspects to include within the Framework was not an entirely easy task. One problem that arose was due to that some factors related to the DM process could be discussed in a number of different contexts. One of the more prominent examples we came across was that of poverty. Poverty could for example be designated the cause of people having a low health status and living in dangerous locations. Both the health status of people and their residential location are considered to affect the DMC (see discussions within 7.2.5 *Demography*). Should then poverty be identified as an aspect or should people's health status and where people live be identified as aspects? This could probably have been done either way, but we chose to discuss the effects poverty could have on the DMC in "its components", two of them being the health status and the location of residence. Thus, we have considered poverty and the potential consequences thereof, but not included poverty as a separate aspect; instead its effects are included in a number of other aspects.

One reason for choosing this approach was that these aspects (health status and residential location) could not exclusively be referred to only poverty, but also to other areas such as *Demography* and *Financial Factors at Individual/Household Level*. Consequently, as a general criterion we tried to strive towards a minimum of duplicated information and at the same time cover as many areas related to the aspect as possible in one location. In other areas, the way in which we chose to divide the aspects was based upon the alternative that to the greatest extent seemed to follow a logical order, and where another option could have meant that some important contents were lost or at least appeared to be less clear. Such considerations were by us deemed more important than assuring that all parts of an aspect were located perfectly under a specific profile.

Summary Checklist

In order to motivate the choices of aspects identified and included within this report, as well as describe how they could affect a country's DMC, a fairly large amount of text was required. However, such lengthy discussions counteracted one of the initial purposes of this project, being to create an easily manageable framework which could be used as a guiding document when analysing the models. Therefore, to facilitate the analysis of the models, the profiles, aspects and sub-aspects were summarised with short sentences in a summary checklist.

To widen the use of the checklist, without needing to expand the body of text included, we added the possibility to indicate the extent of coverage of aspects and sub aspects within the models. Three different levels (mentioned, briefly discussed, and discussed) were therefore added to the short sentences. The grading system will further be discussed within 7.5, Summary Checklist. We also left some room for a short descriptive comment under each aspect.

The checklist does not comprise the exact wordings that can be found within the corresponding aspect in the Framework, but are instead intended to summarise the essence of each aspects, in an as short and easily understandable way as possible.

5.2 ANALYSIS OF MODELS

Following the rather extensive literature review and the complementing interviews, the subsequent step was to identify what models that are used when assessing a country's DMC. The many statements found in central documents and from relevant organisations indicated that capacity analysis is (or at least should be) conducted from a national perspective (see section 2, Background). Therefore, we were questioning what we held to be a lack of models to guide such assessments. We were hoping to find models giving clear directives on what aspect should be included and covered.

Ideally, these models would also explain why the included aspects are important and provided guidance on how to conduct a capacity and vulnerability assessment on a national level.

During the search for models, we discussed the subject with our mentors for this project (P. Becker and M. Nilsson, direct communication during March-July 2007) as well as with T. Jeggle (direct communication on the 20-22nd of March and 30th of May). They provided us with additional contact details to a number of persons active within the field of DM, both within and outside of Europe. Altogether, we were in contact (over email, telephone and in meetings) with a range of people both from the academic side and the practical side of the DM field. All these persons that we have been in contact with and thus, who have contributed with input to this project are listed within Appendix A.

Despite the rather extensive amount of information, both from literature and from all persons contacted, the search turned out to be less fruitful than we initially had hoped for. As the time progressed, and considering the limited amount of time at our disposal, we had to draw the conclusion that no holistic model for DMC assessment on national level exists, or at least that we were unable to find such model. As a result, we had to change tactics.

Change of Tactics

Although we were unable to find any model that were designed for a holistic assessment of a country's DMC with a national perspective, the importance of conducting such an assessment was emphasised by all persons we were in contact with and within all documents that we studied.

During the literature review and the interviews, we were also made aware of documents related to capacity assessments, however with a slightly different focus than our original approach, including for example vulnerability and capacity assessment models at community level. We also found reports from various projects already undertaken or under progress that included some sort of capacity and vulnerability assessments. The IFRC for example, has put together three documents for their National Societies (NS) and subsequently for their branches that to some degree concerns assessments.

Consequently, such documents are, even though perhaps not directly applicable, closely related to DMC assessments. We therefore decided to expand the scope of our search of models to encompass other types of documents, including for example guidelines, frameworks, checklists, case studies and the like. Thus, when referring to "models" within the continuing part of the report, if nothing else is stated we refer to all these types of documents. The main reason for expanding the scope was that we argued that these types of related documents would at least give some guidance on how to conduct parts of such an assessment and of what areas in time and space to include in an assessment. This change of tactics was thus done even though these documents might not be intended for such holistic assessments and might therefore not take a holistic approach.

As a result of the changed scope, the objectives in relation to the analyses had to change from the endeavour to identify models written to provide guidance on how to conduct an assessment from a national perspective, to instead analyse documents with other objectives but that were considered to provide guidance on what areas of society that should be covered by an assessment. We hoped that although each separate document by its own might not give even close to a holistic representation, several documents together might give sufficient guidance. This said, all the different documents analysed and the results from the analysis must be seen in the light of the documents original intentions and backgrounds, which often is not to provide a holistic approach or explicitly identify aspects affecting a country's DMC. Again these documents will be referred to as models from here on unless anything else is stated.

All documents found were then structured into six different groups depending on their contents. From these groups either one or two documents were chosen for further analysis. This choice was based on a qualitative study of all initial documents and the documents chosen were the ones we found to provide the most guidance. The specific selection of documents for analysis is discussed further within section 8, Analysis of Models.

To complement the information we extracted from these documents, we also discussed how assessments are conducted with several people within different UN organisations, the IFRC and ProVention Consortium¹⁸. The main objective with those interviews, or rather discussions, was for us to get an understanding of how different actors currently conduct their assessments and what kind of guidance they have at their disposal. Again, the input from all these discussions have only been incorporated within the report to complement the picture that we gained from literature and was not intended to be transcribed or analysed against the written literature. These discussions were also the foundation for the fourth objective (related to the general predicaments with assessing capacity) and thus constituted the foundation for much of the reasoning in the Discussion section.

5.3 SUMMARY

In summary, the project comprised three main parts, one being constructing the Framework, the second being the identification and analysis of the models/guiding documents and the third being obtaining an understanding of why the models are constructed the way they are, the logic behind them and the predicaments surrounding the assessment phase. The report on the other hand comprises four main bodies of text, where the first one constitutes the background information laying the foundation for understanding the rest of the report. The second part comprises the Framework (literature review). Within the third part the analysis of the models is conducted and the fourth and final part includes the discussion summing up the analysis and discussing the findings of this project related to the four areas of the Research Question.

¹⁸ The interviews took place in Geneva 2-6 July 2007. Person interviewed are listed within Appendix A.

6. RESTRICTIONS AND LIMITATIONS

The Research Question for this project does indeed cover a large research area and being a master thesis project, we had a limited amount of time at disposal to complete the project. Consequently, and as with any project of this size, we found it impossible to cover all angles of the topic at interest and were inevitable forced to make a number of restrictions. We also had to come to terms with that there were several limitations that could not be resolved within the timeframe of this project. Within this section, we will try to highlight such restrictions and limitations in order to increase the validity of the report and also to give further background information related to some of the choices we have made during the course of this project.

Focus on National Level

An initial restriction made concerns the focus of this report, Disaster Management from a national perspective. In setting this focus, we by no means suggest that DM at any other level is of less importance. We highly emphasise the strong need for DM also on a local level¹⁹ as well as at a regional level. However, we argue that since the government is essential for the DM process (ISDR, 2004: 19-20), the work conducted at national level is a prerequisite for sustainable and successful DM also at local and regional level. We thus acknowledge the importance of DM at all levels of society and that DM on lower levels needs to be accounted for also at the top level. To summarise, even though this report focuses on, or is restricted to, DM from a national perspective, the contents of the report is intended to reflect the importance of including the local and regional perspective as well.

Hazards

When it comes to how hazards have been addressed within this report we would first like to recap that the prerequisites within each country are different and the range of potential hazards and the subsequent potential consequences thus varies within a wide range. Consequently, in order to include hazards in discussions regarding what areas that could affect a country's DMC such discussions would have to reflect the frequency of occurrence; historical data, predictions, magnitude and potential intensity and locations, estimated extent of impact and duration; seasonal pattern or other time based patterns, speed of onset and availability of warning for each hazard (Coppola, 2007:38-29). Hence, should we have included specific hazards in the discussions, and still strived to achieve a holistic perspective on what could affect a country's DMC, it would have obliged us to consider and define all specific effects from a hazard both in time and space, and no doubt this would have made the report twice or three times as long. Additionally, if hazards would have been included, which ones should be considered the "relevant ones" and which ones could have been left out?

Selecting what hazards to include in an assessment is naturally very country-specific and although there are statistics over past disasters, giving an indication on what hazards are likely to re-occur, these hazards might not be the only possible, or even probable, ones. In fact, if giving a bit of thought, things that have never happened before happen every day. Furthermore, as indicated by Coppola (2007:32), there are "future threats" that we yet are unaware of. The increased globalisation, as well as the currently much talked about issue of global warming, are two possible sources of such threats that we do not yet fully comprehend. Thus, discussing effects from specific hazard would not have allowed discussions about a country's DMC to be generally applicable to a large number of countries, which would have limited the use of this report and also made the scope rather unrealistic. Instead, trying to limit the report to address more generally applicable effects from

¹⁹ Also emphasised by the reference "Disaster Mitigation for Sustainable Livelihoods Programme University of Cape Town, 2005" or work conducted by IFRC and numerous other NGOs).

disasters would be more in line with our ambition to make the report as general and useful as possible. We therefore decided to write this report without including detailed discussions about specific hazards.

Notwithstanding the above, we found it necessary to in our own minds have some type of hazard as a frame of reference when discussing DMC. Hence, we have based our reasoning on, but not restricted it to include, “disasters of natural origin”.

“Disasters of natural origin”

Our discussions throughout this report were to some extent based on so-called “disasters of natural origin”. This phrase refers to disasters triggered by natural events such as earthquakes, volcanic eruptions and cyclones etc. (UNDP, 2004:18 Box 1.3). However, a restriction such as to “only” considers natural threats do not denote a clear distinction on what hazards should be included. For example, should so-called secondary hazards be included? A storm could cause a power-cut, causing failure of for example industries, critical facilities and other important infrastructure. Flooding in LDCs is commonly followed by epidemics of diarrhoea due to contamination of drinking water and volcanic eruptions are often followed by outbreaks of respiratory problems due to ash fall and emission of gases (Wisner et al., 2004:172).

For guidance we contemplated ISDR (2005: see p.1 footnote 3) which has defined the scope of its framework to include disasters caused by hazards of natural origin and the related environmental and technological hazards and risks. This could very simplified be described as an all-hazard approach as discussed earlier, meaning that instead of focusing at one specific hazard at a time, efforts are made to make sure that a country’s capacity is applicable to the large variety of threats that a country could be exposed to. There are several reasons for choosing such approach, for example are most areas (hazardous places) threatened by more than one source of risk Alexander (2002:305). Furthermore, in addition to the presence of several “extreme phenomenon”, there may be secondary hazards (e.g. earthquake-induced landslides). Having separate plans for each relevant hazard and context would most likely mean an extensive additional workload and having one plan for all major hazards would seem more efficient (Ibid.). Furthermore, to only address the first phase of a disaster seems to us ineffective and inefficient and instead, we argue that the whole time-dimension of a disaster needs to be addressed.

To summarise, even though each disaster is specific in its own unique way, the range of areas within a society affected by a disaster is likely to be similar no-matter what the triggering event is. We therefore hope that by excluding the hazards from discussions about capacities and vulnerabilities, we will enable this report to be applicable in a wider context than solely related to disasters caused by a specific “natural trigger”.

This said, it is important to remember that, when conducting a capacity assessment, it is impossible to determine a country’s DMC without considering all relevant hazards. But again, we argue that for the objectives of this project, it was possible to keep a general discussion on disasters and the relationship between capacity and vulnerability without including specific hazards.

Furthermore, since the reasoning within this report was based on disasters of natural origin, we have not directly discussed war as a triggering event. War, or conflicts, could indeed have large effects on all aspects outlined and discussed within this report, and a situation of conflict within the country must therefore be taken into consideration when assessing capacities and vulnerabilities associated with natural hazards. We have only briefly touched upon these issues within the aspect *Political Climate and Relations*.

Construction of Framework

In accordance with the section Objectives, this project seek a holistic perspective on DM and accordingly; we have tried to include, discuss and motivate what we perceived to constitute the general aspects that could affect a country's DMC rather than carrying out any in-depth descriptions of these aspects. The content of the Framework was restricted to include brief discussions on central aspects that could affect a country's DMC, highlighting the width of aspects instead of their depth. Should further and more detailed discussions on how these aspects could affect the DMC be desired, we advise the reader to seek more detailed literature (where a good starting point might be the reference list within this report).

The large scope of published books, articles and reports within such a broad field as DM could easily have made the literature review an overwhelming task. However we also discovered that many publications on topics related to DM to a large extent discussed more or less similar areas, although with a small twist or using different terminology. Therefore, we decided to base the literature review on a relatively small selection of what we found to be relatively comprehensive publications²⁰. The similarity within various literature was a contributing factor in making us relatively confident in that the chosen literature would cover most of the general aspects throughout society that could affect a country's DMC. Thus, we considered these publications to constitute a sound foundation and for that reason, we decided to limit the search for further information. Consequently, the majority of the references made throughout the report have been sourced from a limited number of publications, although similar discussions could be found in several other books. To make certain that we, by not sourcing more references, did not miss any major factors that could affect the DMC, we chose to use interviews as a controlling function to find potential gaps and to achieve an as comprehensive coverage as possible. Accordingly, interviews were scheduled and conducted with persons from varying backgrounds, knowledge and experience within the DM field, both regarding different areas of society and the different phases of the DM process. In addition, where we found deficiencies within the coverage from the main publications used, we expanded our search to other documents, or discussed the area more in depth during the interviews, to create a more complete framework. The interviews also helped us to obtain a deeper understanding of the DM process, which would have been difficult to attain exclusively from conducting literature reviews, especially when only having a limited amount of time at disposal.

It should also be kept in mind that the Framework herein only represents one view of a very complex reality. The selection of aspects could always be questioned and most certainly, there are a number of different ways in which such aspects could have been structured in that probably would have suited other objectives better. Accordingly, we do not claim our Framework to be better than any others; it simply represents our view and was constructed to suit the objectives of this project.

Identification of Models

When we expanded the scope of this project to also include guiding documents, in addition to more specific models, the number of "models" that could have been included in the analysis increased enormously. However, due to the narrow timeframe, we had to restrict the scope and were only able to analyse a limited number of models within the project. The initial grouping of models included all documents that we had come across that were deemed to provide relevant guidance. The latter selection of models was based on the information that we had gathered from discussions and literature and represents the models that we either found to provide the most guidance on what

²⁰ The main publications referred to within this report include: Wisner et al., 2004, Coppola, 2007, Twigg, 2004, Mileti, 1999, ISDR, 2005 & ISDR, 2007 and Alexander, 2002.

areas to include in a capacity assessment or which had a similar perspective as the one we were searching for.

Within the Research Question we chose to specifically address models used by agencies such as the UN and the IFRC. And even though the focus was on models used by two key actors, the search for models was not restricted to only incorporate these two organisations. Models as well as other guiding document available were also searched from other actors of the DM community. Nevertheless, the vast number of organisations involved within the field of DM (especially NGOs) made a restriction inevitable. It would simply have been impossible to study all such organisations. Instead, we included what we consider to be the main actors, which would have the potential to develop adequate models focusing on a national perspective. Thus, there might be organisations that are working within the realm of our research question, which hence have been excluded from this study.

Another restriction made was that we did not consider how sovereign countries are working with assessing their own capacities. This does not imply that we do not recognise the fact that many countries are conducting capacity and vulnerability assessments, this restriction was only made with consideration to the timeframe of our project.

Analysis of Models

The analyses of the models were dependent on our Framework, which in turn was our representation of what aspects that could affect a country's DMC. Consequently, the results from our analyses are only valid against our Framework. Furthermore, since we were conducting qualitative, in lieu of quantitative, analyses, there will always be a degree of subjectivity within the analyses. The subjectivity was probably most visible within our evaluation of if the aspects were explained, discussed or mentioned within the different models.

We further restricted our analyses to include only the sections we found most relevant when assessing a country's DMC, thereby perhaps missing aspects that are included elsewhere in the analysed documents.

Another restriction of significant importance is that it was only the coverage of aspects within the different models that were analysed. The report does not include any analyses of each method described to conduct the respective assessment.

Wider understanding of models

The research related to the final part of the Research Question was to a large extent based on the persons we have been in contact with throughout the project and was hence to some degree a representation of their view. Nevertheless, we have also studied a large amount of literature and incorporated our own thoughts and reflections within the discussions. We have not discussed the problems related to actually conducting the assessments and thus, the discussions are to some degree more theoretical than practical.

7. FRAMEWORK

From here on and forward a new section of the report starts and within this chapter we will outline and discuss the four profiles. Each profile will be presented with an introductory text outlining what areas of society the specific profile refers to and what aspects that are included within the profile. Each aspect is then discussed under a separate heading. These sections include a description of what we consider to be the content of each aspect; what sub-aspects they comprise; a motivation of why they are important from a DM perspective; and how capacity or vulnerability could be created in relation to these aspects. (For a more detailed explanation of how the Framework was constructed see Section 5, Method). The content of the profiles and aspects are then summarised into a checklist. The checklist does not comprise the exact wordings that can be found within the corresponding aspect in the Framework, but are instead intended to summarise the essence of the aspects and sub-aspects in an as short and easily understandable way as possible. Figure 2 is included to give an overview of the profiles and aspects that will be discussed later within this section.

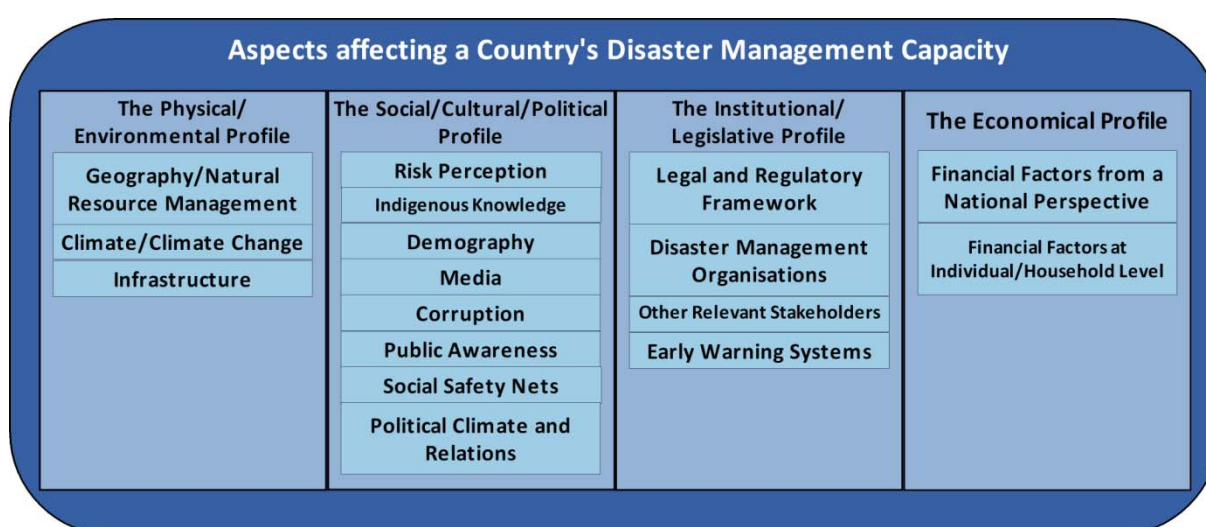


Figure 2 Framework with Profiles and Aspects

7.1 THE PHYSICAL/ENVIRONMENTAL PROFILE

The Physical/Environmental Profile represents how the country is shaped through the given geographical attributes, how resources are managed as well as the human-made constructions that constitute the “backbone” of today’s societies. This profile hence comprises of aspects that can be touched and seen.

Within various literature the physical and the environmental profiles are often described as two separate profiles. The geography; infrastructure; population; location of people and buildings and the built environment are often discussed under the physical profile, whilst the natural environment; depletion; and the state of degradation are sorted under the environmental profile (e.g. Coppola, 2007: 149-15, ISDR, 2007:35). Nevertheless, we have chosen to combine the two since we believe it is crucial to discuss both the effects of given prerequisites as well as the effects of how these are managed under one and the same aspect and hence, within one single profile. Thus, we find it natural to discuss the geographic components together with how the geographical/natural resources are managed. Such arguments derive from the discussion about addressing all parts of one aspect in one section of the report. We exclude any aspects regarding the population within this profile since we prefer to focus more on the population’s surrounding. Aspects concerning the population are instead discussed within *The Cultural/Social/Political Profile*.

Discussions regarding the physical/environmental conditions are closely related to discussions about potential triggering events to a disaster of natural origin. Nevertheless, this profile tries to focus more on how the prerequisites could affect the level of vulnerability and capacity in lieu of how they could represent an initiating trigger. For example a mountainous country increases the likelihood of landslides but it also complicates a rescue operation. If the slopes are mismanaged a landslide can be initiated through a smaller triggering event and consequently, the vulnerability of the population would increase.

The aspects included within this profile are: *Geography/Natural Resource Management, Climate/Climate change and Infrastructure.*

7.1.1 Geography/Natural Resource Management

This aspect, *Geography/Natural Resource Management*, includes the given geographical attributes within a country. In other words, this aspect aims at incorporating the effects of a country's topography, mountains, bodies of moving and standing water, canyons, coastal zones, tectonic faults and other features of the surrounding that will affect a country's DMC. We have further included the effects of how natural resources are managed, knowledge regarding the geography and management of the natural resources, risks associated with the geography and natural resource management and how a country acts with regards to the given circumstances. Furthermore, we consider that the issues discussed within this aspect extend to include all levels of society, from national to individual level. Hence, national level decisions as well as local household decision will have to take the surrounding geography into consideration, one difference being that the top-level decisions might have to take the entire country's geography into consideration whereas households may only have to consider geographical attributes within its vicinity.

Many authors highlight the significance of geography. Alexander (2002:12) underpins the importance as well as the need to assess and map situations of risk as they appear when constructing plans related to DM. The geography is hence an important part of the plans and an important part of the response phase. Coppola (2007:152-154) takes the discussion further and discusses health and vitality of the country's or community's natural environment and suggests that such factors are critical in order to evaluate a country's or community's vulnerability. Coppola (Ibid.) concludes that a healthy and productive natural environment provides excellent protection from a variety of hazards and that a community's natural environment is critical when defining vulnerability. Mileti (1999:10) highlights the need for assessing the environmental "carrying capacity"²¹ for effective planning and Wisner et al. (2004:202) underpins that knowledge about the geography and its relationship with the society is important when discussing that flood disasters are caused by people and not just water. Finally, the HFA (ISDR 2005:10) highlights the importance of geography when identifying "Implement integrated environmental and natural resource management approaches that incorporate disaster risk reduction, including structural and non-structural measures, such as integrated flood management and appropriate management of fragile ecosystems" as one of the key activities. The geography and natural resource management is hence considered to affect both the possible triggering event and the country's ability to manage the different hazards.

²¹ i.e. population x per capita impact

Below, we have divided this aspect into five sub-aspects in which capacity and vulnerability are reflected upon. Where parts in these sub-aspects are closely linked to other aspects a shorter description, together with relevant cross-references, will be given. The five sub aspects comprise of:

- Geography;
- Natural resource management;
- Awareness of geography and the natural resource management;
- Awareness of risks associated with geography and natural resource management; and
- Transfer of knowledge into actions.

Geography

A country has given geographical features and can as a result be more or less disaster prone, meaning that some geographical features of a country might enhance the risk of naturally induced disasters. More beneficial circumstances could on the other hand mean the opposite, i.e. reducing either the likelihood or consequences of triggering events. However, without going into details, some land is going to be deemed as “unsafe”. This statement can be exemplified if considering flood-prone areas. The five most commonly flooded geographical land types are, river floodplains, basin and valleys affected by flash flooding, land below water retention structures, low-lying coastal and inland shorelines, alluvial fans²² (Coppola, 2007:53). A country that has a high percentage of such areas might therefore, if they are occupied, be considered more vulnerable than a country with a lower area percentage of such land. Similar reasoning could be applied to all other types of hazards as well.

It is considered a capacity if the country has geographical features that does not increase the likelihood of disaster triggers or increase the adverse effects of any disastrous event in such way that they negatively affect any parts of the DM process. Within this section we will not in detail explain how different features of the geography could affect a country’s DMC, since such task would be too time consuming. The effects of different features might also be very specific to the country subjected to the evaluation and hence, such discussion would not be generally applicable. For more detailed information on how the different features might affect the country’s DMC, we recommend reading the original source or other literature relevant to the subject. The bullet point list below only gives a few examples of features that should be considered (referenced from Coppola, 2007:149):

- Land cover (vegetation);
- Soil type;
- Topography;
- Slope;
- Water resources (lakes, rivers, streams, reservoirs, etc.);
- Wetlands and watersheds; and
- Faults²³.

We argue that man-made construction such as dikes, flood protection structures, dams and other types of structures that are built as adjustments to the given geographical attributes also should be considered within this aspect since they are modifications of the given geographical attributes.

²² An alluvial fan is a deposition of material that occurs where a fast flowing stream slows down.

²³ A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust, in which adjacent surfaces are displaced relative to one another and parallel to the plane of fracture (The American Heritage Dictionary, 2004).

Natural resource management

Natural resource management is really an extension of the previous sub-aspect where it was stated that the geography of a country could make the country more or less disaster prone. Within this sub-aspect we claim that also the natural resource management will affect how disaster prone a country is. Such remark could be backed up by referring to Benson & Twigg (2007:79) who states that the state of the environment is a major factor determining vulnerability to natural hazards.

Many other authors also discuss the impact of inadequate natural resource management. The ISDR report *Words into Action* (ISDR, 2007:83) defines environmental degradation as:

The reduction of the capacity of the environment to meet social and ecological objectives and needs. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards. Some examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea-level rise and ozone depletion”.

Other activities that affect the natural environment are discussed by Benson and Twigg (2007:79) as they state that:

For instance, in many countries deforestation has disrupted watersheds and resulted in siltation of riverbeds, leading to more severe droughts and floods. Increased siltation of river deltas, bays and gulfs, together with the destruction of mangroves, reefs and other natural breakwaters, has also increased the exposure to storm surges and seawater intrusion. Poor land use management, unsustainable agricultural practices and more general land degradation have further contributed to increasing flood losses and the rising incidence of drought.

Coppola (2007:154) also discusses human practices that will affect the natural environment and states that “diking and damming of rivers and creeks, filling in wetlands for development, channelling of coastal areas such that marsh and wetlands areas are destroyed, clear-cutting of forests, management of forests such that dead wood builds up (serving as fuel for a forest fire), destruction of coastal dunes” are some examples that affect the natural environment. Coppola (ibid.) further states that some natural processes such as rainfall averages, wind, snowfall and snowmelt average, seasonal trends in severe storms and cyclonic storms, seasonal drought and lightning also could affect the status of the natural environment.

The immense value created from ecosystem services, such as natural water purification and natural irrigation systems is another important perspective related to natural resource management (M. Svensson direct communication on the 23rd of April 2007). If such activities were to stop due to environmental degradation, they would subsequently have to be paid for and hence, financial means would have to be allocated from elsewhere²⁴. If considering the additional costs such artificial solutions would cause, it would be natural to assume that less money would be available for DRR and other DM related costs. Thus, there is a link between natural resource management, development and disaster risks. Consequently, natural resource management could affect the DMC also in a more in-direct manner.

There are a number of both natural, but mostly human activities, which could increase or cause vulnerability with regards to the natural environment in terms of natural resource management. Capacity or vulnerability could be created in areas such as, but not limited to:

²⁴ There are of course numerous other values that also would be lost if such ecosystem services were destroyed, the financial perspective on such loss is only one example.

- Management of forests;
- Health of waterways (rivers, streams, creeks, etc.);
- Status of wetlands;
- Management of lakes;
- Health of coastal dunes;
- Health of air;
- Stability of ecosystems; and
- Biodiversity.

Each of these features is considered to affect the capacity differently and in many cases in a number of ways. For example if the management of forests is neglected and clear cutting of the forest allowed at steep slopes, both the risk for flooding and landslides might increase (for further explanation see Wisner et al., 2004:201-274). Furthermore, the features are often related to each other. For example, if the biodiversity decreases it is also considered that the ecosystem subjected to the decrease will be affected. Wisner et al. (2004:195) discusses the importance of biodiversity and argues that resources should be increased to assure genetic diversity as well as identifying and preserving local genetic diversity and resource management techniques. It is also important to know that the features listed above do not only concern rural areas. UNDP (2004:84) states that: “In cities, pollution of waterways and the air and inadequate provision of drinking water, sanitation or solid waste management systems shape patterns of illness that run down resistance to everyday hazards”. Both cities and rural areas are hence affected. The discussion regarding waste management systems is closely linked to, and further discussed, within the aspect *Infrastructure*.

A quote from Twigg (2004:249) could be used to summarise the discussion above: “there is a strong link between environmental degradation and increased risk from natural hazards. Bad management of natural resources and destruction of the ecosystem make disasters more likely”. In agreement with this statement, we consider that capacity could be created if environmental degradation does not create further vulnerability compared to what the status of the environment would be if untouched by humans. We further consider that capacity could be created if the natural resources are managed in an adequate way so as to reduce the effects of natural triggering events.

Awareness of geography, natural resource management and associated risks

In accordance with the discussion above, capacity is created if the geography and its status within the country does not increase the likelihood or consequences, triggers or hamper activities to avoid, limit or prepare for as well as respond to and recover from a disaster. Thus, it is important to be aware of and have updated information on the geography within the country. It is further important to be aware of how the status of the natural settings affect the consequences of various threats should they materialise. When developing an effective risk management strategy, measuring the health of the country’s natural environment is vital (Coppola 2007:153). Mileti (1999:157) states that a carrying capacity assessment should be conducted when creating land use plans, i.e. assessing the maximum load (population*per-capita impact) that can be imposed in a sustainable manner to the natural environment without causing environmental degradation. Mileti (Ibid.) also suggests that an ecological footprint analysis, which investigates how much land and water area that is needed to support local consumption and development practices, should be conducted.

We consider that if unaware of the effects the geography and its status might have in regards to potential threats, a country will be more susceptible to the effects from these threats, which in turn might increase the level of severity of the consequences. Awareness of geographical settings must also, in many cases, stretch beyond the borders of the subject country since the geography in neighbouring countries also might be of importance. One fairly obvious example is assessing geographical settings in relation to floods, as waterways often connect several countries. Floods in

one country could consequently affect another country downstream. Knowledge must be present within the general public, institutions and organisations responsible for managing disasters (See section 7.3.2, *Disaster Management Organisations*) as well as within the government. The required knowledge, as discussed above, is closely linked to other aspects addressed later such as *Political Climate and Relations, Public Awareness and Disaster Management Organisations*.

In summary, it is considered to be a capacity if the country is aware of its given geographical features and how they will affect the outcome should any hazardous threat materialise. We would here like to emphasise that although knowledge of the short-term risks might be present, it often seems as if long-term risks are overlooked, even though they might be just as important. Thus both a long-time and a short-time perspective are considered a capacity, when evaluating risks. It is also vitally important to have knowledge about how activities within all phases of the DM process affect the geography. Mileti (1999:238) discusses the recovery process and underpins the importance of sustainability when choosing recovery actions and that actions that destroy or undermine natural ecosystem and that encourage or facilitates long term growth and development patterns that expose more people and property to hazards are particularly unwise. Such knowledge is thus also considered to create capacity.

Transfer of knowledge into actions

The final sub-aspect concerns transferring all the knowledge discussed above into actions. These actions could include measures linked to a number of other aspects, such as for example *Infrastructure, Demography, Legal and Regulatory Framework and Disaster Management Organisations* and could include measures involving all parts of society and related to all phases of a disaster. Consequently, we argue that if the measures taken within these other aspects take into account the geographical conditions and natural resource management within the country (and in a larger perspective also within the region), this constitute a capacity. Such considerations are encouraged by the HFA (ISDR 2005:10), which identifies sustainable use and management of ecosystems to reduce risk and vulnerabilities as one of their key actions.

There are a number of different activities that could be mentioned where the transfer of knowledge into actions is conducted in an appropriate way. For example the results of a risk analysis could be used to regulate the proper use of land and the appropriate construction design in areas with a high level of risk (Göllner-Scholz, 2004:13). Coppola (2007:188) discusses environmental control and mentions controlled burns, dune and beach restoration or preservation (storm surge erosion), riverine and reservoirs sediment and erosion control (flooding), forest and vegetation management (landslides mudflows, flooding, erosion), replacement of soil (expansive soil), hillside drainage (landslides mudslides erosion), slope grading (landslides mudslides rockfalls erosion). In our opinion there are no universally applicable solutions, instead different countries must assess their situation and chose appropriate actions accordingly. Capacity with regards to this aspect is thus created if acting appropriately to the assessment and choosing the option best suited for the specific situation while adopting a sustainable approach.

To summarise this aspect, capacity and vulnerability can be created with regards to: the existing geography within the country; how the natural resources within the country are managed; awareness of geography, natural resource management and the associated risks as well as how well the knowledge is transferred into actions. It is also considered that capacity and vulnerability can be created in all levels of society and should be included when discussing DRR, Response and Recovery, respectively

7.1.2 Climate/Climate change

Climate as an aspect affecting the DMC is referring to the “weather” and the consequences of weather. It is defined as “the meteorological conditions, including temperature; precipitation; and wind, that characteristically prevail in a particular region” (The American Heritage Dictionary, 2004). The climate could be seen as the triggering event causing so-called disasters of natural origin, such as for example hurricanes and droughts. Below, we will focus on the effects the climate could have on the DMC as an enhancing or decreasing factor to a triggering event. Following this discussion, we will also briefly discuss potential effects of climate change.

Climate

In a similar way as discussed within the aspect *Geography/Natural Resource Management*, some countries will have meteorological preconditions making them more at risk to disasters. For example, if the climate in a country comprises long dry seasons, the risk for drought and famine will increase. If a country is subjected to heavy rains or landslides, mudflows will constitute a possible threat.

As mentioned previously, it is also considered that the climate could affect other parts of the DM process than the likelihood of triggering events, this since extreme climate will hamper different activities within the different phases. For example, if there are large seasonal variations in climate, it will be more difficult to create generally applicable risk assessments and assure the capacity to respond to all potential needs during all seasons are catered for. Extreme climate could also hamper the response and recovery phases through for example heavy rain or extreme heat. Consequently, climate has, in addition to being the direct cause of some of the disasters classified as disasters of natural origin, a direct impact on the entire DM process. The discussion within the aspect *Geography/Natural Resource Management* regarding how the geographical conditions could affect the DM process from a national to a local scale is also valid when discussing the effects of climate. Both top level decisions as well as household level decisions will have to take the climate into consideration when discussing DM activities.

Anderson & Woodrow (1998:13) who identifies climate as one aspect that should be investigated in relations to capacity and vulnerability, also underpin the discussion above. Strategies for reduction of disasters should take into consideration the existing climate and planners, engineers and other decision-makers should take climate into consideration (ISDR, 2005:11, 15). Different features of climate are considered to be, but not limited to:

- Temperature;
- Rainfall averages;
- Wind;
- Snowfall and snowmelt averages;
- Seasonal trends in severe storms and cyclonic storms;
- Seasonal drought; and
- Lightning.

There are hence a number of features within the climate aspect that could affect the DMC, but we have yet to outline what would create capacity or vulnerability with regards to climate. There are many similarities with the previous aspect *Geography/Natural Resource Management*. The discussion within the previous aspect regarding how capacity or vulnerability could be generated from the given conditions of the country²⁵ (read climate); knowledge about these conditions;

²⁵ It is also important to consider that climate should be looked at in a broader perspective including neighbouring countries since the climate in a neighbouring country might cause effects across the borders.

knowledge about the risks associated with these conditions; and how knowledge is transferred into actions is therefore directly applicable to this aspect. We will thus not reproduce such arguments, but instead refer to the thoughts presented in the aspect *Geography/Natural Resource Management*.

Climate change

Within this sub-aspect we turn the attention to a topic that is very much in the news these days all across the world, namely climate change. With the purpose of this section of the project in mind, being to create a framework that can be used when analysing different models²⁶, this would imply that the aspects discussed herein should focus on the current situation within a country. A fair question is then how much climate change affects the current situation. Is climate change not something that will take place in the future and hence not a part of the current situation?

As perhaps noted we have in fact already looked slightly beyond the current situation and also included parts that will affect the near future. We found it impossible to look at the current situation without at least glancing at the future, this to assure that no major changes that could be foreseen could affect the DMC and thereby would be relevant to consider. We have for example identified that knowledge transferred into relevant actions as one aspect that could contribute to create capacity. Thus, sub-aspects that could affect the near future have already been included. We would here like to use the similar arguments when discussing climate change. Dramatic changes are occurring in the earth's climate with a rapidly increasing speed (Coppola, 2007:70). The UN in particular and the global community in general, have recognised that nations must adapt to these changes and prepare for a possible increase in catastrophic hazards (Coppola, 2007:534). We strongly believe that climate change will affect the entire time- as well as space dimension and that climate change and the effects thereof will need to be considered from bottom to top level decisions, prior to and after a disaster.

The effects that climate change could have on the DMC could be considered direct since scientist expect that an increased average temperature will produce more dramatic metrological events such as storms, floods, drought and extreme temperatures (Mileti, 1999:3 & Coppola, 2007:534). Climate change will probably also increase the frequency and move disasters to new locations (Wisner et al., 2004:136). Many areas may therefore be exposed to "new threats" and countries that have not yet experienced disasters must take this into consideration. To only look at historical data and claim that "such hazardous events would never happen here" is therefore not an acceptable approach. Climate change is in our opinion unquestionably occurring and is therefore included as one aspect that should be considered when assessing a country's DMC.

Thus we do not consider it to be sufficient to only consider data over present and historical climate and assess how such climate could affect the DMC. Instead, for a more comprehensive analysis, possible climate within at least the near future must also be included into strategies for reduction of disaster risk (ISDR, 2005:11, 15). Capacity or vulnerability is considered to be created in a similar way as with climate and geography, i.e. generated from knowledge of likely effects of the climate change; knowledge about the risks associated with the climate change; and how well this knowledge is transferred into actions.

²⁶ I.e. models that are used to evaluate a country's disaster risk management capacity

7.1.3 Infrastructure

The aspect *Infrastructure* incorporates human-made constructions and systems, which serves certain functions in everyday life. These systems include transportation systems (road, railways, air, waterways etc.); different types of supply systems (water, electricity, sanitation and communication); and critical facilities (such as hospitals, schools, libraries etc). We have also chosen to include industrial sites within this aspect. Apart from being a potential trigger of a disaster, (for example Bhopal in India 1984, Seveso in Italy 1976), industrial sites could constitute an enhancing risk factor during an earthquake, storm or other nature-related event.

Infrastructure is a major part of everyday life and in addition to the “normal functions” of the infrastructure systems; they could also have a slightly different but very important function in the context of DM. For example, a transportation system could be used for facilitating evacuation. During a disaster, the DMC will in many senses rely on, and also be limited by, the existing infrastructure. For these reasons, infrastructure is considered to be an important aspect with regards to a country’s DMC. It is considered that a well designed and functioning infrastructure could limit the consequences of a disaster and facilitate for a swift recovery, an argument that will be explained in further detail below.

Initially, prior to discussing each type of infrastructure in more detail (i.e. transportation systems, supply systems, critical facilities and industrial sites), we will discuss how capacity or vulnerability could be created in general terms, applicable to all types of infrastructures. More specific and detail discussions on how the different types of infrastructure relate to the DM process and how they could affect the DMC are then conducted within separate sections, each type of infrastructure under a separate sub-aspect. Furthermore, both the function of the infrastructure as well as all the physical constructions/buildings/systems that are necessary for the intended function are included and discussed within this aspect.

To start from the beginning, infrastructure is considered to be the backbone of today’s societies, having an immense impact on many other vital functions. Protecting the infrastructure should therefore have a high priority. Coburn et al. (1994:34) states for example that “the reliance of industry and the economy infrastructure – the roads, transportation networks, power, telephone services etc. – means that a high priority should be placed on protecting these facilities: the consequential losses of failure are costly to the whole community”. Furthermore Mileti (1999:128). states that the ability of the built environment (including public utilities, transportation systems, communications, and critical facilities) to withstand the impact of extreme natural forces plays a direct role in determining the number of lives lost, the number and severity of injuries, and the financial impact of a disaster. Accordingly, the resilience and redundancy of infrastructure are of outmost importance, not at least from a DM perspective, and it is therefore considered that resilient and redundant infrastructure constitute a capacity.

Assuring the safety of buildings is a fairly natural objective when discussing infrastructure such as for example critical facilities (hospitals, educational facilities etc.) as well as industrial sites. Nevertheless, transportation systems also requires buildings in terms of airports, bus-, railway- and subway stations, as does supply systems, in terms of water treatment plants, electrical power plants etc. All these buildings need to be able to withstand the impact of a triggering event such as seismic activity, flooding or cyclones. Making these constructions resilient to impact requires that they can be identified as well as knowledge and comprehensive understanding of why they are important and how the failure of any such facility could affect the DMC. Thus it is considered that the presence of such knowledge, and that the knowledge is being acted upon, creates capacity.

Appropriate planning and regulations are factors that could ensure that critical infrastructure systems are situated on safe locations and that they are built according to the potential threats. Experience from past disasters has shown that this is not always the case. One example is the death of many people in India (Divi Taluk region) during a devastating combination of a cyclone and high tide in 1997 (Wisner et al., 2004:253). The high number of deceased was to a large extent due to lack of public shelters of good quality and due to that those buildings perceived as safe (schools, temples, administrative headquarters) were located in low-lying land. Several other examples from the past have shown that educational facilities have been severely damaged during the triggering event of a disaster. During the Kobe (Japan) earthquake in 1995 a surprising 85 percent of all schools were damaged and had the tremor occurred only a few hours later, during school hours, the outcome would have been devastating (Wisner et al., 2004:296). The tragic losses of children due to a mudflow in Wales, children being crushed under their desks in El Salvador during a seismically generated structural collapse, and loss of many lives in Egypt when trying to evacuate school buildings during an earthquake are further examples of this (Alexander, 2002:218). Such tragedies might be preventable with better planning (Ibid.). Thus, capacity is also created through adequate planning and regulations. Furthermore, it is also important to consider the potential effects of either totally or partly destroyed infrastructure when planning for DM. Such considerations also contribute to create capacity.

Additionally, it is important to make certain that potentially damaged infrastructure could be effectively and efficiently repaired. Coppola (2007:276) discusses the importance of maintaining the so-called “critical infrastructure”, in which he includes transportation systems, supply systems and critical facilities, among others. Repairing and reconstructing critical infrastructure require not only specialised expertise, but also equipment and parts that may not be easily obtained during at least the most critical time of a disaster (Ibid.). This thus needs to be considered within the DRR phase and if done appropriately, constitutes a capacity for the DM process.

Another central issue is the importance of de-concentration. Coburn et al. (1994:32) gives one example of the importance of de-concentration of elements at risk when discussing the collapse of the central telephone exchange in the Mexico City earthquake of 1985, which cut the communications in the city completely (for discussion on the importance of functioning communication system, See the aspect *Disaster Management Organisations*). Services provided by one central facility could cause larger consequences if exposed to a threat since more people rely on them than those provided by several smaller facilities. The same principle applies for example equally to hospitals and schools as it does to power stations and water treatment plants. Thus, if critical infrastructure is de-concentrated, this is considered a capacity from a DM perspective.

Finally, access to the infrastructure (excluding industrial sites) is considered to be a general issue that could create capacity or vulnerability. Inadequate access to safe water, sanitation, health care, education etc. for a large portion of people around the world and its link to DM are highlighted throughout UNDP (2004). This issue has been touched upon several times within this report, and we will settle here with stating that it is important to ensure that all persons have adequate access to infrastructure during all stages of a disaster, and that access is an important factor contributing to create capacity.

Below, we will discuss four different types of infrastructure, including their importance for the DM process and how capacity and vulnerability could be created related to the three phases of a disaster (prior to, during and after a disaster). The discussions below are carried out within four sub-aspects, one for each type of infrastructure:

- Transportation systems;
- Supply systems;
- Critical facilities; and
- Industrial sites.

Transportation systems

The first sub-aspect, “Transportation systems”, incorporates public transportation systems such as roads, railways, air- and waterways and port facilities, both the structural networks per se, but also the vehicles or means of transportation i.e. cars, busses, trains, aeroplanes, boats etc. The associated buildings have been discussed earlier within this aspect and are hence not included within this sub-aspect. The transportation systems could affect the DMC as it affects the ability to distribute resources, both material and immaterial resources.

Prior to a disaster a country’s transportation systems will have a great influence on the everyday life of people, which, highly affects the DMC. For example, the transportation opportunities are essential to ensure the possibility to look for work elsewhere if located in areas with a high level of unemployment and to enable the export of locally products (even if only to the local market). The importance of these matters is further discussed under the aspect *Financial Factors at Individual/Household Level*. The examples above are just a few, which highlights the importance of the transportation system during everyday life. Thus, an adequate transportation system during everyday life is considered to create capacity.

Moving closer to a triggering event, there is often a need for evacuation. The ability to evacuate is strongly dependent on the means of transportation available, both the structural networks as well as access to vehicles. Experience from past disasters has shown that the ability to evacuate affects the chances of surviving, and such ability is often closely linked to social class²⁷. Wisner et al. (2004:262) gives one example on this, when discussing a cyclone that hit the Indian coastal state of Andhra Pradesh in 1977. The wealthier farmers and petty officials, who had better access to motor vehicles, were able to more easily evacuate and survived to a much greater degree than poorer people. The importance of access to transportation in the event of an evacuation was also evident after the hurricane Katrina 2005 in New Orleans, USA. The majority of people with access to their own means of transportation had already evacuated New Orleans prior to the hurricane hit the coastline (many who had cars still chose to remain either out of tradition, because family members were in hospitals or serving in critical positions for the response to the hurricane), while the ones with no access to own means of transportation had to rely on the arranged evacuation (C. Brown direct communication on the 17th of April 2007). Thus, capacity is created if it is ensured that there are sufficient means of transportation to accommodate the needs of the people at risk. It is likely that many people will need to be evacuated by buses, boats, or trains, which thus also have to be resilient. Consideration must also be taken to “special needs populations”, such as the elderly, the sick, children, the disabled, etc. (Coppola, 2007:258). Consequently, access to adequate and resilient means of transportation, catering for the needs of all of the population, creates capacity.

In relation to the response phase, the transportation systems affects the ability for the affected area to receive help as it enables or restrict personnel and material to reach the affected area. Loss of important transportation systems could lead to people becoming isolated. Additionally, already “relatively isolated” groups within rural areas might not have adequate access to media or other means of communication enabling them to receive warnings. Their situation could hence become

²⁷ The fact that access to infrastructure, or more specifically related to this aspect: access to transportation, constitutes a capacity was also discussed above within the general remarks on infrastructure.

troublesome if the transportation systems, their only mean of communication, were cut off (for further discussion regarding early warning, see the aspect *Early Warning Systems*).

Thus, we consider it to be a capacity if there are adequate, resilient and redundant transportation systems for everyday life and for DM purposes, including both private and public transportation. Public transportation systems should also consider special needs populations and facilitate for everyone's evacuation.

Supply systems

The aspect "Supply systems" incorporates systems for water, sanitation, electricity, and communication, which are systems that are essential for people's standard of living on an everyday basis. One of the agreements of the Johannesburg Summit (reproduced from Wisner et al., 2004:350) recognises the importance of three of these systems: "Water, sanitation and energy initiatives hold the potential to significantly decrease the vulnerability of millions of urban and rural households". It is also stated that "The indirect effects of improved access to water and energy could be the enhancement of livelihood options as well as savings to households in terms of reduced health care cost". Wisner et al. (2004:329) further states that:

A healthier labour force can work harder and perhaps more productively, and indeed water and electricity could provide the basis for new rural and home-based income opportunities. Natural hazards research has repeatedly shown that it is not only better-organised localities that have the capacity to resist extreme events and the resilience to recover quickly, but localities composed of well-nourished and healthy individuals and households with diverse and productive livelihoods.

Furthermore, Wisner et al. (2004:329) state that "the direct benefits of water and energy in villages and slum would be to cut the appalling present death rate of thousands of children each day from diarrhoea". In relation to energy, Wisner et al. (Ibid.) claims that the "use of renewable energy for domestic purposes such as cooking would prevent the cutting of trees that anchor slopes, thus preventing landslides and reducing the risk of flooding". Thus, the provision of safe water, sanitation and electricity has a great influence on the health status of the population, which if considered in the context of disasters, to a large extent affect the peoples coping mechanisms. Additionally, many other vital functions within society (such as for example health care) are dependent on the provision of water and electricity, both during everyday life and under the extreme conditions of a disaster. Consequently, adequate, resilient and redundant provision of water, sanitation and electricity as well as the knowledge of how these systems could affect the DMC creates capacity.

The provision of communication systems for everyday life, such as telephones and internet, is also of great importance. In combination with other types of transportation systems these systems could for example affect the dissemination of knowledge and skilled labour force, as discussed earlier within this section, which in turn could have a great impact on aspects such as *Public Awareness* and *Early Warning Systems*. More details about how capacity could be created in relation to awareness raising are discussed under these aspects. Here, we will simply acknowledge that communication systems are important from a DM perspective and can create capacity if adequate, resilient and redundant.

In addition to considering the effects these systems have on everyday life and the sequel impact on the DM process, sufficient provision of these systems could also indirectly reduce vulnerability to natural hazards during the response and recovery phases. The access to safe water is perhaps the most fundamental need of both people and livestock. Coppola (2007:262) argues for example that "even though many other basic needs, such as clothing, shelter, and even food, may go unmet for one or more days at a disaster's onset, both people and animals need a constant supply of water in order to survive". Capacity could hence be created if sufficient provision of water can be maintained

even during the most crucial times of a disaster. This would require resilient and redundant systems (including alternative water sources such as portable tanks etc.) and the ability to timely repair any damaged infrastructure.

Communication systems are from a DM perspective of utmost importance, especially during the response phase of a disaster. Damage to telecommunications and power facilities can have both short- and long term effects, complicating relief efforts (Wisner et al., 2004:246). Communication systems are essential for the provision of early warning systems and other alternative means of warning (Shaw & Okazaki, 2003:45) and for co-operation and co-ordination of aiding actors. How communication systems could either create capacity or vulnerability in relation to the response phase is further discussed within the aspect *Disaster Management Organisations*.

Sanitation issues can also become a staggering problem during the response and recovery phases of a disaster. Coppola (2007:271) states that “the affected population’s safety is dependent upon the ability of disaster managers to keep their living conditions relatively clean”. Coppola (2007:272) further underpins that the normal removal systems often are disrupted in a disaster’s aftermath and thus, how such services are to be managed under such circumstances needs to be considered. In addition to “normal issues” such as the collection and disposal of human waste; wastewater and garbage; and vector control, Coppola (Ibid.) concludes that there also needs to be consideration taken to matters such as fatality management; hazardous materials; pollution in the air, water and on the ground. The importance of these matters are also emphasised by Wisner et al. (2004:220) who discuss how flood waters can contribute to an increased risk of diseases (such as cholera and dysentery) due to sewage contamination of drinking water. It is therefore alarming that many megacities (e.g. Calcutta, Lagos, Mexico City) have sanitation systems based on drains and water mains that are at least 100 years old. Additionally, other cities, such as Howrah (a city of two million inhabitants), until quite recently had no sewers at all (Wright reproduced in Wisner et al., 2004:182). Capacity is hence considered to be created if the sanitation systems can function during the response and recovery phase as well as prior to a disaster, i.e. meet the needs of everyday life.

To summarise, as pinpointed several times and strongly emphasised within this report, the standard of everyday life to a large extent influences the DMC. Therefore, and in accordance with all the discussions above, adequate provision of water, sanitation, energy and communication systems creates capacity for all phases of the DM process. In order to ensure that these systems can withstand the impact of a hazard, it is important that there is an understanding and awareness of how they affect the DMC, thus, such knowledge create capacity. First after a comprehensive understanding, appropriate measures can be taken to ensure that these systems are resilient and redundant, which as pointed out in the beginning of this section is an important factor of the entire *Infrastructure* aspect. Finally, in order to provide the intended services, the supply systems in turn require for example: power generation facilities and transmissions; water purification facilities and pipes; wastewater treatment and sewer lines; gas lines, oil and transport pipelines; and oil and gas storage facilities. It is therefore essential to also consider the adequacy, resilience and redundancy of such auxiliary systems.

Critical facilities

The third sub-aspect within the aspect *Infrastructure* is *Critical facilities*, which refers to buildings associated with certain functions that besides from being essential during everyday life, also are important during the critical times of disasters, or buildings that are considered to be unique and impossible to replace. What should be counted as “critical facilities” could always be discussed. We have chosen to list and briefly discuss a few which we consider being generally applicable and vitally important for any country and not considered to be related to a specific hazardous event. This list

could obviously be supplemented with additional objects deemed to be critical facilities for a specific country. The critical facilities discussed herein are:

- Hospitals and clinics;
- Educational facilities;
- Emergency operation centres;
- Libraries and archives;
- Historically and socially important sites and buildings; and
- Government and other public facilities.

The importance of hospitals and clinics both in everyday life and in the context of disasters is rather obvious. The services provided by healthcare facilities are essential for ensuring our health in everyday life. Likewise, their service is essential in relation to injuries and/or diseases related to disasters. The provision of educational facilities is another fundamental part of society and essential for many of the other aspects discussed within this report. Including for example public awareness, the provision of skilled personnel within all of society, social status and gender related issues. We could make this list substantially longer and more comprehensive, but for the purpose of simply establishing that educational facilities are critical, especially related to the DRR phase and the Recovery phase of disasters, such elaboration is not deemed necessary. Other critical facilities could include facilities such as emergency operation centres (EOCs) and buildings containing databases crucial for the gathering of information and the co-operation and co-ordination of actors involved in the DRR, response and recovery from a disaster (for further discussions, see the aspect *Disaster Management Organisations*).

Less obvious, but still important to consider, are buildings such as archives and libraries (Alexander, 2002:251). Alexander (2002:251) states that “they represent accumulations of information, the fruit of years of work and, often generations of concentrated expertise; and they may be both precious and difficult or impossible to replace”. Such buildings, as well as for example museums and historically and socially important buildings and sites, are important to safeguard in order to preserve a country’s heritage. Finally, governmental buildings and buildings critical for finance are also considered to constitute critical facilities as it is essential that the government and the economy can function also during and after a disaster.

Other types of critical facilities are senior citizen centres; day care/child care centres; prisons and jail facilities. These might not be considered critical in the sense that they directly affect the response phase. Nevertheless, they are important both prior to and after a disaster and hence is it considered important to ensure their resilience towards threatening hazards.

Besides from creating capacity from their intended function, the above listed types of buildings could often serve also as public assembly points and shelters during times of disaster (Coppola, 2007:266-270). Capacity can then be created through identification of such meeting points and ensuring their safety through for example emergency plans and maintenance of the buildings.

If critical facilities are damaged during the impact of a disaster, the service they usually provide must somehow be replaced until repaired. This is the case for all critical facilities, but is perhaps most crucial for medical services. Emergency healthcare operations need to be established to accommodate the health needs of the affected population should the facilities that normally manage health issues be full, overtaxed, damaged or even non-existent (Coppola, 2007:270). Coppola (2007:279) points to that there often is a very high demand for health care also during the recovery phase, and that as the disaster progresses and the immediate emergencies have been managed, other healthcare issues will need to be addressed, with diseases being the primary concern. Thus, in

addition to the fact that the health care system might be damaged, the service demand could increase creating a higher pressure on already constrained resources. Therefore, it is considered a capacity if the critical facilities are flexible and can adapt for an enhanced need fulfilling their roles in a disaster situation as well as during normal circumstances.

Another function of the medical service that is important during and in the aftermath of a disaster (which has only been raised recently in relation to the field of DM (Alexander 2002:246)), is the need for psychiatric care. The psychological stresses that disaster victims face are extreme and without proper psychological care, victims may slip into depression (Coppola, 2007:277). Bishop (referenced in Wisner et al., 2004:293) gives an example of how one citizen group claims that 2,900 deaths were attributable either to suicide or neglect within temporary housing after the Kobe earthquake in Japan 1995. Alexander (2002:246) concludes that in places where no psychiatric services exist for disaster work, the disaster (emergency) planner may want to create such structure to facilitate for psychiatric help. Therefore, we consider it to constitute a capacity if the potential need for psychiatric care during and after a disaster is catered for. The psychiatric services might not be as restricted to buildings (critical facilities) as the rest of the medical services, but we have chosen to include it here since it is a function that needs to be fulfilled related to medical services. If extrapolating the discussions above about the need for continued services, similar reasoning could be held for other critical facilities as well.

To summarise, critical facilities are important during all phases of the DM process and capacity could be created if these facilities are both redundant and resilient so that their roles within society are maintained also during and after a disaster. This requires planning, both when constructing such facilities and when preparing for response and recovery. The critical facilities could also, in order to be able to operate, be dependent on other functions of society. For example the operation of medical facilities raises high demands on the provision of electricity, as well as access to medical supplies and educated staff (Coppola, 2007:271). If there is knowledge of the importance of critical facilities, including their auxiliary functions, if adequate recognition is given to their importance and if this is clearly being reflected upon in urban planning and in evacuation plans, this is considered to create capacity.

Industrial sites

The final sub-aspect within the aspect *Infrastructure* is *Industrial sites*, which refers to sites that manufacture, handle, distribute and/or store hazardous materials or materials. We do not intend to specify in detail what such sites could comprise, we simply refer to sites that if exposed to triggering events could enhance the consequences from the initial event and cause harm to people's health, safety and/or the environment. Such sites could be anything from nuclear power plants to clothing factories. Including "industrial sites" when discussing infrastructure could, as has already been mentioned, seem a bit far-fetched. However, industrial sites are man-made constructions that could affect the DMC. They are also highly dependent upon other systems discussed herein, such as transportation- and supply systems, and we found it more "natural" to discuss how industrial sites could affect the DMC here than elsewhere.

Different industrial sites possess various threats to the people and the environment in its vicinity depending on the specific industrial site, the processes and the types of material that is being handled. Risk analyses are required that takes into account, in addition to the "inherent risks", what could happen if industries are exposed to naturally triggered events. Support for this argument is given by Alexander (2002:243) who states that:

Assessments must be made of the susceptibility of buildings, equipment and storage facilities to damage, the effects of spontaneous damage on functioning equipment and its operators, the immediate safety of workers, the potential for toxic releases, and the

behaviour of materials (especially volatile and toxic chemicals) used in the plant under all circumstances, usual and exceptional.

Such assessments thus constitute a capacity in relation to the DRR process. Capacity is also created if the industrial sites do not noticeably increase the level of risk for a specific area. This means that the industrial sites should be able to maintain a high level of safety during a disaster as well as during normal conditions. Much research on causes of accidents highlights organisational issues rather than “human errors” within industries (Akselsson, 2006:1-11), and that it is in human’s nature to commit mistakes. Thus the systems used should cater for such errors. Instead it is required to have adequate warning systems, routines, reporting systems, exercises and revisions all which are components of a good safety management system. In our experience, the extent and coverage of existing safety management systems could vary widely between different industries, which we considered also reflect a difference in safety level. We therefore consider the safety management systems to be a describing factor of safety. Safety management system could be structured in accordance with frameworks such as COSO (*The Committee of Sponsoring Organizations of the Treadway Commission*, 2003). Coppola (2007:93) adds an important point to this discussion as he argues that although safety standards, procedures, and other measures often are in place, all of these are dependent upon a degree of enforcement and a level of environmental control. Thus an implemented and relevant safety management system would be a first indicator of the level of safety within an industry and also give some information about the level of risk that the industry poses to its surroundings.

Besides possibly enhancing the consequences of a triggering event, industrial sites could provide extra resources during the response and recovery phases if the companies have internal safety organisations. If such resources could be used and incorporated with external organisations, this is considered a capacity.

In accordance with the above, we consider it to be a capacity if the risks associated with the industries are low, if the risks associated with the industrial site are identified and thoroughly analysed, and that all relevant plans reflect the results from such analyses. Potential safety organisations could also constitute a capacity. To ensure safe operations of industrial sites we also consider it to be a capacity if safety management systems are used and implemented in the entire organisation. Finally, we consider it to be a capacity if the legal framework in a country clearly emphasise the importance of safety at industrial sites.

7.2 THE CULTURAL/SOCIAL/POLITICAL PROFILE

The previous profile, *The Physical/Environmental Profile*, could perhaps be considered a rather tangible profile where the included aspects could be seen and touched, whereas the contents of this profile, *The Cultural/Social/Political Profile*, might appear less concrete. Nevertheless, it is a profile that includes aspects that directly affects the DM process in that they for instance frame the way people perceive risks as well as also affecting the coping abilities of the people. This profile involves interactions between and knowledge of people and is hence a more people- and action centred profile compared to the previous one.

In a similar way as discussed previously, the name of this profile could always be questioned. Coppola (2007:149-158) for example identifies many of the aspects included herein under a profile simply referred to as “the Social profile”. Benson & Twigg (2007:103) on the other hand identify (among others) cultural, social, and political pressures as main areas and causes of vulnerability. Accordingly, there are several options when determining the name of this profile. The reason for including three factors within the name (i.e. cultural-, social-, and political factors), is based upon the opinion that they all contribute with different, although related, perspectives on aspects that could affect the DMC. However, the boundaries between them are not always clear. For example, the legal framework could be considered to originate from a political process that is based upon the social and

cultural situation within the country. One resemblance is that they all are centred on people and their activities. Thus we found that simply calling this profile *The Cultural/Social/Political Profile* would suit the purpose of our project.

The cultural perspective of different aspects has been included to highlight that old traditions and “the way things have always been done” will affect how people perceive risks and consequently, affect people’s actions during all phases of the DM process. Similarly, a social perspective has been included to more emphasise upon the interaction between people and between the government and the rest of society. This viewpoint includes for instance how coping abilities are affected by factors such as awareness and social networks. A political viewpoint has also been included to take into account the political processes of a society, both within a country but also between neighbouring countries and global relations, and how these could frame and affect the DM process. The political perspective is closely related to the legislative process discussed within the aspect *Legal and Regulatory Framework*.

The aspects included within this profile comprise: *Risk Perception, Indigenous Knowledge, Corruption, Media, Demography, Social Safety Nets, Public Awareness and Political Climate and Relations*.

7.2.1 Risk Perception

The first aspect within *the Cultural/Social/Political profile* refers to how people, such as the general public, disaster managers and decision-makers perceive risk and how this perception of risk should be considered within the DM process²⁸. We will begin this section by defining the concept of “risk perception” as used throughout this report, followed by a discussion regarding the importance of considering different stakeholders’ risk perception. Next, the discrepancy between calculated and perceived risks will be discussed as well as what adverse affects such discrepancy could cause. Finally, we will highlight a few examples of how risk perception could contribute to create capacity to the DM process.

What is “Risk Perception”?

“Risk Perception” refers to how people interpret and experience risk. There are a number of factors considered to cause people to perceive risks differently. Depending on the source of reference, such factors are described slightly different, as are their relative importance. One example of how such factors could be described is given by Slovic (referenced in Coppola, 2007:162) who identifies 17 risk characteristics that influence risk perception. Slovic’s factors include: if risks are dreaded; are uncontrollable; have globally catastrophic consequences; have fatal consequences; does not affect people equitable; affects a large number of people at the same time; involves high risk for future generations; can not be easily reduced; are increasing by time; are involuntary; affects the people questioned; are preventable; are not observable; are unknown to those exposed; have a delayed effect; are new; or are unknown to science. All these factors will, according to Slovic (Ibid.), affect how a risk is perceived. It is thus obvious that different people have different views on risks. As previously mentioned, other authors (e.g. Andersson & Lindsten, 2005 and Kammen & Hasenzahl, 1999) phrase the above listed factors in a different manner; however we consider the general contents to be similar.

²⁸ By ‘disaster manager’ we refer to any person working within the DM process. It is hence not considered that there should, or will, be one person responsible for the entire DM process, instead, a disaster manager simply refers to one of many persons working within, and responsible for a part of the process. By ‘decision-makers’ we refer to high-level politicians or other officials within different departments who is responsible for decision making within the DM process, acknowledging that it is rarely those who conducts risk assessments who in the end make the final decisions on suitable actions.

Risk perception of relevant stakeholders

From a national perspective, we argue that it constitutes a capacity if general trends of risk perception of relevant stakeholders are recognised. One important reason for this argument is that such understanding is essential in order to make appropriate choices of DM actions related to for example education, mitigation or preparedness activities. The knowledge of how risks are perceived by the “target group” could then be used when designing information campaigns and when educating the general public about hazards associated with a high level of risk. As an example, it would be difficult to convince people to build slightly more expensive, but earthquake resistant houses, if they did not perceive earthquakes as a “real threat”.

In the introductory part of this aspect we listed three main stakeholder groups: the general public, disaster managers and decision-makers²⁹. These are three groups that might view risks differently as they all have different roles and backgrounds. The importance of considering the general public’s risk perception is advocated by numerous authors and Wisner et al. (2004:95) for example states that such knowledge is crucial in order to enable improvement in risk awareness within the population³⁰.

Depending on the intentions of a risk perception analysis, it could be necessary to study risk perception at different levels, i.e. within different regions, societies, social classes, villages, neighbourhoods, genders, age groups etc. Consequently the risk perception of decision makers and disaster managers must also be understood.

The discrepancy between calculated and perceived risks

The importance of taking the risk perception of the general public into consideration and how risk perception could affect the DM process could also be derived from a commonly occurring discrepancy between how “professional disaster managers” calculate or estimate risk and how the general public perceive risk (Coppola 2007:162). A reason for such discrepancy could be that disaster managers often tend to look at calculated risks, that is the combination of probability and consequences expressed in numbers (Sjöberg, 2001:5), whilst the general public to a larger extent use a more subjective judgement based on their own experiences and preferences (Renn, 1998:54). Furthermore, even if the general public was presented with the same information as a professional risk manager, such discrepancy could be due to that the general public often find it difficult to interpret statistics about risks (Sjöberg, 2001:5). We argue that in order to bridge such discrepancy, a thorough understanding of the underlying factors of people’s risk perception is required, and thus such knowledge could create capacity. It is also important to be aware of the discrepancy so that hazards perceived as very dangerous are appropriately addressed as well. Such measures are important from a trust perspective (A. Enander direct communication on the 19th of April 2007).

Moreover, if studying the 17 characteristics outlined above, it should be relatively clear that it would be more of a coincidence than a regularity should a (by calculations) estimated level of risk correspond to the level of risk as interpreted by the general public. Research instead indicates that the general public often overestimate low likelihood risks and underestimate risks associated with high likelihood (Kammen & Hasenzahl, 1999:351-390). Thus, the most dangerous risks according to calculations are many times not perceived as the most dangerous risks by the general public, thereby receiving the most attention (Coppola 2007:162). Given the 17 characteristics it is also obvious that

²⁹ When referring to the risk perception of any group, such as the general public, we thereby do not imply that the members of this group have one homogenous perception of risk. Risk perception is, as an effect of the many influencing factors outlined by Slovic (referenced in Coppola 2007:162) above, indeed very individual.

³⁰ Other authors who advocate the importance of taking the general public’s risk perception into consideration include Twigg (2004:136), Coppola (2007:169) and Shaw & Okazaki (2003:85).

how people perceive risk will depend on how much they know about the different risks, their relation to specific sources of risk as well as the accuracy of the provided information about risks. The link to the aspect *Media* is thus fairly straightforward since *Media* is one of the primary information channels about risks (Coppola 2007:162). *Public Awareness* is also an important aspect that is closely linked to risk perception since knowledge of risks will influence the perception of that risk.

Effects due to the discrepancy in risk perception

People respond to hazards they understand and can relate to (Coppola, 2007:162). The discrepancy in perceived risk and “calculated risk” could hence cause the general public to disagree with suggested or already effectuated risk reducing measures. Some DM actions could therefore be deemed successful amongst parts of the population whereas other measures would fail to achieve their purpose (Twigg 2004:136). The discrepancy in perceived risk could also affect the level of risk considered acceptable and the amount of responsibility that is placed on the authorities with regards to various risks.

Risk perception will also affect the communication between the general public and decision-makers, which could be further obstructed if not incorporating cultural contexts to risk communication. As pinpointed by Coppola (2007:237) “risk communicators must fully understand the ways in which not only their words but also their actions, tone of voice, gestures, dress and approach to discussion will influence the efficiency of their message”.

How risk perception could create capacity

In accordance with the discussions above, we consider it to be a capacity if there is knowledge about how different people perceive risks and how the discrepancy of risk perception within different stakeholder groups within society could affect the DM process. Acting upon such knowledge, i.e. basing relevant decisions upon the likely perception of the target group obviously constitutes further capacity. As a concluding remark, we recite Renn (1998:49) as he states that “risks are always mental representations of threats that are capable of claiming real losses”.

7.2.2 Indigenous Knowledge

Indigenous knowledge is included as an aspect that could affect the DMC to acknowledge the fact that disasters have always happened and although causing death and destruction, there are also survivors. Consequently, there is knowledge, skills, praxis and experience within the society about how to safeguard assets and livelihoods, local knowledge which could be referred to as “Indigenous knowledge” (Twigg 2004:131). Twigg (Ibid.) specifies indigenous knowledge to include a variety of different features including for example technical expertise in seed selection and house-building; knowing where to find certain wild foods; economic knowledge of where to buy or sell essential items or find paid work; and knowledge of whom to call upon for assistance.

The importance for development- and relief/recovery workers to appreciate and recognise indigenous knowledge is, among others, emphasised upon by Twigg (2004:131). Projects that take consideration to such knowledge are more likely to be sustainable since they are based on local prerequisites (Ibid.). Further, they are more likely to be designed to correspond to social values and customs (see the aspect *Risk Perception*. The Yokohama Strategy (ISDR, 1994:13 out of 18) gives further recognition to the importance of indigenous knowledge as one of the recommended actions comprise: “aim at the application of traditional knowledge, practices and values of local communities for disaster reduction, thereby recognising these traditional coping mechanisms as a valuable contribution to the empowerment of local communities and the enabling of their spontaneous co-operation in all disaster reduction programmes”.

In our opinion, indigenous knowledge is important at all levels of governance, be it the whole nation or within different types of organisations, businesses etc. Within most countries there is, at least to some extent, a history of disasters, which means that different actors throughout society and at all levels have in some form experienced some sort of stress, shock or even disaster. Such experience and knowledge is very valuable in order to prepare and respond effectively to future threats and it therefore constitutes a capacity if it can be ensured that such knowledge is not lost over time. This includes taking measures to ensure transfer of knowledge when people change positions within organisations. Accordingly, the importance of local knowledge should be reflected within other aspects such as Planning and training within the aspect *Disaster Management Organisations, Early Warning Systems, Legal and Regulatory Framework, Public Awareness* etc. Furthermore, local knowledge should also be considered within all phases of the DM process due to that different types of knowledge are applicable within different phases of the process. For example; how to adjust constructions to the specific surroundings (prior); knowledge about how to best take shelter during a coastal storm (during); and knowledge how to access resources when recovering from a disaster (after), are a few examples of the effects of local knowledge on the different phases in the DM process.

One example of how indigenous knowledge have reduced the consequences of a disaster is given by Coppola (2007:151) when referring to a group of people in Gujarat, India, who after a severe earthquake in 1819 adapted to the use of traditional styled, single-storey, round houses. The specific houses were shown to be extremely valuable when an earthquake struck the area in 2001. Not a single one of the houses was destroyed despite that the earthquake in total killed over 20 000 people (primarily as a result of residential structural failure in other types of buildings). Thus, their indigenous knowledge from previous earthquakes had reduced the consequences during the 2001 earthquake for the people living in those houses. Subsequently, less seriously affected people involves less constrains on a country and its response to a disaster and hence, such experience constitutes a capacity to the country's DM process. The example above is only one example of how indigenous knowledge could be valuable with regards to the DM process and there are undeniably many other ways in which such knowledge could be of great value.

To summarise indigenous knowledge does in many cases comprise proven methods on how to handle disasters and could be a cost effective and locally accepted ways to do so. Thus, taking such knowledge into consideration might be a sustainable way of reducing the consequences of a disaster. Capacity is created if local knowledge is incorporated and governed within the entire process and given adequate attention when choosing mitigation and preparedness activities as well as in planning. We will end the discussions in this aspect by quoting Twigg (2004:132) "Old skills, knowledge and technologies are not inherently inadequate. New technical approaches are not automatically superior".

7.2.3 Corruption

Corruption is a notion commonly referred to within DM literature, however seldom defined. After reading various literature and looking at different definitions, it is obvious that corruption involves a very broad area of society and that it can take a number of different shapes. Based on a number of publications, we have chosen to describe corruption in a way that we see fit the DM perspective, namely that corruption means: "the general concept, which literally means to destroy. It is commonly occurring and takes many forms with different types of participants, settings, stakes, techniques and different degrees of cultural legitimacy. It causes a part of the system to either not perform the duties it was originally intended to, or perform them in an improper way, to the disadvantage of the system's original purpose".

Corruption counteracts many of the important endeavours of the DM process and hence affects a country's capacity negatively. One example is given by the UNDP (2004:22) in relation to the earthquake in Turkey 1999. The systematic corruption was a contributing factor to sub-standard constructions and failure in building regulations, which led to high rates of building failure (Ibid.). Twigg (2004:18, 198) gives two other examples when assigning corruption to be one of the causes of the 2002 food crisis in Southern Africa and states that corruption is one of the reasons for land-use regulations to be weakly enforced in many developing countries. Furthermore, both the index method within UNDP (2004), and other publications such as Kohler, Jülich & Bloemertz (2004:46), identifies corruption as a cause of vulnerability. Thus, corruption increases the likelihood of larger consequences of disasters.

A problem with corruption is the often long-term effects. For instance, if discussing building construction, the effects of sub-standard constructions will not be revealed until the construction is put to the test, which might be long after the date of construction. The Department for International Development (2006:11) recognise this problem, and outlines efforts to reduce corruption and to strengthen building codes and land use as one of their activities to reduce disaster risks.

As per the above, corruption could have a large impact on DRR activities. Likewise, corruption could also adversely affect the response and recovery phases of the DM process. The effects corruption could have on the response and recovery are for example discussed by Coppola (2007:531) who states that corruption does not disappear when a disaster strikes. Power might be misused during those phases as well, which in turn would reduce the effectiveness of the help aimed at the affected population. To exemplify this issue, Coppola discusses occasions when disaster victims have been forced to pay money to be included on relief and recovery registers and when relief supplies simply disappeared. Thus, corruption does not only undermine the work of response and recovery agencies but also causes additional suffering for victims (Ibid.).

Coppola (Ibid.) underpins that corruption exists to a varying degree in all countries' governments, businesses and general populations, which means that corruption could affect all levels of society as well as all levels of government. Coppola (Ibid.) specifies a number of ways that corruption may increase vulnerability:

- Through building inspectors neglecting regulations against payments;
- Through building constructors reducing structural stability to increase their profit;
- Through government officials sidetracking money earmarked for DM activities;
- Through government executives misusing loans from the international community;
- Through government distribution of relief to people they know instead of the people in most need; and
- Through transportation carriers neglecting safety regulations to cut operating costs.

In summary, the presence of corruption has adverse affects to the whole DM process, both in time and space. It could also have long term consequences that will not be evident until after the occurrence of a triggering event. The effects of corruption will vary depending upon what area is corrupted, but in general it will cause the system to not perform as intended, which is likely to increase the consequences from any impact or trigger and hence, vulnerability is created through corruption. The effects of such vulnerability will in turn affect the level of capacity in many other aspects such as; *Infrastructure, Demography, Social Safety Nets, Geography/Natural Resource Management* etc. We would therefore like to stress that corruption, being such an important factor when considering DMC, is an aspect that needs to be accounted for when assessing a country's DMC. Moreover, only the lack of corruption, the knowledge of its effects and actions taken to limit the

level of corruption could be considered to create capacity in this context. In all other senses corruption is creating vulnerability.

7.2.4 Media

The aspect *Media* is an important and also interesting aspect to discuss in the context of DM. Discussions that are fairly new but increasingly occurring within the field of DM (Mileti, 1999:225). Media can be defined as “the means of communication as radio and television, newspapers and magazines that reach or influence people widely” (Dictionary.com, -). We would like to add the Internet to this list, which nowadays is gaining greater acceptance as a primary form of communication (Coppola, 2007:235).

We argue that media holds important and different roles as a distributor of information during all phases of a disaster (prior to, during and after) and therefore affects the DMC in different ways during the entire process of Disaster Management. Further, media are considered to be present at all levels of society with both local and national coverage as it constitutes a link between the general public, disaster managers and the government.

Obviously the importance of this aspect will vary greatly between different countries depending on if media is capable of providing sufficient coverage and if it is possible for the media to disseminate the information to the general public (or at least a large part of the general public).

Below, we will discuss the direct influence media can have on disasters and how this will impact the DMC. The sub aspects for media are divided based on the time aspect of a disaster and include:

- Media’s roles prior to a disaster;
- Establishing a picture of the current situation;
- Information to affected people and aiding organisations; and
- Critical viewing the performance

Media’s roles prior to a disaster

The two major roles of media prior to a disaster are ideally considered to comprise a probing role and an awareness-raising role (Thelander, 2007). The probing role comprises critically and objectively analysing the society and its leaders, thereby working as a controlling function of the authorities, pointing out deficiencies regarding all aspects of DM related issues (unacceptable risks, lack of resources, organisational inadequacies, misuse of power, etc.). The existence of such function is important in order to assure that efforts related to DRR is constantly moving forward, and should also assure that the general public are aware of the government’s actions and the vice versa. Thus, the probing role of media plays an important role for the entire DM process. This said, there is a close link between the probing role and media being an independent “institution” i.e. not under the control of the government. This is discussed more under the aspect *Political Climate and Relations* but basically we conclude that if the government to a large extent controls media, media will have problems fulfilling their probing role. There is therefore a fine balance of where involvement of the government could be considered beneficial (such as funding) and when it on the other impedes the probing role.

The other role of media mentioned above, the awareness-raising role, is important as it could assist in providing a picture of the current situation within the country (as well as in neighbouring countries and in a more global context). By shedding light on the existing circumstances, media could raise awareness both among the general public, the disaster managers as well as among the decision-makers. Mileti (1999:225) who states that “good science reporting can educate the public about hazards, and in-depth stories can help provide the basis for informed hazard reduction decisions”

pinpoints this role. The importance of media in this context is further emphasised by the HFA (ISDR, 2005:10), which advocates “the engagement of the media in order to stimulate a culture of disaster resilience and strong community involvement in sustained public education campaigns and public consultations at all levels of society”.

Raising awareness amongst the general public is an important issue affecting the DMC and is discussed further under the aspect *Public Awareness*. Awareness amongst the decision-makers is discussed in more detail within the aspect *Political Climate and Relations*. Media could for example point out what areas need further attention, as well as what constitutes the major concern amongst the general public. We will settle with arguing that if media raises awareness amongst the general public, disaster managers as well as the decision-makers, media contribute to create capacity for the DM process.

Consequently, for media to fully constitute a capacity in a DM perspective and in the contexts discussed above, media need to carry out the probing role free from restricting control of the government. Furthermore, media personnel need to have knowledge about finding the root-causes of a disaster rather than pointing only at the “symptoms”. This is emphasised by Wisner et al. (2004:202) when discussing the shift amongst media towards suggesting that flood disasters are happening because people and buildings are in the wrong places on flood-prone land rather than raised water levels. Furthermore, the media need to be impartial, objective and give constructive criticism and hence not publish misleading or censored information, with the purpose being to enable improvements rather than trying to find someone to blame. Thereby, media have the ability to raise awareness of DM related issues amongst all relevant stakeholders.

Establishing a picture describing the current situation

This sub-aspect refers to Media’s ability to assist in providing a “snap-shot view” of the current conditions of the affected area during the response phase of a disaster. This role is different from the roles discussed above mainly due to the limited amount of time at disposal and hence, the time factor will be important. A snapshot view includes for example describing the immediate consequences of a disaster, i.e. the extent of the impact, the area affected, who and how many that are affected and possibly what their immediate needs are. Having a correct, clear and timely picture of the extent and magnitude of the damage is crucial for enabling the provision of need-based assistance.

Media could provide an invaluable service during the initial critical moments of a disaster. Alexander (2002:255) states: “information is one of the most vital commodities in disasters and it tends to be in short supply precisely when demand is greatest”. An episode from the response to hurricane Katrina that hit New Orleans in the USA 2005 can serve as a recent example. The authorities were unaware of the 20 000 people waiting for assistance in the Convention Centre until this was pointed out repeatedly by the media (C. Brown direct communication on the 17th of April 2007).

Notwithstanding the above, it is important to bear in mind that media must generate an income. This causes the role of media to be neither unquestionable nor simple. What is being reported in media is a matter of newsworthiness (Alexander, 2002:256). There is a tendency for events that cause the most deaths and damage to receive the most attention thereby not giving slow-onset disasters such as famines etc. sufficient attention (Wisner et al., 2004:218). Mileti (1999:225) states that “disasters are framed by news organisations in ways that can be misleading and especially oversimplified”. There is also a concern that the myths associated with disasters are kept alive by media. Mileti (Ibid.) further states: “to the extent they perpetuate myths about disaster behaviour, the news media convey unrealistic impressions about disaster-related needs and problems, potentially leading both the public and decision-makers to worry about the wrong things”. Hence, correctness of the

information distributed by the media is crucial. As Mileti (1999:225) points out, media can convey erroneous impressions about the magnitude and even the location of disaster damage. Mileti (Ibid.) adds weight to this claim by discussing that San Francisco was characterised as virtually in ruins after the Loma Prieta earthquake 1989 in San Francisco, when in fact the city was only selectively damaged.

In summary, media constitutes a capacity for DM if they can provide a correct, timely and clear picture of the current conditions during a disaster. For this operation to go smoothly and to avoid any mistakes and mistrust issue, this co-operation between media and the Disaster Management Organisations³¹ (DMOs) should preferably be incorporated and implemented in the disaster planning (Alexander 2002:256). The recognition of media's role in planning constitutes a capacity.

Information to affected people and aiding organisations

Within the following section, we will discuss how the use of media as a communicator could affect the DMC during the response and recovery phases of a disaster. During these phases, the most important role of media is considered to be neither as a control function nor as awareness raisers, but to assist both authorities in their effort to aid the affected people and to provide information the ones in need.

Alexander (2002:256) claims that "the mass media, (including radio, television, newspaper, magazines and Internet-based newsfeed) are one of the principal links between the disaster response community and the general public". Furthermore, Alexander (Ibid.) states that "for survivors, the public and even, to a certain extent, the suppliers of national and international aid, television, radio and newspapers will usually be important sources of information about disasters".

Media could be used by the DMOs and other aiding organisations as a channel to reach the affected people. Coppola (2007:235) claims that "risk communicators regularly employ the media to convey a message to a target audience". This is especially the case during sudden-onset disasters, and the media then constitute the primary, if not the only, source of communication between emergency response officials and the public (Ibid.). "Effective warnings broadcast through the media are widely credited with reducing casualties from hurricanes, tornadoes, and floods" (Mileti, 1999:225). In taking on this role media have hence shouldered a great responsibility (Coppola, 2007:235), and thus plays an important role in providing the affected people with information. As per the quotes above, this communication is not only directed from the response officials to the affected people, but also the other way around, i.e. from the affected people to the response personnel. The aiding actors and organisations could hence benefit from the information provided by media. As already discussed, media can help establishing a picture of the current situation which is a crucial step towards effective and efficient aid. Mileti (1999:225) further claims that "media can help speed up assistance to disaster-stricken areas". Due to the important function media has as the link between the disaster response community and the general public, it is imperative that the emergency plan makes full provision for involving the media so that the public is properly informed (Alexander, 2002:256).

In the above discussions it is important to also consider the issue of access to media. For example, Internet is an ineffective medium for reaching many audiences, especially in the Middle East, Africa, South Asia and Latin America where most of the 5.5 billion people who do not have access to Internet live (Coppola, 2007:235). Coppola (Ibid.) states that the issue of lack of access to media also comprise older communications technologies as well, including radio, television, and telephones, and thus questions the effectiveness of using such forms of communication in LDCs. Thus, as Coppola (Ibid.) pinpoints, it is important to identify and utilise alternative, non-technical forms of

³¹ For further explanation of Disaster Management Organisations see the corresponding aspect.

communication channels. Nevertheless, even if access to media is present, the receiver needs to interpret the message, understand the contents and act appropriately afterwards. These issues are further discussed under the aspect *Public Awareness*.

To summarise, in the context of media as distributor of information, media creates capacity if they provide correct information to both the ones in need and the aiding actors and organisations. In order to create capacity, the information need to reach the receiver, who require access to media, the ability to interpret the message and act accordingly. For effectiveness and efficiency, it is considered a capacity if the co-operation between media and the emergency officials are included and implemented in disaster planning.

Using the “Window of Opportunity”

This sub-aspect refers to the role of media during the recovery phase of a disaster, where the role of media, to some extent, is similar to the initial step, i.e. the probing and the awareness-raising functions.

During the recovery phase of a disaster there is again time to review the performance of different actors. Such audit could affect the DMC in the sense that it could highlight the cause of the disaster (including so-called root causes and not only the triggering event), what was done well and what was less successful, as well as neglected areas in need of improvement within all of society. Thus, media have the possibility to facilitate for the use of the so-called “window of opportunity” (as defined by Alexander (2002:8)) meaning that after a disaster, media could turn the current attention to DM to address disaster risks in order to prevent similar events to re-occur. Therefore media using “the window of opportunity” to increase efforts to reduce the risk of triggering events to occur or escalate into a disaster is considered a capacity.

7.2.5 Demography

The aspect *Demography* is centred on the population of a country and the characteristics of the people. Albeit it might seem natural to simply call this aspect “Population”, we decided to name it *Demography*. Looking up demography in a dictionary one of the definitions available is “the study of the characteristics of human populations, such as size, growth, density, distribution, and vital statistics” (*The American Heritage Dictionary*, 2004). We found this definition quite useful since it, besides from identifying the more obvious factors (or demographics) being size; growth; density; and distribution, also gives room for incorporating other aspects under the phrase “vital statistics”. The listed demographics are all attributes associated with a population and the reason for referring to demography rather than population is to emphasise the multifaceted characteristics of people and the effects these could have on the DM process. In other words, the aspect includes more than just the number of people living within a country or a single characteristic of the people. It includes different features, related to DMC, that describes the population and to some degree their everyday living situation.

In accordance with the definition above, we have chosen to use the listed demographics (i.e. size, growth, density, distribution and vital statistics) as the titles of the sub-aspects discussed below. From a DM perspective, the vital statistics could be numerous. However, we have chosen to discuss two major areas that we consider to have a large influence on the DMC, namely the social- and the physical situation of people. Prior to discussing how these sub-aspects contribute to create either capacity of vulnerability, we will first make some general remarks on the importance of considering demographics when assessing a country’s DMC.

The fact that the above listed factors, or demographics, does affect the DMC is among others discussed by Mileti (1999:3) who states that demography directly affects disaster losses. Alexander (2002:12) further underpins the importance of incorporating such attributes of the population since general plans require studies of demographic factors, the patterns and characteristics of the local population and its geographical distribution. Actually, further weight to the relevance of including demography, when considering DMC, can also be derived from the fundamental objectives of the DM process, being protecting the people (in a holistic perspective not only from the initial impact). To meet such an objective, it appears quite natural and rather easily recognised that it is important to consider the characteristics of the people. For instance, studying and incorporating demography is important since some locations are going to be risky by origin (Coppola, 2007:160). Thus, knowing if people live in such areas becomes crucial in order to estimate possible consequences of a triggering event. Accordingly, demography is a major factor when conducting risk analysis due to that the location of the population in relation to hazards is a prerequisite for estimating risk.

We argue that the aspect Demography could affect the entire DM process since the different demographics should give guidance on how DRR activities should be designed to achieve the best results related to all phases of the process. For example, a factor such as illiteracy should to a large extent influence decisions on how public awareness could be increased. Studying demographics could also give an indication of were to find more “vulnerable groups” within society and subsequently how to design response and recovery actions to meet the needs of the most vulnerable people as they are likely to need the most assistance.

Prior to continuing the discussions on how demographics should be assessed to create capacity, we find it necessary to briefly discuss the meaning of “vulnerable groups”. One might argue that there is a conflict of interest when using “vulnerability” as a describing factor to both a group of people and to the state of an entire country. Firstly, the reason for including the expression “vulnerable groups” is since the term is used extensively throughout much other literature (for example by Wisner et al., 2005; Coppola, 2007; and Mileti, 1999) and also because the meaning of the concept, as we interpret it, is important to consider when assessing a country’s DMC. We will give a short explanation of how we see the meaning or the expression “vulnerable group”.

As defined earlier the term “vulnerability” has to be related to a hazard. A person or a group could only be considered vulnerable in relation to a defined threat. With regards to disasters of natural origin, groups can be vulnerable to coastal storms, earthquakes, landslides etc. and the consequences could range from minor property damage to death. What is important to appreciate is that the impact from any hazard will cause different consequences amongst the affected population. Thus, different groups of people will be more or less susceptible to the effects of a hazard i.e. more or less vulnerable. Nevertheless, there are a number of factors that, almost no-matter what the hazard is, will enhance people’s level of vulnerability. These general factors include for example poverty; limited access to resources; and living on dangerous locations. Thus, although vulnerability always needs to be looked at in the context of the hazard, such features are in general considered to increase vulnerability.

From a national perspective, it is relevant to identify and map the so-called vulnerable groups within the country. Obviously, since more vulnerable people would require more assistance during a disaster, the number and extent of vulnerable groups will affects the DMC of a country. Accordingly, the ability to identify and map vulnerable groups within the society constitutes a capacity, as well as the ability to act upon this knowledge. Further indicators of vulnerable groups, in addition to the three factors mentioned above, will be discussed below as well as within the aspect *Social Safety Nets*. Nevertheless, demography is important to consider at all levels of society, from a national to a local level.

Size, growth, density and distribution

The initial part of the definition of Demography comprises the features size, growth, density and distribution. Mileti (1999:119) identifies almost the same sub-aspects as he states that size, growth, composition and distribution are features of the population that (to some part) determine the type and extent of disaster losses that the United States experiences. The way we interpret composition is that it represents the mixture of people within a group, and that such mixture includes more or less vulnerable people (depending on the given circumstances). Such factors are further discussed under the heading Vital statistics. Below, we will instead address the other sub-aspects (size, growth, density and distribution). Generally, we argue that capacity could be created if the current state of these features does not adversely affect the DMC within the subject country.

Population size

From a national perspective, the number of people living within a country, or located within a certain area, affects risk estimations since the word “risk”, besides encompassing the likelihood for a triggering event to occur, also encompasses the potential consequences. Data on population size within different areas thus comprise a major component of assessing potential consequences of a threat in terms of potentially affected population. Accordingly, if considering widespread impacts, where a large number of people could be affected, a larger population will naturally increase the required resources. Obviously, as the number of affected people increases, the resources required to meet the needs incurred will reach the limit of what the nation can manage. Similar reasoning is also made by Coppola (2007:120) who states that as the population increases, the number of people at risk increases.

Notwithstanding the above, simply assuming that a small population equals less risk is not legitimate since the vulnerabilities and capacities of these people also must be taken into consideration. The correlation between the size of the population and capacity/vulnerability is not explicit. Instead, we argue that it is the combination of population size together with other features (as discussed below) that induces capacity or vulnerability. For example, a large number of poor people living very densely at a dangerous location will obviously create vulnerability, whereas a large number of people living in a safe environment, financially contributing to the country’s overall Gross Domestic Product (GDP), creates capacity (further discussion about GDP are discussed within *The Economical Profile*). In summary, the size of the population is in one way or another linked to the expected number of affected people and hence the level of risk. Consequently, the size of the population affects the DMC but it would be too simplified to maintain that the size of the population directly would create either capacity or vulnerability.

Population growth

Similar to population size, population growth is a factor that is difficult to directly correlate to either capacity or vulnerability. Instead, we argue, in the same way as discussed regarding population size above, that it is the combination of population growth and other factors that together determine whether it will affect the level of vulnerability or not. Nevertheless, in general we argue that should the society not be able to increase their capacity (including all sorts of material as well as immaterial resources within all sectors of society) at the same rate as the population grows, the population growth could contribute to increased vulnerability. For example, Wisner et al. (2004:59) identifies population growth as one of the contributing factors that channelled root-causes of vulnerability into unsafe conditions during several droughts in Kenya during the 1970s.

On the other hand, if the population grows in a more controlled manner, i.e. in such way that the country’s resources are not outrun by increased needs, population growth per se is not considered to cause vulnerability. Moreover, one could perhaps argue that population growth is not a relevant factor when assessing the current DMC of a country as it relates to future population size.

Nevertheless, we argue that it is an important factor that should be accounted for when assessing DMC as it is relevant for how the DMC could progress within the near future.

Population density

The density of population is slightly easier to discuss related to capacity and vulnerability. If an area becomes densely populated, a relatively small triggering event is sufficient to cause the same level of damage as an extensive triggering event would to a less dense area. The concentration of people intensifies risk (Coppola, 2007:159), however the location of these dense areas is crucial as well (Mileti, 1999:120). A mega-city located in an attractive coastal area might be beneficial from a short-sighted economic perspective, but from a DM perspective, the city could be highly susceptible to coastal storms and hence, if considered in the long run, the financial (not to mention the human) consequences could be devastating. It is therefore considered that high density is contributing to create vulnerability, especially if the dense areas are located in a dangerous location. If considering density on a more local perspective, it might also be interesting to study where areas with high density of residential and commercial development within cities are located. Thus the density of people needs to be studied at all levels, from a national to a local scale.

Alexander (2002:35) touches upon on the sub-aspect “Population density” when stating that people’s level of vulnerability will vary depending on the time of the day. The time-factor is also discussed by Coppola (2007:151) who writes that the “population component looks at how people move throughout time. Disasters that occur at different times of the day can have different consequences, and knowing where people might be at a certain time can help to predict vulnerability”. The time factor of the demography is therefore considered to be important when estimating the consequences of the triggering event. Seasonal variations could also be significant over the year for example due to farming, resulting in some areas being more densely populated depending on season. Incorporating different scenarios that takes into account different times of the day as well as different periods of the year within risk analysis is thus considered a capacity.

Distribution of population

This sub-aspect, “Distribution”, underpins the importance of where people are located in relation to hazards and resources.

Information stating that more than half of the world’s population, and more than 70 % of the impoverished, live in rural areas (World bank reproduced in Coppola, 2007:161) as well as that coastal mega-cities³² have increased in number in such way that they have become the key component of coastal areas (Wisner et al., 2004:243) are important from a DM perspective. The increase of costal mega-cities shows that conditions of capacity and vulnerability are constantly changing and that urbanisation is a driving force for such changes. UNDP (2004:2) writes that:

The growth of informal settlements and inner city slums, whether fuelled by international migration or internal migration from smaller urban settlements or the countryside, has led to the growth of unstable living environments. These settlements are often located in ravines, on steep slopes, along flood plains or adjacent to noxious or dangerous industrial or transport facilities.

Thus, such conditions will affect the level of risk, hence also the DMC and therefore need to be considered.

³² A Mega-city is defined by Wisner et al (2004) as a city of eight million inhabitants or more.

Furthermore, it is important to know “the status” of the population at a certain location. If people are new to the area, they do not have the experience and knowledge from previous disasters and could neither be assumed to have a strong social network (Mileti, 1999:120). These factors would make them more susceptible to a disaster and hence, if there is a high number of for example refugees or tourists in a certain area, such area might require particular attention.

Other areas that might need to be considered include the locations of major employers and financial centres and areas of high-density residential and commercial development. Furthermore, with regards to other aspects discussed within *The Economical Profile*, it might also be important to know the distribution of animal populations. Besides from being a capacity if the population is located in safe areas (which is discussed further within “Vital statistics” below), we argue that capacity could be created if the location of people throughout the day and year is identified and mapped and if adequate measures are taken accordingly.

Vital statistics

We have chosen to divide this final sub-aspect, “Vital statistics”, into two sub-categories to describe on one hand the social situation (poverty, malnutrition, gender issues, the standard of health, illiteracy, etc.), and on the other hand the physical situation (living and working conditions) of the population. The intention of this sub-aspect is to give examples of (but not in detail discuss) some of the indicators that may point towards where “vulnerable groups” within society could be found. Again, we do recognise that referring to people as “vulnerable” without discussing what they are exposed to is not unequivocal. Nevertheless, identifying such groups within society is important since the presence of such groups will directly affect the DMC. Further indicators than the ones given below can be found in almost all other aspects discussed within this report, especially aspects closely related to social aspects such as *Social Safety Nets*.

Social situation

The social situation of people is related to their everyday situation. Wisner et al. (2004:36) states that daily life comprises a set of activities in space and time during which vulnerability is shaped. The authors then discuss that factors such as gender, age, physical disability, religion, caste or ethnicity as well as class could affect people’s level of vulnerability. Trujillo, Ordonez, & Hernandez, (2000) has in turn identified poverty, malnutrition, gender issues, the standard of health, and illiteracy as indicators of social vulnerability. Further discussions on the topic is also given by Hearn Morrow (1999:1) who identifies different groups such as the poor, the elderly, women headed households and recent residents as groups that are at greater risk throughout the disaster response process. Another factor that needs to be considered is which language that people speak. Language could be an obstacle to risk communication in both the developing and developed world (Coppola, 2007:234). Consequently groups that are not able to understand information will be more vulnerable than others.

The different attributes listed above, which all refers to people’s social situation, have a great impact on the DMC as they are considered to affect the resilience of the population. Since the capacity of vulnerable groups within society needs to be increased prior to a disaster and since vulnerable groups are more likely to require more attention during and after a disaster, the presence and extent of vulnerable groups needs to be taken into consideration and incorporated in the planning process. The discrepancy of capacities within the population could lead to that the consequences of a materialised threat would affect the population disproportionately and if a country is unaware of vulnerable groups within the society, the authorities could be caught off-guard by the effects from a triggering event. Knowledge of where vulnerable groups are concentrated within communities and

the general nature of their circumstances is an important step towards effective Disaster Management³³ (Hearn Morrow, 1999:1).

Thus, we argue that it is important to acknowledge that there are groups within the society that in general, due to their social situation, could be considered more vulnerable than other people and consequently, that it is important to identify indicators of such groups. However, from reading a number of case studies and community based assessment models (for example Trujillo et al., 2000 and Abarquez & Murshed, 2004) it seems that indicators chosen to identify vulnerable groups within the society are at least partly selected based on the availability of statistics within the specific country. Although this approach might be better than having no indicators at all, basing the choice of indicators only on availability might not give the adequate information. We further argue that the selected indicators must be looked at in a bigger context, together with other indicators and in relation to the relevant hazards in order to determine where vulnerable groups within the society are located.

In summary, a beneficial social situation is considered to create capacity to both the individuals and to the country, whereas less beneficial circumstances create vulnerability. Here it is difficult to generally determine what indicators that influence positively or negatively and many parameters might do both. Age for example might be an indicator of how much experience a person has, hence might an older person have more capacity than a younger person. On the other hand, a younger person might be stronger and more mobile, which could compensate the lack of experience and contribute to capacity during an evacuation. Consequently, depending on the given circumstances and even the user, indicators of the social situation will affect the DMC differently. As a result, a general discussion about how capacity could be created in relation to each indicator would be very difficult to conduct and would require a large amount of time and result in a large number of pages. Although such a discussion might be both interesting and relevant, it would be too detailed for the scope of our project. Instead, we refer to, for example, Wisner et al. (2004) and UNDP (2004) for more detailed discussions and we will settle here with stating that indicators, as mentioned above, are some examples of aspects that could affect peoples' vulnerability or capacity. Which indicators to chose when assessing a country's DMC thus depend on the context of the country and the purpose of the assessment.

Further to the given conditions, awareness of the importance of identifying vulnerable groups, and the knowledge of how to do so, is considered a capacity. Capacity is also created through all actions taken throughout all of the DM process to cater for the needs of such vulnerable groups, thereby reducing the number and extent of such groups.

Physical situation

The physical situation of the population refers to the constructions that the population occupies throughout everyday life, including the location of these constructions. The reason for incorporating this sub-aspect within Demography is that the status of the constructions, in a similar way as the social situation discussed above, can contribute to create vulnerable groups within the society. One example is that land pressure forces the poor to settle in undesirable, often dangerous, parts of urban centres, (e.g. unstable slopes, in floodplains, and on seismically unstable soil) (Coppola, 2007:159). Furthermore, houses are sometimes built without any real understanding of the risks associated with a certain location and construction (Wisner et al., 2004:58). Coppola (2007:159) gives a direct example when discussing that houses could be located on steep slope in order to use other land for farming.

³³ The term emergency management is used in the report but the content is deemed to be corresponding.

The importance of addressing the status of constructions and their location is evident for example if studying the impacts of earthquakes. A low building standard in an earthquake-prone area could severely increase the number of deaths, injuries and property losses compared to areas with a higher building standard (Coppola, 2007:180). Additionally, buildings built on unstable slopes are susceptible to landslides regardless of how well constructed they are. Both the residential buildings as well as the commercial buildings that people occupy should be considered since many people often move between those locations on a daily basis. The destruction of both residential and commercial buildings could also have a more indirect consequence in that they would require resources for reconstruction. Damaged commercial buildings could further mean an interrupted possibility for earning an income. Such indirect losses are further discussed under *The Economical Profile*, especially within the aspect *Financial Factors at Individual/Household Level*.

The arguments presented above are not only applicable to earthquakes but are valid for all types of disasters. The only difference is that different hazards require that different measures are taken to ensure that the constructions and the location could be considered “safe”. For example, coastal regions might be very susceptible to storms and cyclones (Wisner et al., 2004:244) and river floodplains; basins and valleys; land below water retention structures; low-lying coastal and inland shorelines; and alluvial fans could all be subjected to flooding (Coppola, 2007:53). Thus, the location and status of constructions must be evaluated in the context of relevant hazards. Alexander (2002:30) underpins this when identifying the need for information regarding the buildings when conducting a background assessment in earthquake prone countries including the construction material, dimension and shape, state of maintenance and patterns of usage. If all these circumstances are taken into consideration when construction buildings (city planning), this clearly constitutes a capacity, whereas neglecting the risks creates vulnerability. Additionally, the design and implementation of building codes, which might include incitements, fines, or other types of repercussions, could be important measures to assure the standard of the constructions.

In summary, we argue that if the physical structures of residential and commercial buildings are located according to the results from adequate analyses and constructed according to conditions set by the potential threats, this creates capacity. Regulatory measures taken to assure that these conditions are met could also contribute to create capacity. Both Mileti (1999:7) and Coppola (2007:185) identify for example land use management as a mitigation measures. Such measure, as well as other legal actions, will be discussed further under the aspect *Legal and Regulatory Framework*.

7.2.6 Social Safety Nets

The aspect *Social Safety Nets* intends to represent the structure provided by the government or by other parts of the society aiming at providing assistance to marginalised people within the society. From a DM perspective, such measures could reduce the vulnerability of these people and in a larger perspective thereby increase the country’s DMC. However, prior to further discussions on how Social safety nets could contribute to create capacity, we will discuss this aspect’s relationship to other aspects, in particular to the aspect *Demography*.

Within the aspect *Demography*, it was established that capacity could for instance be created through the ability to identify vulnerable groups and a number of potential indicators of such groups were briefly discussed. It was also established that such indicators must be looked at in the context of the specific situation/threat and also related to other indicators in order to give any trustworthy description of vulnerability. Thus, a separate indicator is often not enough to describe vulnerability in an appropriate way. As a concluding remark it was stated that no further discussion on how these factors, or indicators, could create vulnerability were to be conducted herein. This said, there is a fine line between only being considered an indicator and being what we refer to as an aspect that more directly could affect the DMC. A number of those indicators discussed previously could probably also

be seen as sub-aspects as well as describing indicators. In fact, there are two factors that we particularly consider being more than just indicators and that according to us, more than the others, directly affect the degree of vulnerability of different groups. These two sub-aspects are named “Social welfare” and “Social capital”, respectively.

The importance of social welfare and social capital is for example evident from the HFA (ISDR, 2005:11) as one of their priorities for action is to:

Strengthen the implementation of social safety-net mechanisms to assist the poor, the elderly and the disabled, and other populations affected by disasters. Enhance recovery schemes including psycho-social training programmes in order to mitigate the psychological damage of vulnerable populations, particularly children, in the aftermath of disasters.

Further discussions on how capacity could be created in relation to social welfare and social capital will be undertaken below.

Social welfare

Social welfare refers to safety nets administrated by the government, designed to distribute resources to the most disadvantages groups within the society. This could include providing a minimum level of income, housing, free medical service or the like. Social welfare is therefore an important part in strengthening the poorest households during everyday life and thereby, if considered in the context of disasters, contributes to strengthen people’s capacity to withstand the impact of a disaster, i.e. their coping mechanisms. As a result, the DMC is strengthened since people will be less reliant on assistance provided by the government during and after a disaster.

Social welfare could also comprise specific measures related to the DM process in terms of relief efforts to the affected population. For a period during relief and recovery the poorest households may have lost everything and not have any money (Wisner et al., 2004:253). Consequently, they will during such circumstances be predominantly dependent on social networks and external aid. We will not in detail discuss the construction of such social welfare programmes, but merely state that it is considered to be a capacity if there are governmental programmes, both general (as discussed previously) and DM specific programmes, targeted and accessible to the most vulnerable groups within society during all phases of the DM process.

Within the preceding sentence there is an important factor implied that deserves further attention, namely access to social welfare. Dominant groups within society often have the control over resources and the political power and that they tend to use it to their own advantages (Twigg, 2004:99). Such circumstances could thus cause more vulnerable groups to be overlooked by decision-makers and further increase their vulnerability. The issue of access to social welfare is also discussed by Coppola (2007:333) who states that:

Certain groups may be subjected to cultural norms that prevent them from being able to access goods and services, the following group tend to be particularly susceptible to inequity in relief: low income households; single parents; medically dependent or disabled; language minority and illiterate; elderly; homeless and street children; the marginally housed; immigrants transient newcomers and tourists; isolated household farms and ranches; racial and ethnic minorities; children .

Of these factors that adversely affect the accessibility to social welfare, two are frequently appearing in literature, namely gender- and ethnic related issues (e.g. by Wisner et al. (2007:238)).

In relation to gender issues there is usually an inequality in ownership and access to resources between women and men. This is, in our opinion, due to that economic and cultural systems are generally male-dominated, allocating power and resources in favour of men. Wisner et al. (2004:238) states that women may be more prone to post-disaster disease, largely as a result of their poorer initial well-being (nutritional condition and physical susceptibility). Wisner et al. (Ibid.) also addresses the issue of ethnic division and states that they are often superimposed on class patterns, and may become the dominant factor determining vulnerability. The authors deduce that “this can be seen in different access to, or possession of, resources, or inequalities of participation in different livelihoods, according to imposed racial or ethnic distinctions”. We thereby conclude that there is a difference in vulnerability between men and women and between different ethnical groups. Capacity is created if social welfare programmes take gender- and ethnical factors (among others) into consideration in measures to reduce vulnerability.

The effects of social inequity could accordingly to Wisner et al. (2004:330) be seen from experiences attained after the earthquake in Gujarat in India, 2001. The initial consequences affected people in a similar way regardless of social class. However, differences due to social class arose during the recovery phase since the rich knew how to operate the recovery programme to their advantage. This resulted in social polarisation with regards to the options presented to villages either for relocation or financial compensation. Additionally, one differentiator with regards to the availability of governmental safety nets could comprise the location of people in relation to resources. As Coppola (2007:161) states “in the absence of large, organised government entities, rural communities may be left to fend themselves for disaster mitigation and response resources”.

As per the above, and in agreement with Wisner et al. (2004:6), it is obvious that humans today do not have equal access to resources. Thus, capacity with regards to social welfare is created if the government can provide resources to those most in need. Furthermore, it is important that vulnerable groups within society are aware of how to access such resources, as well as that the government is aware of the existence and whereabouts of vulnerable groups within the society so as to be able to direct adequate actions to these people.

As a concluding remark, the issue of distribution and access to resources is much wider than just the social welfare programmes. As mentioned within a number of references above, it concerns livelihood, access to goods and many other areas. In general, in order to create capacity with regards to distribution of resources, the population should be treated equally regardless of ethnicity, gender or other circumstances. This issue is important to consider in many other aspects, such as for example *Legal and Regulatory Framework, Disaster Management Organisations and Political Climate and Relations*.

Social Capital

Above we discussed the safety nets administrated by the government. It is however important not to overlook the importance of social networks amongst the general public. These social networks are considered to be equally, or perhaps even more important, during times of disaster (T. Nieminen Kristofersson, direct communication on the 16th of April 2007). Accordingly, the second sub-aspect, Social Capital, refers to “those stocks of social trust, norms and networks that people derive from membership in different types of social collectives” (UNDP, 2004:7). These social networks represent the relationships between people: individuals, households, families, neighbourhoods, ethnical groups, tribes, organisations, communities, etc. Social capital in relation to disasters is for example discussed by Twigg (2004:54) who states that community solidarity and/or strong community organisations combined can be an important factor in a disaster. Wisner et al. (2004:329) also advocates this viewpoint and states that better organised localities have a better capacity to resist extreme events. Additionally, UNDP (2004:7) states that “social capital, measured by levels of trust,

co-operation and reciprocity in a social group, plays the most important role in shaping actual resilience to disaster shocks and stress”.

The benefits from social capital can be seen in cases where suffering people are aided by less affected people. The aiding people thereby constitute an invaluable resource during the DM process (UNDP, 2004:80-82). Social capital could also constitute a resource during the DRR process through information sharing and resource sharing and could thereby facilitate the accomplishment of prevention, mitigation and/or preparedness activities (Ibid.)

Experience from Japan after the Kobe earthquake (1995) can be given as an example of the importance of social capital. The voluntary work that was undertaken is discussed by Davis (referenced in Wisner et al., 2004:300) when saying that “this vital ‘coping mechanism’, which took place without any support from the authorities, spread the responsibility of caring for displaced families throughout the country and thus provided considerable relief for an already over-stretched government”. Sanderson (referenced in Twigg, 2004:54) gives another example where social capital, built from community solidarity and strong community organisation, managed to save hundreds of lives during the severe floods in Caracas, Venezuela, 1999. Sanderson explains how neighbours helped each other by passing on the latest news about water levels, helping older residents from their homes and in some cases forcing people who were reluctant to evacuate to move to safety. As a result, only 15 people were believed to have been killed, whereas hundreds lost their lives in other similarly affected neighbourhoods.

If summarising discussions by Wisner et al. (2004:315, 328, 331) related to social capital it can be concluded that people who are better organised more easily become better prepared, better able to respond to hazard warnings and better able to demand government attention to hazards. Organisations at various levels are also a prerequisite for risk communication (see the aspect *Early Warning Systems*), which could also reduce vulnerability, and although it is difficult to manifest a direct relationship between the strengths of local organisations and reduction of vulnerability to disaster, the inverse conditions are more easy to appreciate. In the absence of grassroots and neighbourhood organisations, it is considered that vulnerability increases.

Immaterial resources, such as social capital, constitutes a factor that could either enable or exclude a person from support, as well as facilitate or prevent access to resources and their utilisation (Wisner et al., 2004:98-99). Coppola (2007:160) discusses this and states that urban areas do not have the same community based coping and support systems as rural areas. This difference highlights that the community, to some degree, create its own vulnerability and capacity (Wisner et al., 2004:83) There is therefore a need for a clear understanding of the cultural and organisational characteristics of each society in order to find effective and efficient means to reduce the impact of disasters (ISDR 1994:3 out of 18). This includes not only analysing if there is social capital within the society, but also to look at its ability to reduce potential consequences from a disaster. It is also important to bear in mind that societies are constantly changing. These changes are often disruptive and uneven, leaving gaps in social coping mechanisms (UNDP DMTP, 1992:15-19).

In summary, it is considered to be a capacity if there is social capital within the society that could distribute the consequences of an impact and that could facilitate DRR activities. If such social capital exists, this would most likely have a definite impact in people’s coping mechanisms and thereby reduce people’s vulnerability, and in the bigger context, thereby creating capacity also at a national level. It is also important to remember that there might be groups of people within society that do not have access to such social capital and that such groups thus are particularly vulnerable since they lack back-up support.

7.2.7 Public Awareness

Public awareness is a broad aspect involving knowledge within a number of different areas related to the DM process. Such knowledge includes for example awareness of potential threats, ability to respond to hazards should they materialise, as well as how to act appropriately prior to and after an impact. If people are aware of how to avoid and limit risks, how to be well prepared, how to act appropriately during the response phase and how to recover into a more resilient everyday situation, this knowledge is considered to increase people's ability to withstand the effects of a potential disaster. Awareness could also increase the odds that the general public, or more specifically, the population at risk, critically evaluates the risk reduction-, response- and recovery measures accommodated by the government and subsequently put pressure on the government if deemed necessary. Public awareness hence increases the capacity of the general public whereas the lack thereof could increase their vulnerability.

The importance of public awareness has been acknowledged for a long time and was as early as in 1994 underpinned within the Yokohama Strategy and Plan of Action for a Safer World (ISDR, 1994:12 out of 18), where one of the recommended actions was to establish and implement education and information programmes aimed at generating general public awareness. The strategy stated that these programmes should put special emphasis on policy makers and major groups, in order to ensure support for, and effectiveness of, disaster reduction programmes. The importance of public awareness is further discussed by Handmer and Penning-Rowsell (reproduced in Wisner et al. 2004:330) who state that public awareness is the "bedrock requirement" to reduce vulnerability and to develop resilient households, localities and societies.

Additionally to the importance of awareness within the general public, awareness obviously also needs to be present within the private sector; within various organisations and institutions; and within the government, not at least since these represents important actors during all phases of a disaster. Awareness related to such actors is further discussed within the aspects *Political Climate and Relations*, *Disaster Management Organisations* and *Other Relevant Stakeholders*. Within this aspect we will limit the scope to only address awareness within the general public. How capacity could be created will be discussed within two sub-aspects: Awareness related to DRR and Awareness related to Response and Recovery. However, first we will briefly discuss some general prerequisites, which by us are referred to as background factors.

Background factors

There are a number of factors that could be considered to constitute the foundation of public awareness, some of which are outlined in the bullet point list below. These factors unquestionably comprise a fundamental part of public awareness; however we have chosen to address these as being more of background factors than specific sub-aspects. The occurrence of these background factors are also fairly similar to previously discussed indicators (see section 7.2.5, Demography).

- Educational status of the general public, illiteracy and the amount of information given in schools regarding hazards and disasters;
- Amount of information regarding disasters and the structure of the Disaster Management organisation available to the general public; and
- The quality and relevance of the information given regarding disasters.

The above listed factors are often referred to as prioritised areas within different capacity building projects. Notwithstanding the importance of each one of them, we have in lieu of addressing them directly, tried to capture the beneficial effects of them within two sub-aspects discussed below and also within discussions in other aspects. For instance, within this report we have considered that the ability to raise public awareness relates closely to other aspects such as *Infrastructure* (the ability to

communicate to the general public), *Political Climate and Relations* (the will and knowledge of the government to inform and raise awareness) and *Demography* (the general situation of the public). Hence, we will not specifically address these factors although appreciating that they constitute prerequisites for many of the points made throughout this aspect.

How to raise public awareness is discussed in the HFA (ISDR, 2005:9), which states that disaster risk reduction knowledge should be included in relevant sections of school curricula at all levels. The subject is also discussed by Shaw & Okazaki (2003:45) who describes a community based project which focuses on raising the awareness of stakeholders on natural disasters through educational campaigns. Regardless of how such information campaigns are conducted we argue that they only constitute a “true” capacity if they are designed and conducted in an appropriate way, with one fundamental objective being to assure that the information reaches the target audience. Research on risk communication suggests that laymen have a difficulty in appreciating the meaning of probability in relation to danger (Alexander 2002:63). Information distribution through written media, including leaflets, newspapers billboards, and informational booklets will be ineffective if the target population is unable to read the messages (Coppola, 2007:233). Thus, there is little value in trying to raise awareness through information channels that are not adjusted to the intended audience, including factors such as the timing of disseminating the information, choice of language, use of laymen terms, the trustworthiness of the source of information and the like. If these kinds of criteria are accomplished, the information distribution constitutes a capacity. Additionally, capacity is created if the people at risk are able to use the information adequately. Information that does not correspond to any possible actions could in fact increase the level of concern of the affected people (A. Enander direct communication on the 19th of April 2007).

To summarise, information campaigns directed to raise awareness amongst the general public only constitute a capacity if the information is designed appropriately in relation to the intended receivers and if the receivers are able to act upon the information given.

Awareness related to DRR

Within this first sub-aspect we will discuss how capacity could be created in relation to the DRR phase of disasters, and specifically in relation to hazards, mitigation and preparedness.

Although we appreciate that it is impossible to predict every imaginable threat, we do believe that it is important to have a general understanding of potential threats. In very simple terms, without knowing what hazards to mitigate or/and prepare for, or at least having an idea of the potential threats, any DM efforts will in our opinion be less effective and efficient. As discussed in the section Conceptual Structure, capacity and vulnerability always needs to be related to the hazard and knowledge about this sets the stage for the areas of public awareness discussed below. Such knowledge is also important in order to be able to evaluate the government’s actions and capacity and hence a prerequisite for the following areas of public awareness.

The general public needs to know what mitigation and preparedness options are available and the likely outcome of conducting them. Similar, knowledge of potential consequences if not adopting any of the alternative mitigation and/or preparedness option is also relevant. The importance of awareness related to these two areas is highlighted in the HFA (ISDR, 2005:9) key activities, which states that easily understandable information on disaster risks and protection options should be provided, especially to citizens in high-risk areas.

Thus, to summarise awareness in relation to DRR, we consider it to constitute a capacity if the general public has an awareness about potential hazards, and if they are aware of adequate mitigation and preparedness options and finally, if they act upon these options in an appropriate way.

Awareness related to Response and Recovery

The second sub-aspect relates to, as per the heading, the response and recovery phases of the DM process. We will discuss how awareness (and consequently capacity) in relation to these phases could be created within four areas below, comprising awareness in relation to:

- Structure, response and capacity of the country's Disaster Management Organisations;
- The general public's capacity with regards to disasters and how to act if a disaster strikes;
- The gap between the government's capacity and general public's capacity and the consequences thereof; and
- How to recover from a disaster.

The first area outlined in the bullet point list above refers to awareness of the structure of the country's Disaster Management Organisations, including what actions are likely to be taken by the authorities and what capacity they comprise to meet the needs. Such knowledge is important for at least two reasons, one being to be able to evaluate the governments' actions and the second being to have a realistic understanding of what assistance that could be expected to be provided from the government and the community. It is also important to know where resources are located and how to attain access to them. Consequently, capacity is hence created if there is awareness with regards to the structure, likely actions and capacity of the country's Disaster Management Organisations and how and where to access resources.

Awareness of how to act during and after an impact, the own capacity, or the capacity of a smaller society in which a person is a part of, are also important parts of public awareness. Coppola (2007:222) writes that in the event of a disaster, it is assumed that response resources will be stretched to the limits of their capacity or even exceed their capacity during at least the first few hours of response. Coppola (Ibid.) thereby emphasises on the importance of the public to be prepared to provide for their own response needs in order to supplement these strained official resources. Since this kind of knowledge could decrease the severity of the consequences, we consider it to create capacity.

The next bullet point relates to a potential gap between the actual capacity of authorities and the capacity of the general public. If such gap exists, it means that people are left without being able to meet the needs by themselves or get the sufficient assistance from authorities. We argue that knowledge about such gap, and the potential effects thereof, could create a will and ability to bridge such gap either by increasing the own capacity, or by putting pressure on the authorities. Such knowledge is thus considered to result in a will to improve the Disaster Management ability and hence creates capacity.

Finally, awareness could create capacity during the aftermath of a disaster. In our opinion awareness needs to be present of how to use the "window of opportunity" to recover and rebuild to a better and safer society when the possibility is given. Furthermore, we believe that it is important to know what resources will be provided by the government, both in terms of recovery programs and material resources as well as immaterial resources such as for example psychiatric care, and how to access these resources. It is considered to constitute a capacity if this knowledge is present prior to a disaster, and hence available in the rebuilding phase.

7.2.8 Political Climate and Relations

The final aspect within *The Cultural/Social/Political Profile* refers to the political situation within a country, extending beyond the country's borders into a global perspective. It refers to the relations between the government and the general public; between local, regional and national levels of governance; between different authorities; between political parties; between the power and the opposition; between the government and local organisations; between the government, NGOs and international organisations; between the government and neighbouring countries; and between the government and multilateral organisations such as the UN and the EU. This aspect relates to how a country is actually being governed, which in our opinion could be different from, even though closely linked to, existing laws and regulations. Thus, while it is the government who create the policy and legislative frameworks within which DM can be accomplished (Twigg 2004:64), we argue that there could be a significant difference between a country's legal framework and how laws and regulations are implemented and practised. This aspect does not concern the structure of the political system itself, i.e. whether a state is a republic or a monarchy, if it is run in a democratic way or by a "dictator", but how the present system is working with regards to managing the different phases of disasters. This said, many of the capacity creating actions/areas discussed within this report require openness within the system that to our knowledge only can be found within a democracy.

The importance of a sound political climate with regards to the DM of a country can be seen in several ways. The political climate together with the legal framework and the potential hazards that the country is facing sets the agenda for DM. For example, only governments are likely to have the resources and capacity to undertake large-scale multi-disciplinary initiatives (Twigg 2004:64) that is needed in order to achieve the holistic approach to Disaster Management that is emphasised within this report. The importance of political leadership, and the prevailing political and governance system for capacity development is further pointed out in the document "The challenge of capacity development: working towards good practice" written by the Organisation for Economic Co-operation and Development [OECD] (2006).

In addition to being the actual cause of a disaster (many more have died in famines caused by politics rather than natural triggers (Wisner et al., 2004:138)), the political climate can either increase or reduce the consequences of a disaster of natural origin. Many countries have a history of violence, where civil wars, political conflicts, discrimination of tribes, races and religious groups, censoring by the state and other features alike can result in lack of resources, will and commitment to work with DM. Such factors are therefore considered to create vulnerability to both the government and the people and hence, it is important to consider what effects the political climate could have on a country's ability to manage disasters. With a more beneficial political climate during everyday life, we argue that it is more likely that there is a will and means to work with issues related to DM, and thus that a good political climate constitutes a capacity. Wisner et al. (2004:338) emphasises on the potential impact of political climate when listing "good governance" as one factor that increases or reduces capacity and vulnerability, respectively.

Below, we will discuss a number of sub-aspects related to political climate and relations and how they could affect a country's DMC. These sub-aspects comprise:

- Security of daily life;
- Human rights;
- Political will and awareness;
- Co-operation amongst politicians;
- Risk communication; and
- International relations.

Security of everyday life

Applicable to all aspects within this report, the successfulness of Disaster Management will to a large extent be influenced by the everyday situation within the country; this is also the case with this aspect. If people are faced with high criminality and are living in an unsafe environment, it is in our opinion less likely that they will be concerned with addressing other risks (disaster risks). This in turn will affect their awareness and motivation as well as their ability to spend resources on DRR and preparation measures and hence, an unsafe everyday environment can be considered to create vulnerability. The opposite, i.e. a relatively safe everyday situation will constitute a capacity for DM.

Another viewpoint is that an unsafe daily situation can result in a low trust in authorities, which is likely to slow any response effort. For example, experience has shown that many people are anxious about leaving their homes when asked to evacuate due to the risk of being robbed of their possessions and people will only evacuate if they feel local law enforcements authorities are competent enough to assure the safety of neighbourhoods. (C. Brown, direct communication on the 17th of April 2007). This is also a problem during the recovery phase as people sometimes leave refugee camps in order to move back to their unsafe previous location to safeguard whatever assets still remain (Wisner et al., 2004:313). The above example does not only depend on trust issues, but also the security in the designated camps. Many of the same security needs, or even increased needs, of the population remain during the response phase, adding pressure on an already constrained society including police and fire officials (Coppola, 2007:275). Coppola (Ibid.) states that one of the most common security problems that follow major, disruptive disasters is looting, but adds that looting are by criminals, not by the population at large. Alexander (2002:260) claims the difference when stating that the phenomenon of looting is rare and limited in scope. He further adds that it mainly occurs when there are strong preconditions as when a community is already deeply divided. Nevertheless, we argue that either way, it is important to assure the security also during times of disasters, and that if this could be accomplished, such measures creates capacity. Issues of security that needs to be addressed could comprise of assaults on victims or response and recovery officials; rapes, robberies and assaults within shelters and resettlement camps; and increased domestic violence (Coppola, 2007:275).

Corruption, which might be seen as a more systematic criminality and which is part of many peoples everyday life affecting their everyday security, is not discussed further here. Instead, corruption is treated as a separate aspect due to its extensive impact on Disaster Management, See aspect 7.2.3, *Corruption*.

From the discussion above it is clear that, apart from a already relatively secure everyday society, measures to assure an adequate level of security, including sufficient resources (both material and human) to deal with the extra needs of safety and security during the response and the recovery phases of disasters constitutes a capacity for DM.

Political awareness and will

Political awareness and will refers on one hand to the government's awareness and knowledge about DM and on the other hand to their will to recognise its importance. This aspect is emphasised by several authors within the field of DM (Wisner et al., 2004; Alexander, 2002; ISDR, 2005; OECD, 2006). Several examples could be given of cases where politics have cause great damage, many of which have to do with political leaders main concern being re-election or maintaining their power and influence. Wisner et al. (2004:247) gives one example when discussing a leader refusing to order the evacuation of Martinique, despite the immediate threat of a volcanic eruption on the island, due to an impending election- a priority that caused the worst loss of life in a volcanic eruption during the entire twentieth century. Another example is the drought-triggered famine of 1984-1985 in Sudan which according to de Waal (referenced in Wisner et al. 2004:130) had little other cause than the

failure of Nimeiri's government to acknowledge the existence of a food crisis. Accordingly, it is clear that whether or not the government or the leader of the country is up-front with the current situation is an important factor that could affect the DMC.

The political awareness and will also have an effect on how DM is prioritised and implemented during "everyday life" (Wisner et al., 2004:52). Recently we have seen the effects of not prioritising prevention of disasters in a holistic manner when Hurricane Katrina caused severe damage to the East Coast of the USA in 2005. Since the 11 September 2001, the foundation of the US Department of Homeland Security and the reorganisation of FEMA³⁴ as a Department of Homeland Security component agency all attention was directed towards "the war against terrorism". Hence, and despite FEMA claiming to have an all-hazard approach, the risk of potential hurricanes were down-prioritised compared to risks related to terrorism (C. Brown, direct communication on the 17th of April 2007). The potential consequences of not sufficiently addressing the entire spectrum of potential risks, in favour for addressing only terrorism is also addressed by Stolberg (referenced in Wisner et al. 2004:171). To summarise, we argue that having sufficient knowledge of potential threats and adopting an all-hazard approach creates capacity.

Political will and awareness could according to the discussions above be seen as more of a determining factor or "root cause" to many of the other areas within DM (Wisner et al., 2004). This is further discussed by Twigg (2004:64) as he state that: "in practice, governments may lack capacity and resources, especially in developing countries, but attitude and management are often the root problems: failure to recognise the importance of hazards and vulnerability to national development, coupled with short-sighted planning and inadequate organisation". Moreover, the lack of political will is Wisner et al. (2004:264) points out that in Bangladesh, efforts at local level are likely to remain inadequate without political will and drastic changes in the national and international factors.

Case studies by InterWorks (1998:6) further indicates that local governments tend to be concerned mainly with relief, rather than mitigation and preparedness and suggests that reasons for this may be lack of executive power, lack of awareness, or lack of political will to implement mitigation and preparedness programs. In our opinion such problems do not seem to be uncommon or for that reason only relate to LDCs, but also include MDCs. Long-term preventive risk reduction, at all levels of society does in our viewpoint create capacity.

Even though tasks with regards to disasters often are performed by departments, NGOs or on community level, and hence not by the government per se, only governments are likely to have the mandate to direct or co-ordinate the work of others (Twigg, 2004:64). Consequently, without the support of the government, it is unlikely that sufficient resources and skills are allocated to DM which, contributes to create vulnerability within the society. Adequate support hence constitutes a capacity.

Political stability

DM is a matter of long-time commitment and closely linked to sustainable development (Wisner et al., 2004:330). Because of this, the sub aspect "Political stability", which refers to the time factor of power shifts within a country, is seen as an aspect that could affect the DMC. InterWorks (1998:8) also share this opinion when stating that "changes in government can radically disrupt both preparedness plans and the administrative structures of disaster planning at all levels". The same authors also point to the fact that changes in government can lead to the replacement of previous staff to more inexperienced officials.

³⁴ FEMA is short for the Federal Emergency Management Agency.

Thus, if there is a shift in power, and if this affects the organisation of Disaster Management, we argue that such change is likely to create vulnerability for DM. The opposite, i.e. either a stable government or measures taken to assure that such shift in power would not adversely affect the Disaster Management agenda or performance within the country constitutes a capacity.

Co-operation between political parties

This sub-aspect, “Co-operation amongst political leaders”, refers to the relations amongst competing political parties within a country. It is recognised that different countries around the world are governed in very different manners, but regardless of how the structure of power looks like in a country, there is (to our knowledge) at least some sort of opposition towards the power. The opposition could comprise other legitimate parties or prohibited opposing leaders.

No matter if considering a MDC or a LDC, the political climate, including the climate amongst competing political parties within that country will be a major part of everyday life. This political “game” could, in addition to being an initial cause of a crisis as previously mentioned, affect the DM several ways. For example, if political parties are able to co-operate and has the peoples best at interest, risks are more likely to be investigated rather than hidden from the public, which has a positive effect on the entire DM process. InterWorks (1998:1) highlights the importance of political consensus amongst all political parties to assure implementation of national plans and legislation. During the response phase, a conflicting relationship amongst political parties could lead to that resources are used as weapons (Wisner et al., 2004:279). Furthermore, in the aftermath of a disaster, during the recovery phase, it is important that the causes of disasters are not used in a political “blame game” (Wisner et al., 2004:279), but instead as a foundation for using the so-called “window of opportunity” that follows a disaster (Alexander, 2002:8). To summarise, an open political climate amongst competing political parties is considered a capacity as well as that issues related to DM are not made into a political battleground.

Relations between neighbouring countries

Disasters of natural origin are often so-called ‘shared events’ i.e. they do not respect national boundaries but can affect whole regions (Twigg, 2004:76). One example of such crosscutting hazard is given by Wisner et al. (2004:213) when describing the threatening collapse of Lake Sarez in Tajikistan. The potential disaster would not only affect Tajikistan, but also parts of Afghanistan, Uzbekistan and Turkmenistan. The rivalry and suspicion that exists between the governments make co-operation and co-ordination difficult, both regarding their own initiatives to deal with the threat as it lessens the chances of any strategies being established, as well as any preparation for receiving external assistance. The importance of regional co-operation to assess and monitor regional and trans-boundary hazards, exchange information and provide early warnings is one of the identified key actions within the HFA (ISDR, 2005:8) and hence also constitutes important parts on the UN agenda.

One example of successful regional resilience due to co-operation amongst neighbouring countries was the successful initiatives in South Africa as a respond to the severe drought in 1991-1993, which enabled food aid to be used in a remarkable efficient way despite the 13 million people being affected. Success factors were good transport infrastructure, communication and political co-operation between the neighbouring countries (Wisner et al., 2004:133).

From the above example, it is clear that when creating Disaster Management strategies and plans, it is important to look beyond the country borders, both with regards to potential threats and available resources. In disasters, outside assistance is often required both during the response and the recovery phases. Alexander (2002:2) goes as far as including external aid as part of the definition of the word “disaster”. When requesting outside assistance, it is obviously more efficient, both with

regards to time and money, to seek help in the vicinity of the affected country (Jeggle, 2001:316-341), which obviously is facilitated by good relations to neighbouring countries. Additionally, neighbouring countries often face similar hazardous threats and often have similar social and political structure (Twigg, 2004:76). Good relations could contribute to sharing knowledge and experience (Coppola, 2007:33) both regarding the types of hazards and required measures to mitigate and prepare for potential impacts. Consequently, good relations amongst neighbouring countries are considered a capacity for DM.

International relations

Even though the circumstances within a country and between its neighbouring countries certainly could have a large effect on the country's DMC, the impact of global relations should not be disregarded. International relations are in many cases closely linked to economics and coalitions of trade (see *The Economical Profile* for further discussion on the topic). For example, Wisner et al., (2004:76) discussed the large influence on global economic pressures and especially the issues of indebtedness, which constitute a considerable problem for many LDCs. Wisner et al. (2004:261.) further gives one example of the effect of such international pressure when discussing the results of a hurricane in Nicaragua (1988), and concluding that "even though production losses due to the hurricane were very large, the politics and economics of US opposition to the Nicaraguan government did more damage to the economy". International pressures are something that the wealthier countries need to acknowledge and accept responsibility for (Becker, 2002:52) as they in many ways are responsible for creating the problem in the first place, and since these kinds of problems are hardly something LDCs could do much about. However, from a LDCs perspective, we consider it to be a capacity if the country is aware of that such global pressure exists and take measures to improve the international relationships.

International relations are important when considering other aspects of DM as well. For example, the use of international experience and knowledge could indeed be very beneficial for the DRR phase. Exchange programmes, in addition to domestic education, contribute to better make use of existing knowledge from external sources. However, this goes hand in hand with, on one hand the country's view of recognising existing knowledge and expertise in other countries, and on the other hand the willingness and openness to share knowledge across borders. Moreover, the level of openness affects the remaining parts of the DM process as well as it affects the willingness to open up the country's borders to international assistance during the response and recovery phases of a disaster. Thus, the openness of country's borders, both literally (response and recovery) and figurative (DRR) speaking, is considered to create capacity.

Human Rights

The sub-aspect "Human Rights" refers to the 30 articles which outline the view of the United Nations General Assembly on the human rights, adopted by the General Assembly in 1948 (Internet 1). Discussing Human Rights issues in relation to disasters is not a simple task. However, it is not that difficult to comprehend the link between vulnerable people and violations against the Human Rights. This link is strongly emphasised by Becker (2002:51) who states: "Lack of access to the resources identified as causing vulnerability constitutes violations of particular Human Rights". Wisner et al. (2004:144) also recognises the important linkage between disasters and Human Rights issues, especially in the context of famines.

According to the Universal Declaration of Human Rights everyone should for instance have the right to food, clothing, housing and medical care, necessary social services and a social security net in case of illness, age, widowhood etc. (No 25); to a safe and secure home, to hold their own opinion and express this in media (No 19), the right to organise themselves (No 20), equal right to public service

(No 21), right to elementary education and equal access to higher based on merit (No 26) (Internet 1).

The specific human rights all contribute to the DMC in different ways. For example, the right to express one's opinion in the media, as listed above, constitutes an important function as it offers a way of criticising the power within the country. The oppression of people's rights could also mean that risks are remained hidden from the public. Coppola (2007:239) also discusses this matter and adds that "...when nations impose severe restrictions on speech, media information or movement, reaching at-risk groups using conventional methods may not be possible". Much of these issues are also discussed under other aspects such as *Media* and *Public Awareness*.

The lack of any of these Rights could generally comprise characteristics for vulnerable groups of people (see the aspect *Demography*). Since vulnerability is seen as the opposite to "capable", we settle with stating that if the country complies with the Human Rights, this constitutes a capacity for DM as it increases the chances of the people being more resilient to the impact of a disaster. Therefore, complying with the human rights is a way of ensuring that a minimum standard of living for the people is achieved.

7.3 THE INSTITUTIONAL/LEGISLATIVE PROFILE

The institutional and legislative profile is a profile that to a large extent expands over all areas of society and which also affects actions taken and resources available within all the phases of the DM process. We argue that there must be laws governing that actions are taken as well as that there are material-, organisational- and human resources to allow for those actions to be taken prior to, during and after a disaster.

Prior to any more in-dept discussion, we will first give a brief explanation of what aspects we include within this profile. ISDR (2004:80) states that "Disaster risk³⁵ management must be the responsibility of governments. However, its success also depends on widespread decision-making and the participation of many others. Policy direction and legal foundations assure legitimacy but it is the professional and human resources available, on the ground, that are a true measure of success.". We find this quote to be a good starting-point when defining what we believe should be included in this profile as it identifies governments and other relevant stakeholders, a legal foundation as well as professional and human resources to be crucial parts in order to reach success. Additionally, we would like to add material resources, which are necessary for performance throughout the DM process, and also highlight the importance of co-operation and co-ordination. Altogether, these parts constitute the contents of *The Institutional/Legislative Profile*.

Another way of describing the potential contents of an Institutional and Legislative profile, even if fairly similar to the one outlined above, is given by the UNDP (2007:xiii), which has conducted a global review of how institutional and legislative systems (ILS) are constructed. The review was based on the following five core areas, which also constitute a base for the contents herein.

- Legal and regulatory framework;
- Policy and planning;
- Organisational aspects;
- Resources and capacities; and
- Partnerships (international and national levels) ILS.

³⁵ i.e. Disaster Management according to this report.

In addition to outlining the contents of the *Institutional and Legislative profile*, we find it necessary to also discuss its relevance in relation to a country's DMC, an importance that especially the UNDP emphasises upon. UNDP have supported over 50 DRR programmes in 63 countries and a substantial part of them were devoted to institutional capacity development (Ibid.). Furthermore, UNDP has identified governance as a key issue in reduction of disaster risks and states that the need to strengthen the institutional and legislative system is as important as ever (Ibid.). The importance of governance is further emphasised upon by the HFA (ISDR, 2005:6) as one of the five priorities for action is to "ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation". Hence, *The Institutional/Legislative Profile* is considered to be an important and crucial part of the DM process and within the continuing section we will discuss how its content could contribute to create either capacity or vulnerability to the country's overall DMC.

When discussing the parts included in this profile, we have chosen to structure the contents slightly differently compared to how it was done above either "Living with risk" (ISDR, 2004) or in the UNDP report "Support to Institutional and Legislative Systems for Disaster Risk Management" (UNDP, 2007). One reason for this is, as discussed within the Method section, that we strive to keep the entity of a factor (considered to affect the DMC) to the largest possible extent as complete as possible within one single aspect. Furthermore, how we structured the profile into aspects was also based upon that we have a different focus than the previously quoted literature. Instead of focusing on evaluating an ILS alone, our intention is to describe how capacity could be created within both the time- and space dimension. We therefore found that a slightly different approach would better suit our purpose. Nevertheless, the areas mentioned above are included and discussed within the aspects: *Legal and Regulatory Framework*, *Disaster Management Organisations* and *Other Relevant Stakeholders*. Furthermore, we have included an aspect that more specifically addresses a very fundamental resource (both material and human) that we see is related to many of the areas mentioned above, being the aspect *Early Warning Systems*. The areas of policy and partnership are discussed in more detail within the aspect *Political Climate and Relations* within *The Cultural/Social/Political Profile*.

7.3.1 Legal and Regulatory Framework

The *Legal and Regulatory Framework* constitutes a very important part of *The Institutional/Legislative Profile* and we will within this aspect give a few examples of how a country's laws, policies, regulations and codes could affect the DM process. The reason for addressing the importance of a country's entire legal and regulatory framework at this initial stage, in lieu of only including the legal framework assessing DM specific issues, is because we argue that the entity does to a very high degree affect the everyday life. As can be seen when studying the other aspects listed and elaborated within this report, it is evident that the everyday life situation is a very important issue that will affect the DMC in many areas. Hence, it is important to consider the entity of the legal and regulatory framework when discussing DM capacity. Notwithstanding this argument, further discussions of how the general legal and regulatory framework could affect the everyday life of the population will not be conducted within this aspect. Instead, we will cross-reference to such discussions within other aspects of this report. We will here settle with just highlighting the importance of acknowledging that the entire legal and regulatory framework will affect the DM process and that it will constitute an important part when evaluation a country's DMC. Additionally, we argue that a legal and regulatory framework that contributes to create a situation where vulnerability is reduced within the other aspects (all areas of society) creates capacity to a country's DM process. The focus of this aspect, *Legal and Regulatory Framework*, will however be on issues which more specifically and directly addresses and controls DM related matters.

The importance of the legal and regulatory framework is stressed by a number of authors. For example, InterWorks (1998:10, 12) discusses how “National Disaster Management Organisations” could be prevented or impeded by the existing policies and legislation. Within the InterWorks report (Ibid.) it is concluded that for agencies to exercise a disaster preparedness strategy, these agencies must be supported by policies, legislation and agreements as well as with resources. Alexander (2002:124) discusses planning in the light of the legal and regulatory framework and states that disaster planning must be supported by legal instruments that mandates, facilitates or regulates it. Further, Carter (1991:72) states that:

To deal effectively with disaster, therefore, requires a carefully calculated and accurate approach culminating in a series of counter measures which involve government, non-government agencies, the private sector and the general public. Seen in this combined and concerted light, counter disaster action would certainly seem to benefit from an appropriate form of legal backing. In fact, there are many instances on record where a lack of legislation caused problems and difficulties.

As per the quote above, Carter (Ibid.) also touches upon the various actors that needs to be considered within the DM process, a subject that we will return to later in this aspect, within the sub-aspects Ownership, and also within the two subsequent aspects *Disaster Management Organisations* and *Other Relevant Stakeholders*. Another reference to the importance of legal and regulatory framework is given by the HFA. The HFA (ISDR, 2005:6) identifies “adopt, or modify where necessary, legislation to support disaster risk reduction, including regulations and mechanisms that encourage compliance and that promote incentives for undertaking risk reduction and mitigation activities” (:6 6) as one of the key activities.

A DM national policy and legislative frameworks could be constructed in many ways (Twigg, 2004:196), however they should include the items listed and discussed below.

- A disaster (or risk) management policy that addresses preparedness and mitigation;
- A strategy for attaining policy goals;
- A legal basis for actions: this can take the form of acts of parliament creating the necessary administrative structures and financial instruments, and setting relevant laws and regulations (e.g. concerning building standards or land use); and
- Administrative structures and systems with the human-, technical- and financial capacity to implement the Disaster Management strategy, at all levels of government and integrated with other government departments (Twigg, 2004:196).

In accordance with the above, the legal and regulatory framework within a country to a large extent confines the entire DM process. We will therefore limit our scope to only give a few examples of some areas where the legal and regulatory framework affects the DMC, this to highlight how capacity could be created. These examples are given in the sub-aspects Policy and strategy, Legislation and Administrative structure, as per the bullet points above. One additional sub-aspect, Ownership, has also been included.

Policy and strategy

The policy and strategy are important in order to set goals and to identify and describe a method for moving towards those goals. These steps are crucial as they indicate the country’s level of commitment to DM as well as how the country intends to reach the goals related to the DM. Capacity can be created with regards to establishing a policy as it could encourage improvement. Capacity could also be created if the strategy outlines a realistic way of reaching these improvements. One example of such a goal could for example comprise mainstreaming DRR into all areas of society where feasible, a goal emphasised by the HFA (ISDR, 2005). Such mainstreaming is

further being adopted by several organisations in their own projects, Swedish Sida³⁶ being one of them (M Hauer, direct communication on the 26th of April 2007). Further discussions regarding the political commitment necessary for setting up and following the policy and strategy are undertaken within the aspect *Political Climate and Relations*.

Legislation

The legislation provides a formal basis for counter-disaster actions and hence formally supports the organisational arrangements within plans, preparedness measures, response action and the like (Carter, 1991:72). However, there is a fine balance between a comprehensive legal framework being “complete” and being too bureaucratic. Comparing different country’s amount of law texts, it is obvious that there is a difference, most likely depending on culture and traditions. We argue that capacity could be created if an appropriate foundation for the actions that should be taken within the DM process is outlined within the legal and regulatory framework. Furthermore, a legal framework that allows for actions to be taken in a timely manner and which is flexible to adapt to the current needs contributes to create capacity. The legislation related to DM should in our opinion, in order to create capacity, also cater for that actors are not reluctant to take action due to them being worried to face post-incident legal action (examples of this could be seen from Hurricane Katrina, USA, 2005 (C. Brown direct communication on the 17th of April 2007)).

UNDP (2007:12) describes the intentions with a legislative framework stating that “laws set standards and objectives and assign mandates and responsibilities to different actors. Regulation and codes describe specific procedures and norms and seek to encourage or discourage certain behaviour”. As already mentioned, different actors will be addressed later on within this aspect and within the following two aspects. Below, we will discuss regulation and codes.

Regulatory measures

Regulatory measures are about mitigating risks through either reducing the potential consequences of hazards or through reducing the likelihood of the hazard materialising. Coppola (2007:180-186) has identified a number of areas where regulatory measures could reduce risks. These areas include: building codes; land use management; open space preservation; protective resource preservation; denial of service to high risk areas; density control; building use regulations; mitigation easements; hazardous materials (manufacture, use, transport, and disposal) safety standards and regulations; natural resource use regulations; storm water management regulations; environmental protection regulations; public disclosure regulations; and mitigation requirements on loans.

The items listed above give an indication of the width of areas that could be regulated to reduce risks and consequently contribute to create capacity. Vice versa, i.e. conditions that increase vulnerability could on the other hand be induced if such areas as listed above are not regulated appropriately. Additionally, the width of the areas also gives a strong indication of the many relevant stakeholders.

Below, we will give one example describing the importance of regulatory measures within the field of construction, as being one of the listed areas. However, the construction industry is far from the only one in need of regulatory measures and throughout the report we have given cross-references (both in sections located before and after this aspect) to the *Legal and Regulatory Framework* arguing the close linkage between this and other aspects. Such cross-references then imply that further capacity to the discussed aspect could be generated if its content is addressed and controlled within a country’s legal and regulatory framework.

³⁶ Sida, Swedish International Development Cooperation Agency.

Construction regulations

It is considered that construction regulations should be implemented to control all man-made constructions in society. To fully constitute a capacity this means that all constructions need to be regulated from a risk perspective when manufactured and consequently, the legal framework has to comprise codes and regulations to assure that both buildings and structures are designed according to the hazards that the country is facing. Another subject, which needs to be included in the legal framework, is maintenance. Capacity is also created through incorporating maintenance within the legislation. The above does not only concern dwellings, office buildings and public buildings, but also infrastructure and other types of constructions that are important for a functioning society.

The importance of codes addressing building safety is easily understood, perhaps since most of us have seen pictures of collapsed buildings in the aftermath of an earthquake or houses where the roofs have blown off due to coastal storms. The correlation between building codes and direct losses of life are rather clear. However such links might not be as clear when it comes to regulations and codes within other areas than buildings where people live or work. Nonetheless, adequate regulations are important for all constructions throughout society and from a DM perspective, particularly constructions that are vital for response and recovery, (for example all sorts of infrastructure). Additionally, such codes need to take into consideration effects from a disaster that extends beyond the immediate impact. Consequently, codes and regulations contribute to create capacity if they incorporate regulations of constructions throughout all of society and if they consider the consequences from a triggering event also in a long-term perspective and not only the immediate effects of the impact.

Administrative structure

The administrative structures and systems are to assure that the laws are implemented and acted upon, since regardless of how well designed and adequate a law or a regulation might be, it will not contribute to create capacity if it is not implemented. Ensuring the implementation of laws and regulations is hence a prerequisite in order for any of the other measures discussed above (policy, strategy and legislation) to contribute to create capacity.

Methods to implement the regulatory measures are likely to vary and enforcement is not uncomplicated. InterWorks (1998:12) states that the laws are only as effective as those who enforce them and describes a situation where developers in Malaysia began construction works in restricted areas knowing that there would be no repercussions. UNDP also (2007:12) points at the importance of implementation stating that the effectiveness of the legislation rests upon the administrative capacity of a country, but also on the acceptance and awareness of rules and norms by the population. The administrative capacity then comprises the ability to implement the regulatory measures. The acceptance and awareness are two areas that could easily be overlooked but for the legal and regulatory framework to fulfil its role and create capacity, those two sides must also be taken into consideration.

Closely linked to awareness, there is limited value in a good legal framework if it is not understood. The laws and regulations should therefore be written (or guidance should be given) so that they could easily be understood by the people that should obey them. For example, if returning to the example above regarding construction codes and regulations, within many LDCs much work is carried out by local handymen (or farmers) who might have little experience in the use of modern construction techniques and hence, there is a large need for easily understandable building codes. Consequently, capacity is created through an implemented and easily interpreted legal and regulatory framework.

Ownership

Applicable to all areas within the legal and regulatory framework is that in order for the contents to be implemented, implementing actors are required. Such actors must consequently be aware of their roles within the DM process, their responsibility to implement the regulations and have the mandate to do so. Hence, it is important that the legislation identifies all relevant stakeholders within the entire space dimension, related to all phases of the DM process and defines their roles, responsibilities and mandates (Carter, 1991:72).

The legislation should further, in our opinion, strive to avoid any confusion and potential gaps within the process. Co-ordination and co-operation between all stakeholders hence becomes two lead words for the legal and regulatory framework when assessing capacity. Co-ordination and co-operation are further discussed within the next aspect, *Disaster Management Organisations*.

Accordingly, we consider it to be a capacity if all potential stakeholders are at least indirectly included within the regulations and that the legal and regulatory framework ensures stakeholder-responsibility for areas crucial to a functioning society no matter within what areas of society these might be located within. For example, it is important that the regulatory measures incorporate the private sector, both with regards to ensuring that the public sector does not contribute to increase the risk of a disaster to materialise, and also that the private sector does not worsen a given situation during and after a disaster.

In summary, we argue that capacity could be created if the legal framework for DM establishes relevant stakeholders and their responsibility and mandates, and ensures that the tasks are undertaken effectively and efficiently and that “nothing is done twice”.

7.3.2 Disaster Management Organisations

The aspect *Disaster Management Organisations* (DMOs) represents actors assigned by the government with a direct and outspoken responsibility for the DRR, Response and/or Recovery phases of the DM process. In accordance with the introductory text to *The Institutional/Legislative Profile*, this aspect indirectly recognises the government as the lead actor, which in turn delegate different tasks to other actors. The origin of these actors will vary depending on the subject country and could comprise anything from a ministry within the government to the National Red Cross/Red Crescent society. This said, actors whose actions relate to and affect the DM process are by no means limited to actors with a clearly identified mandate. However, actors without a direct and outspoken responsibility will be discussed under the aspect *Other Relevant Stakeholders*.

One of the most important mitigation measures is the development of a disaster³⁷ response capacity (Coppola, 2007:205). According to Coppola (Ibid.), the Disaster Management systems (organisations) include fire department resources, law enforcement resources, public health infrastructure (clinics hospitals, ambulances, etc.), search and rescue teams, hazardous materials teams, special weapons and tactics teams, emergency management specialists or departments, disaster medical and mortuary teams, debris management teams, mass casualty management teams, infrastructure repair resources, communication co-ordinators, and volunteer management teams. We find this list quite comprehensive in identifying crucial components of the DMOs. However, it gives no guidance regarding what actors should have the responsibility for each of these tasks. Therefore, due to the multi-sectorial nature of disasters we would like to emphasise that in order to fully create capacity in this context, each country must evaluate what actors that might play an important role with regards to the relevant hazards faced by the country. Furthermore, these actors own ability to take action much be assessed. Here, it might be worth mentioning that the National Society of the Red

³⁷ Coppola here used the term emergency.

Cross/Red Crescent has an auxiliary role to the government and that their mandate will vary extensively from country to country. In many countries they constitute the organisation responsible for one or several of the areas listed above and hence, this aspect is by no means limited to only governmental actors.

The importance of DMOs is further recognised by the HFA (ISDR, 2005:6), as one of their Priorities for Action is to strengthen disaster preparedness for effective response at all levels. Additionally, Wisner et al. (2004:346) touches upon this subject when identifying investment in institutional capital (e.g. creation of a capable, accountable and transparently operation government institutions for the prevention and mitigation of disaster risk, not only for response and preparedness) as one of the success factor from Cuba's Disaster Management of Hurricane Michelle in 2001. Wisner et al. (2004:245) further claims that the extraordinary differences in mortality from similar physical events should alert planners, citizen activists and development agencies to significant differences in preparedness, response and vulnerability.

The different actors within the DMOs will obviously require different resources in order to perform their assigned responsibilities and consequently in order to constitute an actual asset contributing to create capacity. What these resources would comprise of is obviously depending upon their specific tasks, although human resources, education and material resources are considered to be three basic components. Additionally, a high level of co-operation and co-ordination is crucial, which by turns requires communication. Coburn, Spence & Pomonis (1994:23) writes that "a co-ordinated disaster preparedness and response system is a prerequisite to any disaster preparedness plan". Furthermore, a successful intervention also requires planning and training based upon relevant scenarios, accurate background information and statistical data of the country and its hazards (Coppola, 2007:210-222). Accordingly, the following sub-aspects have been identified within this aspect:

- Human resources, educational level and special skills;
- Material resources;
- Organisation, co-ordination and co-operation;
- Communication;
- Planning and training; and
- Background information and statistical data.

Furthermore, in addition to a legal and regulatory framework assuring that the adequate means are available and that actions are taken (as discussed within the previous aspect), sufficient financial resources are essential as well. Coppola (2007:221) states that "during emergencies, the costs of services and supplies can skyrocket and, without previously established laws defining where that money will come from and who may authorise it, confusion will quickly ensue". However, such financial aspects will not be discussed further herein since we consider them to be better placed under the aspect *Financial Factors from a National Perspective* addressed later on within this report.

One important capacity that is central to the DMOs is the ability to identify hazards. This is closely linked to the aspect *Early Warning Systems*, here we only would like to mention that to be able to install an early warning system it is important to know what to look for. Consequently, capacity is created if the DMOs have the ability to conduct appropriate analyses and identify relevant hazards both from a short and long term perspective.

Within the continuing discussions we will treat the DMOs as one single entity. This means that, in order to keep the discussions within this aspect manageable, we have not divided the aspect into discussions about DMOs on local-, regional- or national level. Accordingly, the sub-aspects discussed

below are not considered to be specific for a certain level of society. An assessment of a country's DMOs must address all levels as well as the co-operation and co-ordination between all levels to create a comprehensive representation of the current situation.

In general, capacity is created if the DMOs meet the needs that arise in relation to different hazards both in time and space (Fredholm & Göransson, 2006:15-30). This means that the DMOs must be able to handle risks appropriately prior to a disaster and minimise the consequences through own actions during and after the impact. Capacity is also dependent upon if the DMOs meet the needs created from all parts of society and that it has adopted a "whole-of-society" approach. Other capacity-creating parts of the DMOs responsibilities could comprise education of the general public and putting pressure on the government and relevant stakeholders to engage in DM related work.

Human resources, educational level and special skills

Very few nations outside the industrialised world have developed the capacity to address the more comprehensive needs of hazard- and risk management (Coppola, 2007:337). We argue that the first step towards such development would be to have adequate human resources. Without sufficient human resources any DMOs would be fruitless in their efforts to manage a disaster before, during or after the impact of the triggering event. Twigg (2004:61) defines the disaster community as those who are professionally engaged in efforts to prevent disasters and deal with their consequences. He further discusses the width of necessary professional disciplines when stating that the disaster community comprises physical scientists (of many different kinds: earth scientists, hydrologists and meteorologists, for instance), social scientists (also of many different kinds including geographers, anthropologists, sociologists and economists), engineers, architects, doctors, psychologists, development and emergency planners, and humanitarian relief workers. Thus, we argue that capacity is created if there are sufficient competent persons working within the organisations and that their competence is wide enough to cover all relevant factors of disasters.

When ensuring that the human resources are sufficient, an important step is to assure that the personnel have the appropriate education/knowledge. This includes education within the many different professional disciplines as described by Twigg (2004:61) above, but also that their education is broadened to include the DM process. From a DM perspective, it is hence not considered enough to be a good physical scientist unless you are a good physical scientist with knowledge about how your trade fits into the DM process and how other areas of expertise relates to the DM process. Capacity is hence created if all the personnel within the DMOs have a thorough understanding of the DM process and what role they could play related to disasters and how their actions could affect other areas. If successfully adopting a holistic approach, resources could be spent where needed and existing and available special skills could be utilised in an effective and efficient manner.

Education as discussed above obviously requires educational facilities. Capacity in this context therefore requires educational facilities within the country advocating DM, or that the DMOs personnel have the ability to go abroad to study these subjects. We also argue that capacity is created if the educational facilities are constantly monitoring other educational and research fields (related to DM) around the world to constantly enhance their current level of knowledge. HFA (ISDR, 2005:10) identifies "Promote the implementation of local risk assessment and disaster preparedness programmes in schools and institutions of higher education" as one of their key activities, which puts further weight to our argument of the importance of education related to DM. The lack of educational opportunities would on the other hand create vulnerability, since it would make the transfer of knowledge within the organisations more difficult.

Within the DMOs it is also important to create capacity through specialised skills to handle complicated tasks that often are related to the direct response of disasters. Such special skills might comprise, but not be limited to; search and rescue, first aid and medical treatment, evacuation, disaster assessments (situational assessment, needs assessment), treating the hazard, provision of water food and shelter, being able to repair critical infrastructure (Coppola, 2007:253-261, 276). The different special skills must of course be based upon the different hazards relevant for each country. If the country has the “adequate skills” for their needs, these skills are considered to create capacity. On the other hand, if such required skills are not available, the consequences from a situation could be worsened hence, the lack of such skills considered being a vulnerability. It might be difficult for the DMOs to provide for all of skills needed, however, knowledge of from where such skills can be acquired when needed is considered to be a capacity as well as to have the ability to co-ordinate such external resources. Co-ordination will be discussed further below.

Human resources are hence considered to constitute a capacity, but even if all human resources required would be available, these people would still be fairly limited in their possible actions if the DMOs did not have the appropriate material resources.

Material resources

The need for material resources concerns all phases of a disaster. The DMOs require resources to manage their day-to-day responsibilities, to meet the requirements created during a disaster and to meet the demands that will arise in its aftermath. In order to constitute a capacity, the material resources must hence be based on the potential needs that might emanate related to the threats the subject country is facing and the tasks the DMOs might be responsible for. Perhaps most importantly, these design criteria must be put in perspective of what the persons at risk might require. (Fredholm & Göransson, 2006:15-30). In the event of a disaster, the most basic needs is considered to be food, water and shelter and hence is it crucial to have the capacity to, as a first step, meet such needs. This might require pre-positioning of resources and supplies where necessary.

In the context of material resources that might be necessary in order to meet the needs during the response phase of a disaster, Coppola (2007:219) identifies; fire suppression equipment, rescue equipment, personal protective equipment, disaster medical care, communication systems, public warning and alert systems (public emergency reporting systems, telephone based public warning systems, remote-activated emergency (weather) radios, sirens and public announcement systems, signs, internet based warnings, disaster public information systems), other emergency and disaster response support equipment (disaster feeding, transportation, storage retrieval and reporting of information, security and safety, environmental testing, shelter, imaging, damage and needs assessment). The development of tools and other equipment to assist in disaster response and recovery has helped response agencies to drastically reduce the number of injuries and deaths and the amount of property damaged or destroyed as result of disaster events (Coppola, 2007:218-221). This can be exemplified with the rapid advances in information and communications technologies, especially Geographical Information Systems (GIS), which have created a potential ability to analyse hazards, risks and vulnerability, and plan for disasters (Twigg 2004:45). Such equipment, as listed above, could hence create capacity if it comprises adequate material resources to assure that the DMOs meet the needs of the general public, created before, during and after the triggering event of a disaster.

Should the DMOs not have all required resources within their own organisation, capacity could be created if they have identified where such resources could be obtained from during the DRR phase. This could comprise to address relevant stakeholders such as neighbouring countries, NGOs, IFRC and the UN to see what assistance they might be able to provide. Alexander (2002:74-76) has produces a list of relief items that might be supplied internationally comprising items such as; communications

and connectivity, personal needs, cooking and consuming food, food and water, shelter and sleeping needs, transportation, agricultural needs, construction material, plant and tools, fire fighting equipment, medical equipment and medical supplies. We consider this list to be quite comprehensive. Nonetheless, in order to constitute a capacity it is necessary to know where the country's deficits are, what aid the country could expect and when such aid might arrive. Mutual aid agreements might also be necessary, but such factors are addressed within the aspect *Political Climate and Relations*.

Co-operation and Co-ordination

As mentioned previously, even if both human and material resources are available, it is essential that all actors that are a part of the DM process, and in particular the DMOs, can co-operate and that they are co-ordinated. Co-operation and co-ordination between different DMOs, and also with other relevant stakeholders, is necessary at all stages of a disaster, i.e. prior to, during and after the impact but especially during the time-pressured response phase. A well functioning entity is crucial since there is no time to "start something new up", but the success is highly dependent on the existing structure.

The importance of collaboration is underpinned by Jeggle (2001:337) who writes that "key components of success lies in commitment to action by a range of individual institutions that accept a common vision but operate within a flexible organisational network that supports the exchange of information and resources needed for co-ordinated action". Additionally, InterWorks (1998:1) discusses the need for co-ordination between actors responsible for different parts of the DM process when stating that "close working linkages are needed between bodies responsible for relief and mitigation programs to ensure that risk reduction measures are introduced in the immediate post-disaster situation and to enhance future preparedness". Wisner et al. (2004:346) further identifies good co-ordination, information sharing and co-operation among the institutions involved in disaster risk reduction as three of the success factors in the response to the hurricane Michelle in Cuba in 2001. Furthermore, in the context of international DM, Coppola (2007:279) states that "co-ordination is a vital and immediate component of international disaster response because of the sheer number of agencies that quickly descend upon the impacted areas".

According to the references made above, co-operation and co-ordination are important puzzle pieces in order to create capacity. However, to be able to co-operate you must know who to co-operate with and the creation of networks is therefore a crucial part. This issue is highlighted by the HFA (ISDR, 2005:9) as it identifies "promote and improve dialogue and co-operation among scientific communities and practitioners working on disaster risk reduction, and encourage partnerships among stakeholders, including those working on the socio-economic dimensions of disaster risk reduction" as one of the key activities. The establishing of networks and the need for co-operation are also considered to extend beyond the subject country, something that is also emphasised by the HFA (ISDR, 2005:9). A second key activity comprises "strengthen networks among disaster experts, managers and planners across sectors and between regions, and create or strengthen procedures for using available expertise when agencies and other important actors develop local risk reduction plans". The importance and impact of regional support mechanisms is further discussed within the sub-aspect Human resources, educational level and special skills within this aspect and also within the aspect *Political Climate and Relations*.

Co-operation and co-ordination are thus vital parts of the DMOs. Despite this, there are many examples of disasters in the past, which have shown deficiencies in these areas. InterWorks (1998:5) touches upon the problem of vertical co-ordination and co-operation when writing that "The operation of Disaster Management structures is often problematic at regional and district levels. Major problems include vertical communication between different levels of government as well as

low levels of effectiveness in local structures for Disaster Management”. Planning does not have the intended effect unless there is “horizontal co-ordination” at central government levels, among ministries and specialised government bodies, and “vertical co-ordination” between central and local authorities (Coburn, Spence & Pomonis, 1994:23). This requires a structure for decision-making, inter-ministerial committees, focal points within each ministry to be responsible and communication, as well as regional and community structures for implementation at the local level (Ibid.). Consequently, both adequate horizontal and vertical co-operation and co-ordination are considered to create capacity.

Besides the important issues of co-operation and co-ordination, the DMOs must also be organised to assure that it runs both effective and efficient in order to create capacity. If not, we argue that there probably will be needs that are not met and hence, such circumstances could contribute to create vulnerability.

Level of centralisation

The way in which country’s DMOs are organised as well as the level of centralisation varies. A too centralised organisation might cause vulnerability since it might lose the “whole-of-society approach”. However a decentralised organisation might on the other hand transfer responsibility for implementation on those who can only address local-level causes of vulnerability (Twigg, 2004:69). In such a system, a local government might not have the jurisdiction or political power to address the deeper political, social and economic forces that put people at risk (Ibid.). Disaster reduction could then easily become fragmented into a series of small-scale initiatives, focusing on individual hazard events and artificially separated from the surrounding vulnerability context (Ibid.). InterWorks (1998:1) identifies the links from the central to local government as a critical part of the system and that the system must ensure a very close working relationship between the policy formulating body and the operational agency. Therefore, no matter what structure the organisation comprise, we considered it to be a capacity if it is organised to assure that all needs that might be created in a disaster are met and that the DMOs runs both effectively and efficiently.

Command/Co-ordination structure

Another crucial part is the command/co-ordination structure. Alexander (2002:101) states that one of the most important factors of the disaster plan is its command structure and calls it “the backbone of emergency operations”. This requires a legal framework that clearly identifies how a disaster should be managed and how co-operation should be conducted. The legal framework is discussed in more detail under the aspect *Legal and Regulatory Framework*. We argue that capacity could be created if the command structure and legal framework cater for comprehensive DMOs, capable of co-ordination and co-operation.

Furthermore, it is important to assure that the DMOs could incorporate other resources into its structure. This means that capacity can be created if actors, such as other parts of the government, UN, IFRC, NGOs, SRSA, private businesses and volunteers could be included and hence make a valuable contribution to the DMOs. These participating actors will be discussed further under the aspect *Other Relevant Stakeholders*. If such actors could not be incorporated into the structure of the DMOs, vulnerability could instead be created, since it would mean a sub-optimisation of available resources.

Communication

The importance of communication in relation to all phases of disasters is no longer questionable. Alexander (2002:90) writes that information is one of the prime resources in the planning and management of disasters. Hence the quantity, quality, flow and utilisation of information are determining factors to the level of success achieved in mitigating catastrophes or dealing with disasters.

The need for information underpins the need for effective communication. There are different types of communication in the context of disasters, and each type requires different skills (Thelander, 2007-01-17). "Risk communication" is what we refer to as the communication (regarding risks) that takes place prior to any trigger event occurs, whereas "disaster communication" (or crisis communication) refers the communication during the response and recovery phases of a disaster, i.e. after a trigger event has occurred. Risk communication is important since vulnerable people need to know about the hazards and risks they face, as well as possible measures they could take to mitigate risks and to prepare should a threat materialise. It is also important that the people responsible for the different parts of the DM process are aware of the views and priorities of the population at risk (Twigg, 2004:165). Furthermore, different groups within society are susceptible to information in different ways and knowledge of different approaches on how to reach all different target groups hence constitute a capacity (Thelander, 2007-01-17). Coppola (2007:237) states that even if the support is marginal, effective risk communication is undoubtedly enhanced by the official support of a nation's government and there needs to be a link between the professionals with knowledge, the decision-makers and the people at risk. It is also important to note that in order to meet all needs this link should, constitute of two-way communication. Although not only the responsibility of the government, it should be in the DMOs' interest to take the initiative to ensure that communication during all phases will meet the associated needs. We therefore argue that capacity is created if there is an ability to communicate the relevant information via appropriate media, at the right time to the intended persons.

Wisner et al. (2004:346) further identifies information within different institutions involved in DM as an important part of DMOs, thereby stressing the importance of not only external communication, but also the ability to keep the internal personnel up to date. Also, during the recovery phase, it is important to take advantage of "lessons learned" to prevent mistakes from being repeated and using the "window of opportunity".

With regards to communication within the DMOs, problems could occur between different levels as well as between different actors within the DMOs (InterWorks 1998:5). Such problems, i.e. inadequate communication, could cause large problems during all phases of disasters since the co-operation and co-ordination of different levels as well as between different organisations are essential for providing effective and efficient measures almost no-matter what the task would comprise. Alexander (2002:169) further refers to communication during a disaster as abnormal compared to the communication undertaken in the absence of a disaster and as a consequence, having a communication system that is working under normal conditions does not guarantee that the system is sufficient during a disaster.

United Nations Development Programme Disaster Management Training Programme [UNDP DMTP] (1992:85) identifies two prerequisites for communication within the DMOs, one being equipment (discussed under the sub aspect Material resources) and the other concerning information management: the protocol of knowing who communicates what information to whom, what priority is given to it, and how it is disseminated and interpreted. Alexander (2002:169) on the other hand identifies four different prerequisites of the communication process; the technological hardware used for the composition and transfer of messages; the procedures formats and conventions used

with the technology; human factors of perception and operability; and the organisational context of communication which imposes a framework of rules, procedures and cultures. Regardless of how communication is subdivided or organised, we argue that capacity could be created if there are both sufficient material resources and an organisation sufficiently skilled to manage such resources. Further, in our opinion, the skills and ability to communicate only constitute a capacity if the organisation has knowledge of the importance of information and the importance of disseminating the information within the organisation.

In close relation to issues of communication is the issue of trust amongst the decision-makers/political leaders and the general public. The trust issue is discussed further under the aspect *Political climate and relations*. Although perhaps not a legal criteria, there is often a need for political leaders to address the public in times of crisis. The importance of such symbolic gestures is difficult to estimate but experience has shown that the actions taken by leaders could have great effects on especially how the disaster is perceived by the affected population (Enander, 2005:118-120). The perception of risk and disasters is discussed further under the aspect *Risk Perception*.

To summarise, communication before-, during- and after a disaster, to-, within- and from the DMOs is considered to affect a country's DMC, and thus, if such communication is undertaken in an appropriate way related to the timing, potential threat, the receivers etc., it could contribute to create capacity. We also consider that capacity could be created if the DMOs have an understanding of the value of symbolic gestures and the way people perceive risks and disasters.

Planning and training

One important factor frequently mentioned in the contexts of DM and DMOs is the need for appropriate planning and subsequent training. Coppola (2007:205) identifies comprehensive emergency response plans for the range of known hazards that exist, dealing responsibilities, operational tasks, leadership roles, and administrative issues (such as what agency pays for what actions, and what reimbursement will occur) as one part that builds capacity within the DMOs. Wisner et al. (2004:267) also indirectly emphasise the relevance of planning and training when stating that timely evacuation, possible because of advance preparations, training and planning was the most important factor saving lives in hurricane Michelle in Cuba in 2001. Also, the importance of planning has been recognised in documents such as "Yokohama Strategy and Plan of Action for a Safer World" (ISDR 1994) and "Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters" (ISDR, 2005) where activities such as development of documented comprehensive national Disaster Management plans, reviews and periodically updates are identified. These documents (ISDR, 1994; ISDR, 2005) further state that disaster preparedness and contingency plans and policies at all levels should be developed with a particular focus on the most vulnerable areas. Regular disaster preparedness exercises, including evacuation drills and access to essential food and non-food relief supplies, as appropriate to local needs should also be promoted. Plans must be integrated at each jurisdictional level where disaster planning is conducted to improve overall community response co-ordination (Coppola, 2007:210). Hence, capacity is dependent on the involvement of all relevant actors (including external) in the emergency response and recovery, preferably from the time of construction of the plan and onwards. To create capacity through planning, an analysis of relevant stakeholders should therefore be the base to assure completeness of the plan. Several other aspects should also be considered, out of which Alexander (2002:101, 256) addresses two, the command structure and the mass media.

We further argue that in order to fully create capacity, planning should include what actions should be taken prior to a disaster strike (i.e. DRR actions), actions that will be required during a disaster and actions likely to be required during the recovery phase. Planning for recovery could also include activities such as: the site selection for long term temporary housing, mapping of contractors that

could be called upon to assist in infrastructure and housing, reparation and reconstruction, co-ordination mechanisms, volunteer and donations management etc (Coppola, 2007:302).

Different types of plans are often named differently for example; disaster operations plan, contingency plan, evacuation procedures and emergency food plan. Regardless of what kind of plans are discussed, or what they are called, planning is only considered to fully create capacity if all plans together meet the needs from the affected population and assures that the intentions of the DMOs will be fulfilled based on a long term perspective.

Further capacity could be created if relevant models are used in the process of planning. This is emphasised upon by Alexander (2002:52) who discusses the importance of computer methods as well as well constructed, well thought out models to increase the knowledge of the disaster process hence improving the planning.

A subsequent step to planning would be to implement and train according to the plans. Wisner et al. (2004:305) have identified the lack of just training as a factor that negatively affected the evacuation during an earthquake in Colombia (1985). The need for training is unquestionably relevant to the DMOs and obviously, a better trained official is more capable of managing the phases of a disaster than an official that lack the relevant training. Exercises not only prepare individuals to carry out their duties, but also assist in finding problems in a non-emergency situation (Coppola, 2007:216). Training is also discussed by Shaw & Okazaki (2003:49), more specifically the importance of sustaining the capability of community volunteers with training. Shaw & Okazaki claims that disasters may not occur regularly and hence that it is important that the interest and training of volunteers is sustained. Annual events to organise mock-drills and other related activities become essential to sustain sensitivity and enthusiasm. Alexander (2002:87) further argues that it is a very good idea to include requirements for detailed field exercises into the emergency plan as it is written.

To summarise, planning and training of plans are in accordance to the above considered to create capacity to the country's DMOs. However, the organisation will change, people will learn new skills, the relevant scenarios which the plans are based upon will change and the context that the plans are set in will change. Therefore, it is important that the plans are constantly revised and improved (InterWorks, 1998:2). Accordingly, capacity could be created if plans are continuously revised, updated and improved.

Background information and statistical data

Planning and training (as discussed above) should be based on relevant background data, which requires that such data is available. Alexander (2002:90) discusses that information is one of the most important features in the DM process. The importance of relevant background information is also identified by HFA (ISDR, 2005:7) where four key activities are based around this matter. The HFA states for example that "statistical information on disaster occurrence, impacts and losses should be recorded, analysed and disseminated, on a regular base through international, regional, national and local mechanisms". Also "Yokohama Strategy and Plan of Action for a Safer World" (ISDR, 1994:12 out of 18) recognises such actions and recommends the endeavour to document all previous disasters. Wisner et al. (2004:346) further identified an institutionalised historical memory of disasters as a success factor in Cuba's management of hurricane Michelle in 2001.

Accordingly, it is considered to be a capacity if there is relevant statistical data available and that the collection of data is promoted. An important point to make is that this sub aspect relates to many other parts of the main aspect since planning and training should be based upon the background data. Furthermore, there must be effective ways of communicating the information as well as an organisation that is capable of handling the information. Material resources are required in order to

store and disseminate the information and finally, there must be human resources responsible for managing the information. Thus, all sub-aspects within DMOs are needed to fully create capacity at all levels of society and government.

7.3.3 Other Relevant Stakeholders

One of the fundamental ideas of this report is that DM and the effects of disasters affect the entire society and that as a consequence, the entire society should be involved with DM work. The previous aspect, *Disaster Management Organisations (DMOs)*, represents institutions assigned by the government with a direct and outspoken responsibility for actions taken prior to during and after a disaster. This aspect, *Other Relevant Stakeholders*, focuses on all the additional actors that contribute to the DM process, even if DM is not their main priority and even if they do not have a responsibility from a national point of view. These actors affect the DM on both a local and a national scale through their regular activities. Such actors could for example comprise departments within the government, businesses within the private sector, country NGO's, international aid organisations, local voluntary organisations and individuals, among others.

The Words into Action (ISDR, 2007:11) publication discusses the width of actors that are linked to the DM process and emphasises the need to engage all relevant stakeholders. The same report defines the expression "multi-stakeholders" as "a term to describe a grouping of individuals and organizations who have a interest or "stake" in a problem and who cooperate to take action on the problem - in this case to reduce disaster risk" (ISDR, 2007:9) Furthermore the expression "disaster risk reduction champion" is defined as "an influential person interested in disaster risk reduction, willing to take action to make disaster risk reduction a public priority. A champion may be any determined, top level government official, a professional in one or many fields or a community activist" (ISDR, 2007:9). Hence, such champion does not necessarily have to belong to the DMOs. The possibility to identify a person who has such an influence over the DM process within other sectors of society is evidently pointing towards the fact that other actors than the DMOs play important roles. Various actors within society could consequently contribute to either create capacity or vulnerability to the overall DMC and they should therefore be included within plans and exercises and constitute partners during co-ordination and co-operation in DM related matters. Below, we will briefly discuss a few potential relevant DM stakeholders within different areas of society.

To our understanding, it is very possible that many activities within the society are carried out without any thoughts on how they could affect the DMC, either positively or negatively. However, if for example the department of infrastructure constructs a road through a flood prone area without considering how this could affect the DM process, people's accessibility beyond that area might be restricted in the event of flooding. Consequently, conditions more vulnerable to flooding have been created which affects the persons beyond the flood prone area. Constructing roads and other similar "everyday activities" could thus directly affect the consequences of a triggering event. Other actions might have more indirect effects. Coppola (2007:404) discusses such indirect effects with regards to another major stakeholder (the private businesses) and concludes that if a major employer are unable to withstand impacts from a disaster, the whole community's economic and social recovery could be difficult or even impossible.

Moreover, there are often NGO's and international organisations that have the resources to assist a country during all phases of a disaster and in different areas of society. Such assistance might reduce the consequences through DRR, response and/or recovery and would hence constitute a capacity to a country if recognised and utilised.

Other actors included within this aspect are local organisations and volunteers, which could play important roles within a country's DMC. In the event of a disaster, response resources will be stretched to the limits of their capacity or even exceed their capacity during at least the first few

hours of response (Coppola, 2007:251). It is thus important that the general public is prepared to provide for their own initial needs. We further argue that the DRR work would be much more successful if all resources available within the society are utilised, both before and after a disaster strike. For instance, local leaders (see discussion below) could distribute information and local organisations could take the lead in DRR and recovery within the community.

In accordance with the above, there are relevant stakeholders within a number of areas and levels of society. In order to benefit from such actors, and the resources they could provide, these stakeholders need to be identified. In cases where these actors' "normal activities" do not concern DM, these actors need to be made aware of how their activities might affect the DMC. Such awareness-raising efforts are considered to create capacity. We further consider capacity to be created if relevant stakeholders have mainstreamed DM in to their business and hence are actively working to reduce, avoid and limit risks as well as preparing their organisation for the event of disastrous circumstances, thus adopting a holistic approach to DM.

In accordance with a holistic approach, co-operation and co-ordination between different organisations are necessary in order to optimise resources. The importance of such co-ordination approach is emphasised by the HFA (ISDR, 2005:14) as one of the key activities, is to develop a national co-ordination mechanism. Additionally, we argue that all different actors will have different skills and that the different actors therefore should be allowed to contribute with their specific skills to optimise the overall DMC.

As per the above, there are a number of ways that different relevant stakeholders could affect a country's DMC, within all levels of society. Volunteers and local organisations perhaps have the largest influence in their closest surroundings, while some NGO's and international organisations, businesses and departments within the government might influence society in a wider perspective, extending from local to national level. When conducting an analysis of an entire country's DMC it is, as emphasised throughout this report, fundamentally important to consider capacity in context of the different levels of society. However, for the rest of this aspect the different participating actors will just be described as actors creating capacity or vulnerability with a focus on a country perspective, this to be in line with the objectives of the report and in order to limit the length of the discussions herein.

In our viewpoint, depending on what actor is considered, an actor could affect many, possibly all, other aspects as outlined within this report. For example, an international organisation might assist the country in developing a relevant legal framework or in building capacity within their DMOs (S. Hodge direct communication on the 4th of May 2007, C Sharp direct communication on the 26th of April 2007) while private businesses (Coppola, 2007:229) and local leaders (Shaw & Okazaki, 2003:68) might help to organise the community and raise public awareness. ISDR (2004:177) writes: "Local leaders, including both men and women drawn from political, social and economic sectors, need to assume a primary responsibility for the protection of their own communities". Relevant stakeholders might therefore play crucial roles in all other aspects and thereby contribute to create capacity. Likewise, the actors could, in the opposite manner, contribute to create vulnerability.

Below, we have listed three categories of plausible relevant stakeholders including their respective area of responsibility. We do not claim this list to be complete; on the contrary there are a substantial number of actors that will not be mentioned. However, trying to achieve an all-encompassing list would be too time-consuming and would also have to be put together in the context of the subject country. Hence, such list is not relevant for this project. Instead, the groups listed and discussed below are intended to only cover the main characters of likely, relevant stakeholders including:

- Actors who in their everyday work will affect the DMC;
- International and national DM actors; and
- Local organisations and individuals.

Actors who in their everyday work will affect the DMC

For a society to function in everyday life, the contribution from a number of actors within a number of different areas is required. Such areas include everything from producing food to taking care of disposals, from delivering babies to arranging funerals, from construction to destruction of houses and of course everything there in-between. Such activities are part of everyday life but will also to a large extent indirectly affect a country's DMC. The way in which food is produced might affect the environmental status. In some cases there might not be enough food produced. The status of the health system will affect the resilience of the population and consequently how well the general public might cope during a disaster. The way houses are constructed will affect the extent of damage from an earthquake or a flooding. These "9-to-5" jobs, that at a first glance might seem to have no direct link to DMC, could consequently have a major influence on the DM process. Thus, those who provide these goods and services in fact constitute important actors that need to be considered. The major influence these actors have on the DMC could perhaps be related foremost to the DRR phase. However, there are several examples of where such actors have participated in the response and recovery phases of disasters. As one example, we could mention food suppliers. During Hurricane Katrina in the USA 2005, Wal-Mart constituted an important distributor of necessities to the affected people (C. Brown direct communication on the 17th of April 2007). Accordingly, several actors throughout all of society could in our opinion be involved and thereby influence the outcome of all phases of disasters.

The guiding document "Words into Action" (ISDR, 2007) identifies a number of recommended tasks when implementing the HFA. For each task, relevant actors, responsibilities and resources are identified and defined. After some comparison and compiling, a selection of them is listed below:

- Planning and policy making organisations, including legislative and executive entities such as key ministries and concerned national agencies;
- Public agencies responsible for overseeing implementation of codes, regulating, sanctioning or providing incentives, including key humanitarian and social service organisations;
- Owners and operators of economic and social infrastructure, including lifeline facilities critical for people's survival and the continuous function of communities;
- Relevant professionals including land-use planners, architects, engineers, developers, builders, advocates, educators, trainers, researchers etc;
- Agencies in charge of scientific data collection (e.g. meteorological service, geological and earth science institutes etc.) as well as agencies collecting population, economic, tax and development statistics (e.g. census bureau, tax administration etc.), (discussed within the aspect *Disaster Management Organisations*);
- Financial institutions including those that provide mortgage loans or insurance, communications technology, etc. (discussed within *The Economical Profile*);
- Media organisations (those that can communicate warnings and educate the public), (discussed within the aspect *Media*);
- Technical and scientific institutions or services dealing with risk identification, hazards monitoring, early warning and preparedness, (discussed within the aspect *Disaster Management Organisations*);
- Researchers and academics in social science, (discussed within the aspect *Disaster Management Organisations*); and
- Private business federations.

Furthermore, Coppola (2007:344) discusses different governmental departments that have a responsibility for DM work and states that:

The ability and appropriateness of these actors to participate in the process is closely connected to the individual characteristic of each community. Government use a range of titles to describe these departments many of which perform the same or similar activities despite differences in nomenclature. These offices may exist at local, regional or national levels.

Coppola (2007:344-347) continues with explaining how a number of departments could affect the DMC, including: Department (Ministry) of public works, Transportation department (Ministry) or Authority, Department (Ministry) of Public Health, Building or housing Department (Ministry) or Authority, Office of the Coroner, Department (Ministry) of the Environment, Department (Ministry) of Public Affairs, Department (Ministry) of Development, Department (Ministry) of Education, Department (Ministry) of Energy, Department (Ministry) of Agriculture, Forests, Fisheries, and Food, Department (Ministry) of Public Safety, Department (Ministry) of Civil Defence, Department (Ministry) of the Interior or Home Affairs, Department (Ministry) of Labour, Department (Ministry) of Communications, Department (Ministry) of Foreign Affairs, State or the Exterior, Office of the lead government executive. These different departments as listed above indicates the width of actors within the government, and for more details we recommend further reading in the original publication by Coppola (Ibid.).

Additionally to the actors linked to the government, the private sector could play a crucial role during a disaster (C. Brown direct communication on the 17th of April 2007). We have already mentioned food distributors as one example of such actors. Mileti (1999:255) also identifies the private sector to have an important role as researchers and donors to other organisations. As previously mentioned, it is also considered to be an important factor if private businesses have the ability to withstand a disaster, meaning to assure that life could get back to normal again. Without such resilience a great vulnerability is created since the society will suffer from a loss of income and recovery will be greatly hampered. We therefore argue that continuous work with Enterprise Risk Management (ERM) or Business Contingency Planning (BCP) and adopting a framework for risk reduction (The Committee of Sponsoring Organizations of the Treadway Commission, 2003) would constitute a good indicator of how aware companies are of such questions. The private sector would most likely also be directly linked to the DM process as responsible for some of the areas outlined in the bullet point list above and hence, capacity or vulnerability could be created with regards to the private sector in many different ways.

Another actor worth mentioning is the military. The military as a relevant stakeholder is for example discussed by Twigg (2002:76) who concludes that the military sometimes have been involved in risk reduction through, for example, putting up structural mitigation such as embankments. The military (or civil defence) does also in some countries, have the main responsibility of the DM (Coppola 2007:342). Twigg (2002:76) further discusses suspicion from the civil society towards the military's true motives for wanting to play a larger role in humanitarian and mitigation work, especially in countries where the armed forces have a history of interference in domestic policy-making. Twigg (Ibid.) however concludes that the military does have a role to play, and could contribute to create considerable capacity. Without discussing any pros or cons with the military role related to DM, it is considered that military resources could constitute a capacity and that the military hence is an actor that could affect a country's DMC.

International and national DM actors

The second group of actors discussed within this aspect concerns different organisations (national or international) whose main focus is to aid a country with questions related to DM. These actors might have other foci within the organisation as well, but below, we will only discuss their work with regards to DM. Coppola (2007:356) states that international development assistance is an ongoing activity involving many donors and an even greater number of recipients. In 2004, Coppola (Ibid.) quotes a figure of 78 billion US dollars related to this and hence international actors constitutes an important aspect of DM, which could contribute with knowledge, resources and/or money. To compile a list of various international or national agencies would be a massive task and would not in a direct way contribute with valuable input to this report and therefore no attempt to do so is made. Instead, we simply recognise that international and national organisations, whose main focus is DM and assisting countries with such tasks, could constitute a great capacity for a country. To fully utilise this capacity such actors must be identified and incorporated within the DM structure.

Local organisations and individuals

The final group of actors within the aspect *Other Relevant Stakeholders* concerns the different local organisations that could play crucial roles within the DM work. These organisations main focus is not DM (such organisations are discussed above) but merely the fact that they comprise organisational structures on which DM work could be built on is considered to create capacity. Wisner et al. (2007:328) address this matter and claim that increased self-organisation is a main prerequisite of disaster risk reduction in squatter settlements and remote villages. They further states that people who are better organised could be better prepared, better able to respond to hazard warnings and better able to demand government attention to hazards. It is thus considered to create capacity if there are organisations/structures on a local level, which could assist the DMOs in implementing the DMOs work. According to the WIA document (ISDR, 2007:100), such actors could include: women's and community groups, including advocates for residents for high risk environment; organisations that mandates others to take action or provide incentives for others to take action; communication and dissemination of information organisation; community organisations and community leaders; all different organisations such as churches local sports clubs as well as local leaders.

Finally, but by no means less important are the volunteers, a stakeholder group which may if utilised appropriately constitute a capacity and if not, which could create vulnerability for the other actors, especially during the response phase. Twigg (2002:295) states that:

A standard component of most community-level preparedness programmes is the establishment of a cadre of volunteers. The effectiveness of such teams depends on the number of volunteers, how widely they are distributed across an area at risk, the level of skills and commitment they possess and the extent of equipment and material resources at their disposal.

Thus volunteers should be educated, trained and incorporated within the DMOs and volunteers could create capacity if they are trained, organised and given the appropriate equipment. But volunteers could also constitute a vulnerability if unnecessary resources, due to the lack of planning, have to be directed towards organising volunteers instead of managing the disaster.

7.3.4 Early Warning Systems

Identifying and providing warning of an impending disaster is a complex issue comprising technical, organisational and social components. To acknowledge this complexity, this aspect is named *Early Warning Systems* and not only Early Warning. This aspect includes the whole process; from monitoring and identifying hazards, to education of the general public about the warning system and dissemination of a warning prior to a threat is materialising. The HFA (ISDR, 2005:7) addresses the different components of an early warning system when emphasising a development of people-

centred early warning systems, which is defined as one of the key activities. The HFA (Ibid.) states that the systems should include timely and understandable warnings to those at risk; take into account the demographic, gender, cultural and livelihood characteristics of the target audiences; include guidance on how to act upon warnings; and support effective operations by disaster managers and other decision makers.

Although disasters differ widely in both predictability and lead time, early warning as well as the direct actions taken to mitigate the consequences and prepare for impact are considered to have a significant impact on the consequences and hence the need for assistance. Such arguments are supported by Wisner et al. (2004:256) and exemplified as they describe how an improved warning system and evacuation procedures reduced the number of casualties in one of two neighbouring Indian states subjected to two similar cyclones in (1999). Further weight to the importance of this aspect is also given by Alexander (2002:146), who has identified warning as one of the essential elements to safeguard human life, and from Shaw & Okazaki (2003:45, 69) who discuss a community based Disaster Management project based around early warning systems. In addition, Mileti (1999:197) states that there is no doubt that improvements in predictions, forecasting and warnings have dramatically reduced deaths and injuries in the United States. Twigg (2004:65) also emphasises on the importance of early warning systems and gives the experiences from Havana (during the hurricane Michelle 2001) as an example. The provision of an early warning allowed for actions, such as turning off the electricity to avoid deaths and injuries from electrocution and suspending the water supply in case of contamination; prior to the hurricane hit the island. The citizens were also advised to store water and food and to tie down loose roofing and to clear away debris. Twigg (Ibid.) concludes that the success of the arrangements was due to an effective warning- and communication system and the general population's trust in the official warnings and advices given.

In accordance with the above, an early warning system, consisting of several crucial components, is considered as a fundamental part of a country's DMC. In our opinion, such system should include the following features:

- Technical ability to monitor hazards (including all sorts of hazards throughout society) and detect when a disaster is impending;
- An organisation able to interpret the information given from the monitoring systems and able to act appropriately depending on the given circumstances;
- The ability to communicate the warning to the general public at risk in a way that will be understood;
- The ability to disseminate the message, reaching all persons at risk; and
- A level of awareness within the general public enabling them to act appropriately to the warning.

The features outlined within the bullet point list above will be explained in more detail below. The discussion only represents our view of early warning systems and we are sure that there are many different ways in which the features above could be represented. For example, other literature addressing early warning systems includes components such as timeliness, accuracy, lead time and effectiveness of message delivery systems (Wisner et al., 2004:241). Thus, different grouping of the main components could always be done; however, as long as all relevant contents of the system are included, the way in which it is grouped is in our opinion less relevant. Our intention with the representation above is to follow a time order from when the first indication of an impending threat, until the warning has reached the people at risk and when actions are taken by the receivers.

Technical ability

The technical ability to monitor hazards and detect impending threats is considered to constitute the first component of an early warning system. The technical systems appropriate for a specific country depend on what hazards the country is facing. The systems could be international, national or based on a more local level. Obviously, an international system would be dependent on other aspects such as for example the political climate, since co-operation over the country borders is required. The amount of lead time that different systems are able to give is considered to affect other areas within the DMC, since the dependency on permanent mitigation and preparedness actions is reduced if sufficient time is given for temporary actions to be taken prior to a disaster. In this context, we argue that capacity is created if a country has the ability to accurately and timely detect impending disasters at the earliest stage possible to allow for acute mitigation and preparation actions to be taken.

Organisational ability

The second component is to have an organisation that is capable and willing to use the provided information and act appropriately. Different hazards would require different actions to be taken. However, we argue that in general, the knowledge of how to interpret the information provided from the technical system, as well as the ability and mandate to take the appropriate actions directly upon the information, creates capacity. An example of how such characteristics of an organisation could create capacity could be seen in the Italian response to the tsunami on Boxing Day 2004. Italy had an organisation (the Department of Civil Protection) with sufficient knowledge to interpret the given information and with the mandate to act appropriately. As a result, the Italian response team could initiate a timely rescue operation (S. Florin direct communication on the 17th of April 2007). Wisner et al. (2004:160) give examples of the opposite, i.e. how vulnerability could emanate if the government structure is poorly linked to those who provide the information. Hence, institutional weaknesses in national and international policies could allow acute conditions to emerge, despite adequately provided information.

Communication ability

The third component is to communicate the warning to the population at risk. We consider that capacity is created if the government, or the organisation with the information, has the knowledge to communicate the message in a way that the general public will understand. An important part is also the level of trust that the general public accommodates towards the provider of the message (Wisner et al., 2004:269; Twigg, 2002:66). Furthermore, we argue that the population at risk needs to understand the likely consequences of the hazard, the time factor and the different options available. Due to the complexity related to how the receiver could interpret a warning; this sub-aspect is closely linked to the aspect *Risk Perception*. Coppola (2007:228) states that public warnings are more than just a message; instead they are based on complex systems designed for the specifics of each hazard, population and environment.

Dissemination ability

The fourth component comprises the ability to disseminate the message to all people at risk, that is, to assure that the message reach the "final mile". There is little value in having a high-tech monitoring system if the message does not reach all the way to the people at risk. Accordingly, capacity is created if the system has the ability to warn all people at risk. Warnings need to reach people at home, in school, at work, in public spaces, in their cars, who are disabled, who speaks different languages, who are uneducated or have little education etc. (Coppola, 2007:228). Furthermore, it is also important that the message is effective at all times, i.e. night or day must not make a difference. Hence, all people at risk need to be included in a warning message that is effective regardless of time or other circumstances.

Ability to act

The fifth and final component comprises the required knowledge of people on how to act when receiving a warning. This step is closely linked to the aspect *Public Awareness* as well as to the resources required to act according to a warning. Even if people knew that they should evacuate to the safety of shelters during an impending cyclone, such knowledge would not make a difference if there were no such shelters available. Material resources are discussed within the aspect *Disaster Management Organisations*. According to the argument above, capacity could only be created if the population at risk knows what actions are appropriate, and are willing and able to act accordingly.

Concluding remarks

All parts in the chain of early warning systems are necessary in order for an early warning system to positively affect a country's DMC and all these components need to be present prior to a disaster. However, even the efforts in setting up the different components could create capacity in relation to other aspects, such as *Public Awareness*, *Disaster Management Organisations* and *Political Climate and Relations*. In summary, the provision of an effective and efficient early warning system creates capacity to a country's DM system.

7.4 THE ECONOMICAL PROFILE

The fourth and final profile within this report is *The Economical Profile*. As always, regardless of what topic related to the human society that is discussed, it is not possible to achieve an all-encompassing representation without considering financial aspects. Within this part of the report, we will therefore discuss how economical factors could affect the DM process and consequently the DMC.

It could be argued that economic aspects should be included within the social profile. One reason for such orientation could be that many problems experienced within the field of DM derives from that economic considerations tend to dominate over other social considerations (I. Kelman, direct communication on the 2nd of May 2007). In reply to such viewpoint, we would therefore like to emphasise once again on how we look at the four categories, or profiles, within this report, namely that neither one could generally be considered more important than the other, nor should they be viewed separately. Thus, due to the need of considering economical aspects we have simply chosen to include such aspects within a separate economic profile.

Furthermore, as previously stated, we do not suggest that all possible aspects are covered within a profile, since such an objective probably would require a lifetime's worth of work. Instead we are, also within this profile, trying to give a broad explanation on how the central aspects (here financial) could affect the DM process and discuss the importance of giving such aspects the adequate recognition and facilitate an understanding of their complexity. It is for instance important to understand that financial wellbeing per se does not directly imply that people *will* protect themselves: rather, it is just a measure of their *ability* to do so (Coppola, 2007:154-155).

Finances are a necessity in order to perform almost any form of risk reduction, response or recovery measure, both from a national perspective and on a more local level. The financial status of both the government and the population will deeply affect their ability to protect themselves from the consequences of a disaster (Coppola, 2007:154). Hence, we argue that the need for thorough knowledge of the financial implications of hazards, at both micro and macro scales, is very important. Accordingly, we have identified two major financial aspects: *Financial Factors at Individual/Household Level* and *Financial Factors from a National Perspective*.

7.4.1 Financial Factors at Individual/Household Level

Within this aspect we will discuss how financial factors at individual or household level could affect the DMC from a national perspective. When studying literature, a notion that is frequently mentioned in such context is that of “livelihood” and numerous authors advocate the importance of taking livelihood related issues into consideration when discussing DM. For example, Wisner et al. (2004:56) state that “most people are vulnerable because they have inadequate livelihoods, which are not resilient in the face of shocks”. We therefore found it suitable to use the term livelihood as the basis for the discussion within this aspect.

After first defining the concept of livelihood, including livelihood in the context of sustainability, we will further discuss how livelihood depends on other factors within society; the importance of diversified sources of income; insurance and access to credit; and briefly mention the impact of the so-called dependency-ratio.

Definition of livelihood and sustainability

Wisner et al. (2004:12) define livelihood as:

The command an individual, family or other social group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks and legal rights as well as tools, land or other physical resources

Another definition of “livelihood” is given by Chambers and Conway (reproduced in Wisner et al., 2004:95) where the concept also is discussed in relation to sustainability. According to Chambers and Conway, livelihood:

Comprises the capabilities, assets and activities required for a means of living: a livelihood is sustainable [when it can] cope and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihoods for the next generation; and which contributes net benefits to other livelihoods at local and global levels in the long and short term

Thus, in accordance with the definitions outlined above, livelihood comprises all types of capacities, assets and activities required for a means of living. It is rather obvious that either earning an income in order to buy necessities such as food, clothes etc., or being self-providing of such necessities, is fundamental. Thus an initial capacity is created if the population is able to have and maintain a source of livelihood. It is therefore important that all areas related to maintaining a living are safeguarded within the DM process and that not only the immediate impact (both in physical terms and measured in time), from a disaster is addressed, but also how people will cope afterwards.

From a national perspective, people losing their livelihoods will unquestionable cause large constrains on relief efforts. Providing food and shelter to affected people may be a feasible task during a short period of time, but such actions would not be financially tenable for any longer periods. Therefore, we argue that it is a capacity if measures are taken to ensure that the population at risk will have sufficient means to survive and re-establish their livelihood after an impact. Possible affects on livelihoods must also be considered in relation to any type of measure taken within the DM process. For example, people are not willing to evacuate and leave their animals if these animals are essential for the people to make a living. If such consideration is taken, this constitutes a capacity.

The Department for International Development (DIFD, part of the UK government) (reproduced from Wisner et al., 2004:43) advocates a “Sustainable Livelihood approach” were five types of capital are used to describe the width of the concept of livelihood, including: natural- (mainly land, forests,

water sources); physical- (infrastructure and production resources); financial-; human- (e.g. education level); and social (e.g. networks and family connections) capital. As a matter of fact, all these areas are touched upon within the profiles in this report, which in our opinion implies that livelihood expands into all areas of society. Since most of these areas have been discussed previously (although not explicitly in the livelihood context) it would be an unnecessary duplication should we address all these areas again in the context of livelihood. Instead, we will settle with concluding some general remarks and discuss the main parts of the financial aspect of livelihood through some practical examples. We will start off by discussing the interdependency between livelihood and other factors throughout society.

Interdependency

As per by the definition of sustainable livelihood, and the five areas of capital defined by the DFID (reproduced from Wisner et al. 2004:43) above, maintaining a livelihood is highly dependent on maintaining other functions throughout society. Bearing in mind the objectives of this project the strong link between poverty and disasters and that 75% of the worlds poor live in rural areas (UNDP, 2004:66), we will try to illustrate such interdependency by discussing the occupation of farming.

Farming is by nature highly susceptible to many natural hazards such as floods and drought. Having reserves is thus important (ISDR, 2005:11). Additionally, many farmers are dependent on farm animals. Alexander (2002:216) argues that “farm animals are an important and valuable resource, the mainstay of certain agricultural economics”. Consequently, it is important to consider not only the safety and health of humans but also to take consideration to farm animals, both ensuring that they survive the immediate impact but also to prevent the spread of animal diseases (Wisner et al., 2004:175). Such measures are currently undertaken by the IFRC in areas prone to flooding and tropical storms when constructing safe locations for animals on high grounds (T. Carlzon, direct communication on the 31st of May 2007). Accordingly, maintaining reserves and protecting animal populations are two areas that are important within sustainable livelihoods for farmers.

Farming in this context is not a unique example. Other occupations have similar dependency issues. Fishermen, for instance, are highly dependent on their boats and equipment. For example, even if surviving a tropical storm without major injuries, the fishermen and their families may suffer tremendously during the aftermath of the disaster should their boats and equipment required for providing for their living have been destroyed.

Another example of interdependency, which concerns all types of livelihoods, is the issue of transportation. Many people have to travel in order to get to their work location and are therefore highly dependent on redundant and resilient infrastructure. Destroyed roads, collapsed bridges as well as cancelled public transportation system (as a few examples) could prevent people from getting to work, thereby losing income and potentially also losing their jobs.

In summary, as per both the definitions themselves and by the examples given above, livelihood comprises many factors throughout society. In fact, many of the resources given as examples within the definition have already been addressed in other aspects within this report. Information and cultural knowledge have been addressed within the aspects *Public Awareness* and *Indigenous Knowledge*; social networks within the aspect *Social Safety Nets*; and legal rights within the aspect *Legal and Regulatory Framework* etc. We argue that capacity is created if people have livelihoods that are fairly independent; capacity is also created if there are knowledge about what people’s livelihoods comprise of within the country and how livelihoods depend upon other parts of society. Capacity is also created through the actions taken to secure the livelihood of the population, all to reduce the consequences of a disaster.

Diversification and vulnerability through occupation

In addition to the interdependency discussed above, it is also important to consider another type of dependency, namely dependency on only one source of income. From both experience (UNDP, 2004:20) and logic reasoning it is evident that if dependent on only one source of income, people are highly susceptible should this one source of income be disrupted by a disaster. Hence, besides from having an occupation that could be considered relatively resilient to disasters, having alternative sources of income constitutes a capacity. Twigg (2004:213), states that “economic diversification is central to poor people’s strategies for reducing their vulnerability to external shocks”.

Further to the vulnerability created through only relying on income from one occupation the choice of occupation could also create vulnerability in other ways. As pointed out by Wisner et al. (2004:100) the choice of occupation is not entirely up to the individual to make. Within the so-called “access model”, Wisner et al. (2004:206) discusses that the choice of occupation is dependent on factors such as educational level and social class and concludes that “in many countries, those people who have few alternative livelihoods or low income are forced to put themselves at risk because they have no option but to try and survive in flood-prone locations. In effect, the vulnerability to floods is determined by their position in society, not by the flood hazards”. Consequently, vulnerability could be created through the actions that are necessary to take in order to maintain a livelihood.

Accordingly, one single source of income, regardless of what such occupation comprise of, makes people vulnerable to disruption and access to alternative sources of income thereby contributes to create capacity. It is also important to assure that a certain type of occupation does not give rise to an unacceptable level of risk. Capacity is also created if areas/groups that are highly dependent on one single source of income are identified and measures are taken to ensure that these people could return to work in a timely manner, either to the original occupation or to alternative jobs. From a national perspective this is important (for instance) since a long-term disruption of livelihoods could result in that people to a large extent become dependent on subventions from the state putting a high stress on governmental funding, which in the long run would be untenable.

Insurance and access to credit

In accordance with the discussions above, the source of income may be disrupted during a disaster. Wisner et al. (2004:109) states that “paid employment may cease, and with it access to cash with which to purchase food, medical care, repair shelters or productive equipment such as ploughs, acquire livestock for ploughing and fishing equipment”. Relying on governmental support is often not sufficient and in order to return to ‘everyday life’ many people might therefore need access to financial assistance in terms of reimbursement from insurance or access to credit. This standpoint is supported by Wisner et al. (2004:223), although identifying that the majority of people in poor countries are unlikely to be insured. This is, according to Mileti (1999:124), also the case for poorer people within MDCs. Mileti (Ibid.) states that “research shows that people of lower socio-economic status have the most trouble reconstructing their lives and re-establishing permanent housing after disasters in United States. They have less insurance, more financial stress and more difficulty obtaining loans”. The lack of insurance and difficulty in attaining loans for the economically weaker members of society is also addressed by Coburn, Spence & Pomonis (1994:34).

Problems could also arise due to the nature of insurance (i.e. the requisition of calculating the expected value and charge fees accordingly (Mattson, 2000)) due to the fees commercial insurance would often be unfeasible to the people who arguably need it most: the poorest and most vulnerable in developing countries. Furthermore, Twigg (2004:217) states that there has been little attempt to develop wholly commercial insurance programmes targeted at poor and vulnerable people. Twigg (2004:217) further argues that:

Where insurance schemes for poor groups and individuals have been successful, they have generally originated in development programmes that have aimed at financial sustainability rather than profit. Such schemes are run mainly by micro-finance institutions but also by NGOs, co-operatives, governments and even companies.

Loans as a financial option are not uncomplicated either. We will replicate Twigg's (2004:215) arguments as he states:

When poor people borrow money to buy livestock, tools or raw materials that can be used for income-generating activities, they are increasing their livelihood assets, which, in the long run, will help them to become more resilient to many external shocks. But drought, floods or other hazards can wipe out these assets before they have been able to generate much return on the initial investment. In such cases, those concerned actually become worse off: not only are they without assets, as before, but they also have a loan to pay back.

Thus, if the return period to next disaster is short, there might not be sufficient time for the loan taker to save up money to repay the loan plus interest. This issue is also addressed by Coppola (2007:313), who states that the requirement to repay loans is "the greatest cause of economic hardship following disasters."

If the problems discussed above have been appropriately addressed and if people have access to insurance against potential consequences prior to a disaster, enabling them to restore or maintain their livelihood, it is considered to create capacity. Access to credit is also considered a capacity, while however the fact that taking loans could in the end lead to increase financial difficulties is acknowledged. Non-profitable micro-finance institution aimed at the poorest members of society is also considered to constitute a capacity. All these actions aim at increasing the resilience of people's livelihoods and subsequently to reduce the consequences of a disaster also from a national perspective.

Dependency-ratio

Within this final sub-aspect, we will mention another important factor requiring attention in the context of livelihood: the dependency-ratio. According to Wisner et al. (2004:68), the dependency-ratio refers to the number of people dependent on one provider. The more people one person provides for, the greater are the consequences should this person lose his/her job. Hence, it is important to be aware of this relation to adequately prepare for sufficient assistance. Such knowledge is therefore considered to create capacity. In addition to a low dependency ratio, we also consider it to be a capacity if there are programs of the sort that strive to engage more people into the labour market, which hence would lessen the dependency ratio.

7.4.2 Financial Factors from a National Perspective

Unlike the aspects discussed within the previous section, this aspect *Financial Factors from a National Perspective*, concerns economical factors that could have more direct effects on national level. That is, even though the previously discussed aspects indirectly could affect the DMC on a national level, the aspects discussed hereunder can not be ascribed to individuals or households. The sub-aspects that will be addressed include:

- Gross Domestic Product (GDP);
- Indebtedness;
- Financial Structure;
- Disaster Financial Planning; and
- Budget allocations for DM.

Gross domestic product

Gross Domestic Product, (GDP) is defined as “The total market value of all the goods and services produced within the borders of a nation during a specified period” (*The American Heritage Dictionary*, 2004). Below, we will discuss the link between GDP and disasters.

It is recognised that poor countries experience more disasters than the wealthy ones (Coppola, 2007:156). Coppola (Ibid.) states: “because of their strong economic standing, wealthy nations are better able to develop the preparedness, mitigation, response, and recovery mechanisms before events occur, and thus are able to manage them effectively once they do happen”. GDP therefore affects the DMC as it could be considered to set the boundaries for a country’s financial possibilities/limitations regarding how much money the country are able and willing to spend on DRR, Response and Recovery measures. Less investment in the DM process could therefore, to some extent, explain that triggering events more frequently escalate into disasters in less wealthy countries. This is also recognised by Wisner et al. (2004:244) who further state that both patterns of death, damage (in the given example due to coastal storms) and the ability of people to reconstruct their livelihoods vary according to national wealth, history and socio-political organisation. Thus, it is important to acknowledge that GDP is one of many aspects that affect the DMC and that a strong economy (rather obviously) could constitute a capacity also in the context of Disaster Management.

Another factor, which is also important, is the stability of the economy. UNDP (2004:68) states that “Fluctuations can be felt directly by those who extract a livelihood from the sale of primary resources (farmers, fishermen and foresters), but also by the rural landless who are reliant on selling their labour and may be the first to suffer in an economic downturn”. Thus, a robust economy is considered to constitute a capacity, as well as measures taken to restrain fluctuations. Furthermore, diversification is considered to create capacity in a similar way as was discussed within the previous aspect (*Financial Factors at Individual/Household Level*). A country, which is dependent on one, or only a few sources of income, is considered to be vulnerable. This viewpoint is also emphasised by for example Wisner et al. (2004:268) who state that vulnerability caused by dependency on one or a small number of export crops could be seen clearly in case studies of small island nations.

As a final remark, the percentage of GDP could be used to indicate how extensive the impact is in financial terms, or as Coppola (2007:156) pinpoints, “if damage is expressed as a percentage of GDP it could thereby give much greater perspective on the impact on the nation’s economy”.

To summarise, obviously, if the country’s GDP is strong, this creates capacity to the DM process as it renders it possible to allocate resources to DRR, Response and Recovery measures. However, it is important to point out, as stated by Coppola (2007:172), that all nations may significantly reduce their risk and vulnerability, no matter their wealth. In this sense, we consider it to be a capacity if there is awareness of how the GDP could affect the country’s DMC and that available resources are used in an as effective and efficient manner as possible. Additionally, robustness within the economy is regarded as a capacity as is an economy that relies on diversified sources of income.

Financial structure

With Financial structure we refer to factors related to how a country’s financial system is constructed. This is very much a part of the everyday life of people which, as pointed out several times throughout this report, also to a large extent has an impact on a country’s DMC.

Within the report “Disaster Mitigation” by Coburn, Spence & Pomonis (1994:34) it is stated that “grants, loans, taxes, tax concessions and fines can be used to influence the decisions people make to reduce disaster-related risks”. Consequently, there are many ways in which the government, through legislation, incentives or other measures, could indirectly steer the general public, businesses and all

sorts of other organisations towards risk reducing efforts. This viewpoint is also shared by for example Mileti (1999:227) who states that “for organizations, governments and people in general, mandates and legal incentives can in some instances induce preparedness, proper response and other actions”. Thus, the legislation, and consequently the financial structure could have a direct impact on the DM process. Awareness of how the financial structure could affect the DRR process and appropriate actions taken to reduce risks are in our opinion creating capacity. When it comes to response and recovery, the financial structure could be considered to cause more indirect effects, for example when taxes are funding public resources, organisations and emergency relief funds.

Although we have not discussed poverty as an explicit aspect within this report, its effects are included within other aspects. There are many links between poverty and disasters and Bethke, Good, & Thompson (1997:25) conclude that “inevitably it is those who have least that, proportionally, lose most in a disaster”. As it is the poor who suffers most in disasters, we argue that a financial structure that strives to reduce the gap between rich and poor creates capacity. The importance of bridging the gap between rich and poor is further advocated by Coburn, Spence & Pomonis (1994:34) who state that “equitable economic development is the key to disaster mitigation. A strong economy in which the benefits are shared throughout the society is the best protection against a future disaster”. Thus, in addition to a strong economy, which was discussed within the sub aspect Gross Domestic Product above, a financial situation where the most vulnerable are given sufficient resources to improve their situation is considered a capacity. Furthermore, efforts striving towards achieving an equated financial situation for the population are also considered to constitute a capacity.

In addition to the national level, consideration should also be taken to economical influences on the global level. Due to the increased globalisation, countries’ economies become more and more entwined (UNDP, 2004:5). Such reasoning, and the linkage between global economy, national economy and vulnerability is for example addressed by Wisner et al. (2004:79) in a discussion about how the global economy caused building standard degradation in Jamaica during the 1980s and 1990s.

Furthermore, as previously discussed from an individual or household perspective, countries could also require access to credit in order to recover from a disaster. Such access is therefore considered to constitute a capacity. Nevertheless, Wisner et al. (2004) express concern that even though access to credit may speed recovery, it could lead to a vicious spiral of indebtedness, which leads us into the next sub-aspect: Indebtedness.

Indebtedness

Within this sub-aspect we intend to, albeit perhaps more of a background factor, discuss how indebtedness could affect the DMC.

Indebtedness is widespread in many of the world’s LDCs. In some cases, the debts ironically originate from loans taken to recover from previous disasters. For example Jamaica introduced a structural adjustment policy, causing a building standard degradation, to repay loans taken due to a previous hurricane. As a consequence the country was more vulnerable than earlier when the hurricane Gilbert hit the country in 1988 (Wisner et al., 2004:79). As mentioned above, access to credit could constitute a capacity, but due to high rates and the hardship in repaying debts, many countries could end up in a vicious circle with increased debts. In trying to resolve the situation, many have chosen to adopt so-called “Structural adjustment policies”. These policies are characterised by a “growth-mentality” that almost could be described as “export at any cost”, resulting in degraded forests and soil that in turn increase vulnerability to disasters (Wisner et al., 2004:76). Many authors (for example Wisner et al., 2004:184)) therefore claim that such policies have, in their endeavour to

reduce country's debts, been at the expense of sufferings in many areas including maintenance of infrastructure, procurement of medicines, training and plans to improve primary health care, etc. Other measures taken to reduce debts could also increase the vulnerability, such as the example given by Wisner et al. (2004:79) where high rates in Jamaica during the late 90's put high pressure on both new constructions and the maintenance of old, causing decreased building safety. Evidently, although it is the decision-makers that decide upon adopting the structural adjustment policies, it is the people who will have to pay the consequences. As concluded by Wisner et al. (2004:253): "indebtedness and dependency will tend to reinforce the allocation of social power, and hence the structure of domination".

There is obviously a great complexity when it comes to trying to understand the entire scope of how debts could affect a country's DMC. It is however clear to us that, in a similar way as countries with low GDPs, highly indebted countries will have little budget to allocate to DRR, Response and/or Recovery measures, and reserves and emergency relief funds are less likely established. Thus, without going into further details, we consider it to be a capacity if the country has a low level of indebtedness and is aware of what consequences indebtedness could cause when considering taking loans. Furthermore, adopting any strategies aiming at reducing such debts should take into consideration how they could affect the DMC, throughout all areas of society.

Disaster financial planning (back-up for DMOs)

"Disaster financial planning" refers to the measures taken by the government prior to a disaster to financially prepare for future response and recovery actions. Beforehand planning is, as in almost any area, a prerequisite for effective and efficient management as a disaster per definition is characterised by a limited amount of time for decision-making, organisation and other actions. Here, we will quote Coppola (2007:306) as he summarises what is also our viewpoint, namely that: "how quickly the affected country can organise financial and other types of resources will determine how quickly and how effectively that nation recovers from the disaster". Coppola (Ibid.) also list a number of options a nation has for disaster response funding, including: insurance, government-based emergency relief funds, donations, loans, catastrophic bonds and weather derivatives, private development funding, incentives, and tax increases. A few of these suggested measures will be discussed in more detail below, including:

- Insurance coverage and access to credit;
- Funds reserved for disasters; and
- Mutual agreements and donations.

Insurance

Insurance comprises spreading the risk of loss amongst premium payers and could hence be described as a risk transferring measure. According to Coburn, Spence & Pomonis (1994:35) insurance is one of the major economic protection devices in industrialised countries. However, as concluded by Coppola (2007:396), unfortunately, insurance is not common in developing countries. The HFA (ISDR, 2005:11) advocates the promotion of "development of financial risk-sharing mechanisms, particularly insurance and reinsurance against disasters", as one of their actions to reduce the underlying risk factors. It is hence considered to be a capacity if a country is insured against disasters. However, it could take time for the insured to receive the entitled reimbursement.

Disaster funds

Another type of financial measure is so-called disaster funds or reserves. Government-based emergency relief funds are advocated by Coppola (2007:306) who also states that "unfortunately, without ample funding, very little may be done to help a disaster-struck region rebuild". Coppola (2007:308) also underpins that one of the main advantages of emergency relief funds is that they are

available immediately. Unfortunately many poor countries do not have the “the luxury of setting aside funding”, and hence must find other means for financing (Ibid.). Emergency relief funds could also be established at more local scale, in terms of Community funds (Shaw & Okazaki, 2003:45). Establishing emergency funds are also promoted by the HFA (ISDR, 2005:13). If emergency funds are available to the adequate extent, both regarding national and local level, they are considered to create capacity. Notwithstanding this, debts or low level of GDP could make such commitment difficult for many LDCs.

Mutual agreements and donations

Mutual agreements refer to formal agreements between neighbouring jurisdictions to facilitate reciprocal or mutual aid (Alexander, 2002:123). This can be conducted within a region; comprising a number of countries that agrees to provide financial aid should any of the member countries be subjected to disaster. Alexander (2002:123), Coppola (2007:205) and Wisner et al. (2004:133) advocate the importance of such agreements. Additionally, Wisner et al. (Ibid.) give one example of how such agreements were used successfully during the severe drought in southern Africa in 1991-1993. Wisner et al. (Ibid.) state: “there was a rare moment in which co-operation among all the affected countries (including South Africa) enabled food aid to be used in a remarkably efficient way. Although at the time some 13 million people needed emergency food, this daunting logistical mission was accomplished.”

Another example of successful mutual benefit measures within societies is insurance funds set up by groups to provide cover for their members. For example, in Mexico there are 200 mutual insurance funds for farmers, with nearly 70,000 members. Each member pays an annual premium, which provides cover against crop failure due to drought, flooding, pests, disease or other emergencies (Twigg 2004:220). However, admission to membership of such fund depends on the perception of a farmer’s capacity, and the scheme has been criticised for excluding poorer, more vulnerable farmers. Accordingly, mutual agreements are considered to constitute capacity if they are accessible for ones that are likely to be subjected to disasters, specifically the poor.

In addition to such agreements, there are often donations made to the affected country, either from other countries, NGOs or international aid organisations. Coppola (2007:278) states that:

Individual governments, private and religious groups, and businesses all tend to give generously to disaster victims, who may have lost everything they own. Without an effective mechanism to accept, catalogue, inventory, store and distribute those donations, their presence can actually create what is called “the second disaster”

Donations must hence address the actual needs of the affected population, be appropriate for the cultural setting into which they are donated and be in good conditions and able to clear customs. Thus, if such issues as outlined by Coppola have been considered and measures have been taken to ensure that donations could be received in an effective and efficient manner, capacity is created.

In summary capacity can be created through mutual aid agreement and donations if such schemes are managed adequately and contribute to reduce the vulnerability of people.

Budget allocations for DM

The previous sub-aspect discussed the importance of having financial planning for the response and recovery phases but did not mention funding for all activities that are conducted prior to a disaster strikes. As emphasised throughout the report, the activities conducted prior to a disaster sets the foundation for activities conducted during and after a disaster and consequently, it is important to have adequate funding for all such activities. UNDP (2007:29) writes that:

Funding is the ultimate measure of government commitment to DRM. Allocations to preparedness and response in particular provide visibility to governments which disaster reduction does not, and as long as there is no wider awareness that tax money might be spent more wisely if invested in disaster reduction these spending patterns are unlikely to change.

The quote above makes two important points, the first being that funding shows the government's commitment to DM activities and that it is easier to spend money on preparedness and response than on DRR as the result will be more visible. Nevertheless, we argue that money must be spent so that the total benefits are optimised within all phases, including DRR.

ISDR (2007:28) discusses funding and states:

Dedicated budget lines and funding mechanisms are essential means to integrate disaster risk reduction into development policies, plans and programmes. Among other things, countries could consider setting a side percentage of development budgets for mitigation funds to support priority hazard-resistant or vulnerability reducing projects within ongoing development projects. Disaster risk reduction projects should be seen as an investment, to be justified by their substantial reduction of future losses of lives, assets and livelihood.

Consequently adequate funding for DRR activities is considered to create capacity. The amount of money that could be allocated to DM will obviously vary within each country, but it is important that money is earmarked within the budget for DM related activities to assure that such activities can be conducted.

7.5 SUMMARY CHECKLIST

As described in the Methods section, the essence of the Framework have been summarised in a short checklist to facilitate analysis of models. Again, the wordings used in the checklist are not replicated from the Framework, but comprise short sentences that strive to capture the essence of each aspect. As also mentioned previously, in addition to leaving room for a comment under each aspect, the checklist comprises tick boxes which renders it possible to grade the level of coverage in three different categories:

Mentioned:	This level indicates that the aspect is only mentioned without any further guidance on the width of the aspect or explanation of its importance.
Briefly discussed:	This level indicates that the aspect is mentioned and the width of areas related to the aspect is discussed, no explanation of its importance is given.
Discussed and explained:	This level indicates that the aspect is mentioned and the width of areas related to the aspect is discussed. The importance and relation to the DM process is also explained within the model.

The summary checklist should by no means be seen as a substitute to the Framework, it was only created to facilitate the analysis of models. We argue that it is impossible to conduct an assessment of a country's DMC only based on the checklist. The checklist should thus be read in conjunction with the Framework. The checklist comprises a tool for us to compile data when conducting the assessments. It is intended to, with key words or short sentences, sum up previous written text and thus make possible to easily indicate what areas that are covered by the models analysed and how detailed the information are.

Checklist

The Physical/Environmental Profile

Discussed and explained
Briefly discussed
Mentioned

Geography/Natural resource management

Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity			
Natural resource management, environmental degradation and related processes/activities			
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			

Comments:

Climate/Climate change

Meteorological preconditions and assessment of associated risks			
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			

Comments:

Infrastructure

Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations			
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class			
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”			
Knowledge of risks associated with damaged infrastructure			
Ability to repair damaged infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			

Comments:

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perception within society and the effects of potential discrepancy between the general public and “Disaster Managers”, awareness of what factors that affect the perception			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM			
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process			

Comments:

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process			
The incorporation of media as an important actor in disaster planning			

Comments:

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year			
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups			
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups			
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted			

Comments:*Social safety nets*

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors			
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society			

Comments:*Public awareness*

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns			
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters			
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"			

Comments:*Political climate and relations*

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach			
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments:

The Institutional and Legislative Profile

Discussed and explained
Briefly discussed
Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals			
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach			
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response			

Comments:

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present			
Identification and incorporation of various DMOs into the DM process, pressure from the DMOs on the government to work with DM related issues			
Ability to identify hazards and act appropriately according to such information			
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities			
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance			
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders			
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures			
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster			
Availability of relevant background information and statistical data to all actors within the DM process			

Comments:

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals			
Capacity of Other Relevant Stakeholders, capacity of military			

Comments:

Early warning systems

Technical ability to monitor potential hazards faced by a country			
Organisational ability to make decision and act upon the information given from the monitoring systems			
Ability to communicate warnings in an understandable and appropriate manner			
Ability to disseminate the message to the people at risk			
The populations knowledge and ability to act upon a warning			

Comments:*The Economical Profile*

Discussed and explained
Briefly discussed
Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population			
Diversification of livelihood amongst the population, additional sources of income			
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way			
Measures taken to ensure the sustainability of livelihood			

Comments:*Financial factors from a national perspective*

Gross domestic product, as an indicator of financial ability to invest in the DM process			
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations			
Awareness of how financial factors effects the DM process			
Earmarked budget allocations for DM related activities			

Comments:

8. ANALYSIS OF MODELS

Hitherto within the report we have focused on mapping and discussing general aspects, under four different profiles, which we consider could affect a country's DMC. As a final step in the previous section we created a short summary checklist comprising the main characteristics of these aspects to facilitate the analysis. Although the effort required to construct the Framework, and to summarise this information into a checklist, was rather extensive; it was not the only objective of our project.

If returning for a brief moment to the Research Question, or to the section Objectives, it can be seen that one of the objectives also includes conducting an analysis of models which are, currently used by various actors within the field of DM when assessing a country's DMC. Furthermore, the specific purpose of the analysis was to determine what general aspects the models cover. Thus in this context, one of the purposes of the previous parts of the report (i.e. mapping general aspects and setting up the checklist), was to create a tool that could be used when analysing the capacity assessment models.

Accordingly, the continuing part of the project comprises the review of models that are used by different actors when assessing a country's DMC and to analyse what general aspects these models cover. For a detailed discussion about how the analysis have been conducted and how the models were chosen see the Method section.

In summary, the documents chosen for further analysis were all designed for divergent purposes and by various actors, which made their characteristics somewhat different. All documents were grouped in to six main categories of documents and within each group one or two documents were chosen for further analysis. The documents chosen for further analysis were the documents that provided the most guidance related to what aspects that should be included. Accordingly, the analysis of available models could have been made much more comprehensive with regards to the number of documents included. Nevertheless, due to the limited amount of time at our disposal we had to limit the scope. Below, we will give a very brief introduction to the six types of categories. Further explanations of their main characteristics, why they were included and how we see them fit into the bigger picture of DMC assessments is given under the heading for each respective category.

Hyogo Framework for Action

A framework is a document that only gives very general directions and sets the agenda in which something should exist. One framework has been included within the project, being the much-acknowledged "Hyogo Framework for Action" (HFA) (ISDR 2005). But due to the lack of details within the actual framework, we will base our analysis on its guiding document, the document "Words into Action" (WIA) (ISDR 2007).

Case Studies

Case studies comprise documents on how assessments have been conducted in the past. Since they include more or less structured and more or less detailed explanations on assessments of countries' DMC, case studies constitute a valuable source of reference. Thus, if no guidance is provided in available models, a natural first step would be to study how such assessments have been conducted previously (why reinvent the wheel?).

Indexes

A risk-index generally tries to quantify a relative level of risk. This includes determining the consequences from specific hazards and in order to do so, an assessment of capacities and vulnerabilities is required. Hence such index includes a more or less detailed identification of aspects affecting a country's DMC and would therefore be a suitable source of reference when studying a country's DMC.

Community based assessment models

A fourth group of documents is the models designed to assess vulnerabilities and capacities at a community level. The models comprise a well recognised and extensively used method based on years of experience, and in our opinion, this would indicate that they include applicable guidance. Albeit the focus is on community level, we argue that they could give guidance on many aspects that also should be included within a country level assessment.

Documents originating from the IFRC

The fifth category is rather different compared to the other categories as it comprises a set of different types of documents, with the common denominator being the organisation behind them. The Red Cross/Red Crescent (RC) has a unique position within many countries as they have a recognised auxiliary role to the government and thus is an important stakeholder within the DM process. Due to their unique position, we argue that their guiding documents on how to assess their own capacities in relation to the country's situation could provide guidance on what aspects are important to include in a national capacity assessment.

Checklists/Questionnaires

The final category, "Questionnaires/Checklists", has been included since a checklist or a questionnaire can be designed to facilitate assessments in a number of areas, including DM related issues. Depending on what they cover they could facilitate a uniform approach to an assessment, assuring that all the relevant information is assembled in a structured way.

8.1 HYOGO FRAMEWORK FOR ACTION

If looking up the word "framework" in a dictionary, two of the many definitions available states that a framework is "a fundamental structure, as for written work" as well as "a set of assumptions, concepts, values and practices that constitutes a way of viewing things" (*The American Heritage Dictionary*, 2004). A framework document could hence not be assumed to give many details or be specific, but should on the other hand have the potential to provide a holistic representation provided that the focus of the framework is "accurate".

The Hyogo Framework for Action (HFA) (ISDR, 2005), adopted by 168 Governments at the World Conference on Disaster Reduction³⁸, aims at substantially reduce disaster losses, in lives and in the social, economic and environmental assets of communities and countries (ISDR, 2007:iii). To achieve these objectives, the HFA provides a framework for nations and communities as a guide when building their resilience to disasters (Ibid.). The HFA document has also been mentioned and referenced to extensively within several e-mails, telephone conversations and discussions throughout the course of this project.

³⁸ The World Conference on Disaster Reduction was held in Kobe, Hyogo Prefecture, Japan, 18-22 January 2005.

The HFA outlines three Strategic Goals and five Priorities for Action, but as expected from a framework document, it does not give any details on how these goals and priorities should be implemented. Instead, it is up to the States, regional organisations, international organisations and the International Strategy for Disaster Reduction (ISDR)³⁹ system to determine how they should be achieved.

Due to the lack of guidance, the HFA called on the ISDR to produce “practical tools to help policy makers and decision makers promote and implement disaster risk reduction measures in their respective country and regions” (Ibid.: 1). “Words into Action: A Guide for Implementing the Hyogo Framework” (ISDR, 2007) is one of the products generated to meet this call. Accordingly, given the HFA’s importance and recognition and the position of the WIA report as a guidance document, the WIA guide was one of the documents that we chose for further analysis.

8.1.1 Words into Action: A Guide for Implementing the Hyogo Framework for Action

The WIA guide was written by the ISDR in collaboration with numerous organisations and individuals from several countries with the intentions of providing advice on useful strategies for implementing the HFA. Thus, the WIA document is a “how to” guide for implementing the Hyogo Framework and gives guidance related to the entire DRR process⁴⁰. The importance of assessing the country’s capacity is highlighted several times within the document and it also provides some guidance on what aspects that should be included in such assessments.

Since countries have the primary responsibility for disaster risk reduction, the Guide’s target audiences are national governments and their subsidiary local governments, including decision-makers, leaders and practitioners and other civil servants. Additionally, the guide should be of interest also to leaders and representatives of specific sectors, civil society organisations, community organisations, the private sector, academia, international and regional organisations, and others working to reduce disaster risk. It is also stated that the guide may be used at different levels of within a nation and for a variety of purposes (ISDR, 2007:3).

Overview of main characteristics

The WIA guide is structured around the five HFA Priorities for Action:

- Making disaster risk reduction a priority;
- Improving risk information and early warning;
- Building a culture of safety and resilience;
- Reducing the risks in key sectors; and
- Strengthening preparedness for response.

Each Priority is outlined in a separate section, which further is divided into a number of recommended tasks. Altogether, these five sections contain a set of 22 suggested tasks, each task addressing a primary area of effort for implementing disaster risk reduction. Each section (task) comprises explanations of its importance and guidance on how to conduct the task under the headings: “Understanding the task”, “How to do it”, “Responsibilities and Resources”, “Illustrations” and “Further Reading”.

³⁹ The term ISDR system means the various international, regional and national bodies, platforms, programmes and mechanisms expressly established to support the implementation of the ISDR and the HFA (ISDR, 2007). See www.unisdr.org for more information.

⁴⁰ The HFA defines DRR to comprise the five priorities for action as reproduced above.

Consequently, the Guide is not a model constructed with the purpose of merely assessing a country's Disaster Management capacity. Nevertheless, we found that many sections within the guide could be useful in such context. Especially section 5.2: "Assess disaster preparedness capacities and mechanisms" is particularly interesting from our point of view and this section was therefore the main focus of the analysis. Since Section 5 focuses on the preparedness and response phase of a disaster, this section does not cover all areas within the DM process. Thus, in addition to analysing section 5.2, we have also studied the other sections for parts that could be used when determining a country's DMC. As a result, also the sections named "Questions to ask" and "Recommended steps" were included in the analysis.

Results from analysis

As per the above, Section 5.2 and the sections "Questions to ask" and "Recommended steps" within the remaining sections of the WIA Guide were included in the analysis below.

Since the HFA is in deed a very broad framework, it would be impossible for even a guiding document such as the WIA to be very specific within each task without becoming too comprehensive. This said, the document does include explanations to each of the 22 suggested tasks providing, at least some level of background information and basic understanding of the subjects discussed. In our opinion since the background information is given within these explanations, this renders it possible for the user to seek other assessment methods should he/she find the guidance provided within the WIA to be insufficient.

The WIA strongly focuses on areas related to the Institutional and Legislative profile, including the legal and regulatory framework that facilitates the DM process, DMOs, co-ordination and co-operation, communication and the organisational part of early warning systems. Additionally, awareness of DRR within all of society and the possibility to raise awareness, natural resource management and how the DMOs prepares and plans for a disaster are also aspects that are at least briefly discussed.

Furthermore, the report strongly emphasises that all relevant stakeholders should be included in the DM process and consequently, that all these stakeholders' roles should be included in a capacity and vulnerability assessment. This is mentioned and discussed within several aspects. The Guide discusses how different stakeholders within the society should have knowledge related to DRR and that such knowledge should be incorporated within their normal business activities.

We found that the WIA document does not include many discussions regarding the capacities of individuals and communities, although it does mention that vulnerable groups should be considered in different assessments as well as stressing the importance of increasing their resilience. Furthermore, the guide does not include aspects that could describe the current physical situation if these are not directly related to hazards. Finally, although some references are given to economical areas, we argue that the guidance given in relation to the financial aspects is also insufficient.

In addition to the sections analysed within this project, the WIA document also includes many tasks which not specifically incorporate assessments. Instead, these sections are written to highlight areas that are important to address within other areas of the DM process. As a result, this means that if conducting an assessment of the whole DM system, the current status of such tasks should also be studied and consequently, almost all discussions within the document could be used as guidance pointing towards important areas within the DM process. Hence, there could be more guidance provided on areas that are important for assessments than indicated within our analysis, since our

analysis was based on only limited parts of the report, i.e. the sections specifically written with the intentions of facilitating an assessment.

In summary, we argue that the WIA could be used to create an understanding of why many different aspects are important for the DM process. The guide also identifies and formulates questions to ask when conducting assessment for many of the suggested tasks. Furthermore, it provides some guidance on how to conduct the assessment and who should be involved. It is a “how to guide” written to facilitate the implementation of the HFA and thus strives to achieve a holistic perspective. However, in our opinion it does not fully include local capacities, the financial aspects and background information about the physical situation. Hence, in our opinion, it would have to be complemented with other assessment methods to fully provide a holistic representation of the status of a county’s DMC.

8.2 CASE STUDIES

The second group of publications studied within this project constitutes case studies. When searching for models that could provide guidance on how to conduct an assessment of a country’s DMC, looking at case studies did (even though clearly not models per se), feel like a natural approach. In fact, several other types of documents, such as for example many community based assessment models⁴¹, use examples from previous experience to clarify different arguments.

The argument backing our decision to look at case studies seems fairly sound to us if considering that case studies comprise the results of how DMC assessments have been conducted in the past and hence could give guidance on what areas should be included in an assessment. A number of case studies were therefore initially studied regarding what areas of society that had been incorporated within the assessments, as well as how much explanation and guidance they provided.

Since many different organisations are involved in conducting more or less structured and more or less comprehensive assessments, the guidance provided from case studies varies. Furthermore, the level of details and background information within each different case study varies considerably. As a result, for the purpose of this project, some case studies were deemed more useful than others were.

After having briefly looked through a number of case studies, we found that many of them were limited to only cover a smaller part of a country’s DMC. Nevertheless, the upside is that there are a lot of different case studies available that, if combined, could provide a more comprehensive picture. However, the large number of relevant case studies, which were found in literature, on the web or which were recommended to us by professionals within the DM field, forced us to make an initial selection, limiting the number of case studies to include six documents⁴²:

- Vanuatu Disaster Risk Reduction and Disaster Management National Action Plan (2006-2016), Written for UNDP and recommended to us by S. Hodge;
- Strengthening the Disaster Mitigation and Management System in Mongolia (2006). Written for UNDP and recommended to us by S. Hodge;
- Disaster Management Support for Pakistan, Observations on current disaster response systems and recommendations for the establishment of a proactive all-risk Disaster

⁴¹ For example see “Participatory Vulnerability Analysis, A Step-by-Step Guide for Field Staff” by ActionAid International or “Citizenry Based Development Oriented Disaster Response” by Centre for Disaster Preparedness and Citizens’s Disaster Response Centre at the ProVention Community Risk Assessment toolkit (Internet 9).

⁴² Documents that we have been able to give references to are included in the Reference section of the report.

Management structure at the federal, provincial and district levels (2003). Written for UNDP and recommended to us by E. J. Goodyear;

- Strengthening Guyana's Disaster Management capacity at the national, regional and community levels (2005). Written for UNDP and recommended to us by E. J. Goodyear;
- Risk-Mapping and Local Capacities: Lessons from Mexico and Central America (Oxfam Working Papers Series), (Trujillo et al., 2000); and
- Disaster Response Preparedness in Tajikistan (United Nations Office for the Coordination of Humanitarian Affairs UNDAC Mission [UNOCHA UNDAC] (2006).

Out of these six case studies, the UNDAC mission (UNOCHA UNDAC, 2006), and the Oxfam paper (Trujillo et al., 2000) were chosen for further analysis. Our choice was based on that these two reports were considered to represent two different perspectives and approaches, one UN driven assessment and one NGO assessment. Another reason for choosing these two case studies was that, out of the six, these were the most easily accessible to the general public. The level of accessibility would in our opinion suggest that these two perhaps could be used by a larger number of people conducting assessments. Notwithstanding the arguments above, we do not stipulate that any of the six case studies is either better or worse than the others; no such judgement is included within this report. Below, we will first discuss and analyse the UNDAC mission in Tajikistan, followed by the Oxfam paper on Mexico and Central America.

8.2.1 Disaster Response Preparedness in Tajikistan

The core function of the UNDAC (United Nations Disaster Assessment and Coordination) system is to assist UN country teams and governments during the relief phase but they also conduct up to three disaster preparedness missions per year. Thus during March (12-27th) 2006 an UNDAC team undertook a mission in Tajikistan to assess the country's "Disaster Response Preparedness". The mission was requested by the Government of Tajikistan with the intention to "assess the national capacity to respond to large scale natural and environmental emergencies which would overwhelm the existing coping mechanism and would require additional international assistance" (UNOCHA UNDAC, 2006:i).

UNDAC team consists of Disaster Management professionals who are selected to conduct a specific mission and the composition within each team will hence vary depending on the subject mission (Internet 11). Twelve persons took part in the mission to Tajikistan during a two-week period.

These disaster response preparedness missions always involve interviews, a review of relevant literature, a study of the country's history, field missions to highly disaster prone areas (provinces, departments or cities) and the evaluation of a simulation exercise (R. Mena & C. De Borbon Parma direct communication on the 4th of July 2007). Additionally, preparations and a follow-up are conducted by the UN Office of Coordination and Humanitarian Affairs (OCHA). OCHA is a department of the UN Secretariat that operates through a network of field offices. It supports UN Humanitarian Coordinators and country teams and maintains regional support offices within some regions (Internet 6)

Overview of main characteristics

Within the executive summary of the report (UNOCHA UNDAC, 2006:i) it is stated that " The UNDP report covers various issues related to disaster response preparedness, including the legal framework, organisational structures, response capacities and procedures and coordination mechanisms. It provides recommendations on contingency planning, aspects related to education, training and public awareness, warning and alert procedures, the integration of international aid, and other Disaster Management matters."

The intention with the mission was to evaluate preparedness and response measures within Tajikistan. The mission was also to result in recommendations and indicate within a time frame how to strengthen relevant areas within the society.

The report includes an initial section of relevant natural hazards within the country and is centred around five main areas:

- National Disaster Management Framework;
- National and Local Disaster Response Capacity;
- Disaster Response Preparedness;
- Public Awareness and Education; and
- International Assistance.

Resulting from the mission, the report gives concrete recommendations related to each of these main areas listed above.

Results from analysis

The objective set out for the UNDAC assessment was rather distinct, to analyse preparedness and response capacities. This objective did not stipulate that the assessment would strive to achieve a holistic assessment covering both the time- and space dimensions of the DM process. The restriction in scope was also confirmed during discussions held with UNDAC staff (R. Mena & C. De Borbon Parma, direct communication on the 4th of July 2007). Consequently, we did not find it surprising that many of the aspects in the Checklist concerning mitigation as well as capacities within the general public were not included in the UNDAC assessment. Moreover, the assessment was based on a top-down approach (Ibid.), which further explains the result as shown within the checklist.

The aspects that did receive much attention in the UNDAC assessment were mostly related to the *Institutional and Legislative profile*, including among others the *Legal and Regulatory Framework*, *Disaster Management Organisations* and *Other Relevant Stakeholders*. Some attention was also given to infrastructure, the disaster awareness within the society as well as aspects related to *The Economical Profile*.

Since the document was written as an evaluation of Tajikistan, the aspects included within the report were all obviously discussed from a country-specific perspective and all discussions were therefore directly related to the specific context of Tajikistan. As a result, there are no explanations given regarding general effects from a certain condition. The guidance provided by the report is therefore limited to acknowledging certain aspects as important. Potential guidance could also be given from the recommendations that resulted from the assessment.

In addition to the Tajikistan report, we also looked into if there is further guidance given to the UNDAC teams regarding what areas of society that should be assessed and how such assessments should be conducted. According to OCHA (Ibid.) a relatively detailed guiding document is currently being compiled, but no such document exists to this date and the assessments are, to a certain degree, conducted on an ad hoc basis. This said, this does not mean that the structure and contents of UNDAC assessments are completely different from time to time, but that there is flexibility to cater for the experience and interests of the different persons partaking in the UNDAC team. Therefore, as long as assuring the competence of the persons included in such missions, OCHA feel confident that the central aspects will be covered (Ibid.).

To summarise, the Tajikistan case study could be used as a reference document indicating areas that are important for disaster response and preparedness. However, it does not give any background information or explanation to why these aspects are important. The subsequent recommendations from the report could to some extent give guidance on how better conditions could be attained and what such better conditions would look like.

8.2.2 “Risk-Mapping and Local Capacities: Lessons from Mexico and Central America”

The second case study within this project was the paper, *“Risk-Mapping and Local Capacities: Lessons from Mexico and Central America”*. The paper is the result from a multidisciplinary evaluation of the disasters risks (either of natural origin or human agency), throughout Mexico and Central America, which was commissioned by Oxfam GB (Trujillo et al., 2000). The report was written by Monica Trujillo, Amado Ordonez and Carlos Hernandez.

According to its web page, Oxfam GB is a development-, relief- and campaign organisation that works with others to find lasting solutions to poverty and suffering around the world (Internet 7).

The assessment within Mexico and Central America was conducted with the intention being to create a framework for a Disaster Preparedness Plan and by doing so, reshaping and uniting emergency relief with rehabilitation and development activities (Trujillo et al., 2000:7). The mapping exercise which comprised the basis of the studied paper, represented a starting point in developing Oxfam’s Programme of Preparedness for Emergencies in Mexico and Central America. The mapping exercise had the following goals (2000:9):

- To predict possible emergencies that might arise in the region and to ascertain their potential impact on those most affected⁴³;
- To identify the local capacity for emergency response within each country; and
- To envisage the type of external assistance needed for an effective and appropriate response to emergencies.

Overview of main characteristics

According to the authors of the paper, the method is based on a review of potential threats and associated disaster risks across the region. It also focuses on the links between socio-economic realities, policies, and the dynamics of planning. Consequently, the method intends to allow the user to map and evaluate relevant threats and disaster risks of various kinds within the region (Trujillo et al., 2000:7).

The method was intended to work as a tool for people who are not “disaster experts”, but whose depth of local knowledge and experience makes them experts of the conditions and potentialities of a given country, region or locality (Ibid.). The study sought to develop a fuller analysis than one based on technical expertise alone by combining relevant formal information with the accumulated experience of local actors. Furthermore, Trujillo et al. (Ibid.) state that although the method was devised to assess risks, vulnerabilities, and local capacities at a regional level, it could also be adapted for local-level application.

The mapping exercise for the study of Mexico and Central America was initiated through a literature review in order to establish an institutional framework and to identify existing processes and initiatives within the region. A method was then agreed upon for defining the nature of the risks,

⁴³ Emergencies equal our definition of disasters.

vulnerabilities, and capacities in the region, for selecting the indicators and determining the variables and weightings to be used in assessing them and for formulating tools for gathering, processing, and analysing information. Field visits were then conducted to high-risk areas within the subject countries (Trujillo et al., 2000:9-10).

Within the initial parts of the report an analysis of relevant threats within the region was described, followed by an analysis of the threatened communities; the agro-ecological conditions and the state of the economy; and the infrastructure and services. Next, an analysis of the relationship between the level of risk, local capacities and the living conditions of the threatened community was conducted. Indicators of vulnerability were described to include capacity to predict unwanted occurrences; status of communication systems; the capacity of health-care systems; general levels of education; and levels of diseases. The analysis of capacities included the institutional framework for the management of disasters (regionally, nationally, and locally); current capacities from the perspective of civil society and initiatives for developing existing capacities; and the principal stakeholders.

The report also included a general discussion regarding the areas/aspect analysed prior to explaining the regional assessment within that area/aspect, followed by a country by country assessment. Only the general discussion constitutes the base for our analysis below, since we found that the other parts more or less comprised the same information, only in a more country-specific context.

Results from analysis

In the introduction to the Oxfam GB case study it is stated that the assessment takes a very broad approach with the intention being to identify the risks of disasters throughout Mexico and Central America. In our opinion, meeting this objective would require that both the entire time- and space dimensions of the DM process are taken into consideration within the assessment.

Throughout the report the link between development and disasters is strongly emphasised. In addition, recognition is given to the link between people's everyday situation and a country's DM capacity, a factor that is considered to have a great influence on many of the aspects studied. Accordingly, in the analysed case study there is a strong focus on mapping people's everyday situation with regards to factors such as water, sanitation, housing, livelihood, food security etc. Moreover, the vulnerability of critical infrastructure is discussed. These aspects are discussed in a rather comprehensive manner and clarification to their respective importance is given to some extent within the paper.

One of the main areas discussed within the report comprises gender-related issues with regards to disasters and the importance of including a gender sensitive perspective in the DM process is strongly emphasised. Furthermore, within the report it is stated that a number of trace indicators to reflect the resources available as well as the degree of marginalisation and exclusion from social economic and political systems have been included. For example, in order to evaluate the level of vulnerability, indicators such as the level of poverty and level of illiteracy are studied. These *indirect* factors could constitute valuable sources of information regarding the general status of the population and hence, indirectly affect the country's DMC.

The geographical description of the country is much focused on previous disasters, but does also give some information about the current situation of the country. Natural resource management is also discussed, especially related to areas of deforestation, air- soil- and water pollution.

In our opinion the assessment in relation to institutional arrangements comprise (although many areas are mentioned), less detailed discussions. This said, some details can be found in the section describing the progress and needs of the countries. Other areas that are mentioned within the assessment, that also are included within the Framework, are the political situation and the awareness and will of the politicians related to disasters.

Within the foreword and introduction to the report the authors several times refer to the method used for mapping the situation within a country. However, the method is neither described in detail within the paper nor are there any references given where to find more detailed information about the method.⁴⁴ Consequently, we were unable to identify the method, which might have been a good method to analyse due to the rather wide scope of the case study.

In summary, the report discusses and provides some guidance on how the general situation of the population within a country can be assessed. The assessment identifies many indicators and aspects and does in many cases undertake a more general discussion about the different areas prior to conducting a more country specific assessment. However, in our opinion many areas identified are not explained enough in order to provide sufficient guidance. Furthermore, the scope is by us not considered to be sufficiently broad to achieve the initial objectives of the assessment.

8.3 INDEXES

Risk-indexes generally tries to quantify a relative level of risk and in doing so, they also need to quantify factors that could affect the level of consequences of an impact. Subsequently, when addressing potential consequences it is inevitable to take capacity and vulnerability into consideration and thus, the explanatory documents which constitute the background material for such indexes are likely to include some type of discussions about what aspects that could affect a country's DMC.

An index method is in many ways similar to a global risk analysis, although the final product will differ. One of the many index methods available has been constructed by the Instituto de Estudios Ambientales & Inter-American Development Bank [IDEA & IADB]'s (2005:7). Within the associated documents it is stated that "the proposed indicator system searches to represent risk and risk management at a national scale, allowing the identification of its essential economic and social characteristics and a comparison of these aspects and the risk context in different countries". Thus, when conducting assessments of a country's DMC, or more specifically identifying aspects that could affect a country's capacity, explanatory documents to national risk-index could be used as a source of reference.

The explanatory discussions within the index documents are hence the reason why indexes as a group of documents are analysed further. Thus, in the analysis we do not include the final number the index produces, or the equation leading to it, as they are not relevant to our project. Further to this, no evaluation has been made of the validity of the method, how they included indicators have been ranked, weighted etc.

For any index to be useful, it requires available and adequate data as input. Furthermore, it requires that the selected aspects, or indicators, which are considered to affect a country's capacity, can be related to each other and weighed into an index number. The difficulties in achieving such criteria

⁴⁴ In trying to find this methodology we contacted Oxfam GB but were advised that the authors of the report were no longer working for them. We were also unable to get in contact with other persons within the organisation that had continued their work.

result in that many index documents are limited in their scope. Consequently, the explanatory discussions, which are of interest to us, will also be limited in the amount of useful information they could provide.

As an initial approach we started to look into index methods that focused on a national level. A number of index methods were found both from literature review and from recommendations from persons within the field of DM. The first selection of documents studied includes⁴⁵:

- The English Indices of Deprivation (Noble et al., 2004);
- AF06-Mega Index publication, (Fernandez, Mattingly, Bendimerad, & Cardona, 2006);
- Reducing disaster risk (UNDP, 2004);
- Inter Americas Development Bank (IDEA IADB, 2005); and
- Natural Disasters Hotspots (Dilley et al., 2005).

Even though comprising some valuable discussions, several of the index methods were too restricted in scope for any further analysis to be useful. As a result, out of the five alternative methods, only the IDEA IADB index was chosen for further analysis. This index method was chosen since we considered that the IDEA Indicators adopt a more holistic approach than the other indexes. Furthermore, even though it originally is destined for decision-makers on national level the index could be used on sub-national level, hence not only for comparative purposes between different countries but between different regions within a country (IDEA IADB, 2005:5-7).

8.3.1 The IDEA- IADB Index

The index method chosen for analysis, “Indicators of Disaster Risk and Risk Management”, was developed by the Inter-American Development Bank (IADB) under the co-ordination of the Instituto de Estudios Ambientales, IDEA, Universidad Nacional de Colombia, Manizales. For this project, we studied the summary report that was put together for the World Conference on Disaster Reduction held in Kobe, Hyogo, Japan 2005. According to the document, the objective of the index method is to “facilitate access to relevant information on disaster risk and risk management by national decision-makers, thus making possible the identification and proposal of effective policies and actions” (IDEA IADB, 2005:5).

Overview of main characteristics

The IADB-IDEA Index comprises four components, or composite indicators that, according to the authors reflect the principal elements that represent vulnerability and which show the advance of different countries in risk management. The four components (each comprising a separate index method) are described below in the words used by the authors of the original report.

The Disaster Deficit Index, DDI

The first index, the DDI, measures country risk from a macro-economic and financial perspective when faced with possible catastrophic events. This requires an estimation of critical impacts during a given exposure time and of the capacity of the country to face up to this situation financially (IDEA IADB, 2005:11-14).

The DDI captures the relationship between the demand for contingent economic funds and the economic losses that the public sector must assume and its economic resilience, which corresponds to the availability of internal and external funds for restitution affected inventories. When the DDI is greater than 1.0, this means the economic incapacity of the country to cope with extreme disasters

⁴⁵ Documents that we have been able to give references to are included in the Reference section of the report.

even where indebtedness is carried to a maximum. The greater the DDI, the greater the gap (IDEA IADB, 2005:11-14).

The Local Disaster Index, LDI

The second index, the LDI, identifies the social and environmental risk that derives from more recurrent lower level events, which are often chronic at the local and sub national levels. These events particularly affect the more socially and economically fragile population and generate a highly damaging impact on the countries development. The objective of this index is to represent the proneness of a country to lower level or small-scale disasters and the type of impact these have on local development (IDEA IADB, 2005:15-18).

The LDI is made up of three sub indicators including the number of dead persons, the number of affected persons and losses in the municipalities caused by the three generic types of events: landslides and mud flows; seismic-tectonic events; and floods, storms and other events (IDEA IADB, 2005:15-18).

The Prevalent Vulnerability Index, PVI

The third index, the PVI, is made up of a series of indicators that characterise prevailing vulnerability conditions reflected in exposure in prone areas, socio-economic fragility and lack of social resilience in general. PVI is an average of these three types of composite indicators (IDEA IADB, 2005:19-24).

The Risk Management Index, RMI

The forth and final index, the RMI, brings together a group of indicators related to the risk management performance of the country. These reflect the organisational, development, capacity and institutional actions taken to reduce vulnerability and losses, to prepare for crisis and efficiently recover. The objective of this index is the measurement of the *performance* of risk management. The RMI takes into account four public policies, including:

- Risk identification RI (comprising the individual perception, social representation and objective assessment);
- Risk reduction RR (involving the prevention and mitigation);
- Disaster Management DM (comprising response and recovery); and
- Governance and Financial protection FP (related to institutionalisation and risk transfer).

Eight indicators have been proposed for each public policy. Together, these serve to characterise the risk management performance of a country (IDEA IADB, 2005:25-30).

In summary, the document identifies a number of aspects through its indexes and although not going in to many details about the different aspects, they cover quite a broad area. Accordingly, within the following section, the areas of society included within the IADB-IDEA index will be analysed against the contents of our Framework.

Results from analysis

An index is constructed by a number of different measurable indicators that together are intended to (in terms of a number) give an indication of the situation within a country in relation to other countries. Within the report it is stated: "In this way, the system covers different aspects of the risk problematic and takes into account aspects such as: potential damage and loss due to the probability of extreme events, recurrent disasters or losses, socio-environmental conditions that facilitate disasters, capacity for macroeconomic recovery, behaviour of key services, institutional capacity and the effectiveness of basic risk management instruments such as risk identification, prevention and

mitigation measures, financial mechanisms and risk transference, emergency response levels and preparedness and recovery capacity” (IDEA IADB, 2005:9).

We do agree with the statement above, however, we believe that there are elements within the holistic perspective that an index system will fail to capture, one specific reason being due to the criteria that all included indicators should be measurable within an index system. It is therefore difficult to include more subjective areas, which is apparent when studying the IADB-IDEA Index. For example, aspects such as *Corruption* and *Indigenous knowledge* have not been included. However, we found that more tangible aspects were better covered within the IADB-IDEA Index than within other indexes. The index is centred around the objective to quantify DM related activities, for example aspects related to the *DMOs* and *Other Relevant Stakeholders* as well as *Financial Factors from a National Level*. Yet, one aspect that was excluded was the geographical attributes of the country.

A limitation with using the IADB-IDEA document for the purpose of identifying central aspects that could affect a country’s DMC, is that all areas included are only mentioned and no in-dept discussions regarding how they could affect a country’s capacity or how they relate to other aspects have been included. We appreciate the possibility that such discussions might be available within other documents related to the index, but we have been unable to find such documents. Hence, we conclude that the studied document, the “Indicators of Disaster Risk and Risk Management”, could be used as a good start when identifying measurable and thus quantifiable indicators of a country’s capacity. However, it does not cover any areas that are not quantifiable and it does not provide the reader with any explanations of why the included indicators are important except that they were chosen “through an extensive review of the risk management literature, assessment of available data, and broad-based consultation and analysis” (IDEA IADB, 2005:9).

8.4 COMMUNITY BASED ASSESSMENT MODELS

As per the objectives of this the report, our intention was to analyse models that could be used to assess a country’s DMC from a national perspective. Unfortunately, we were unable to find any models designed for a national perspective. Instead, many of the models found giving more specific guidance on how to actually conduct a capacity assessment were focused on community level. Due to the different perspective, we discovered that the community-based models did not cover some of the aspects of our Framework, mainly aspects related to the national level of DM, and consequently these models do not in our opinion provide a holistic perspective on DMC.

Nevertheless, and as also discussed by B. Wisner in a presentation held at the “International Workshop on Community Risk Assessment”, the method of how community-based risk assessments should be conducted, has slowly been developed over the past 40 years (Disaster Mitigation for Sustainable Livelihoods Programme University of Cape Town, 2005:8). It is thus a method that has been around and developed under a long time, which to us implies that it would both include relevant guidance as well as being practicable. Moreover, if studying the ProVention Community Risk Assessment Toolkit⁴⁶, community-based assessments have been, and still are, used by a number of different organisations. Altogether, there are several documents discussing how and why to conduct community risk assessments. ProVention has chosen to refer to these types of models as “community risk assessments” (Internet 9). The models included have slightly different names, however their contents are similar.

⁴⁶ Can be found at the ProVention homepage, (i.e. Internet 8).

Additional to being a generally accepted and applied method, a community-based assessment has additional advantages. As emphasised within this report disasters affect people within their community and thus, it is essential to know how the local community will be able to manage such circumstances (for further discussions regarding community vs. national levelled capacity assessment, see the Discussion section). In fact, in order to be able to assess national capacities it is crucial to understand the various local contexts and community-based assessments could therefore be included in a more holistic assessment.

As a result from the discussions above, we decided to include and analyse community-based assessment models within this project. The main reasons for this decision are that the documents are based on a lot of experience, are written as the type of document we originally intended to study (i.e. models per se) and that they highlight an approach that should be included also in an assessment from a national perspective.

The selection of community based assessment models included within this project were based on models found within the ProVention Community Risk Assessment (CRA) Toolkit, available online at ProVention Consortium's web page (Internet 9).

The ProVention Consortium consists of international organisations, governments, the private sector, civil society organisations and academic institutions and has the objectives to reduce the impact of disasters and increase the safety of vulnerable communities (Internet 10).

The objectives of the project resulting in the toolkit were according to ProVention "to strengthen community level risk assessment and advocate local level risk assessment that will inform and influence decisions, policies and plans at sub-national and national levels" (Disaster Mitigation for Sustainable Livelihoods Programme University of Cape Town, 2005:11). Further objectives were to review current tools for community risk assessment and to gather in one place community risk assessment (CRA) methodologies (Ibid.). Thus, the toolkit contains a collection of various CRA models, making the toolkit a good starting point when searching for community-based assessment models. Furthermore, the toolkit also includes a search engine in which all the compiled documents could be found based on different search criteria.

We chose to search for documents with the search criteria that they should constitute comprehensive manuals; this to find documents that would provide the most guidance when conducting a community based- or a countrywide assessment. Ten documents were found of which we selected two for further analysis. The choice was based on the brief guidance notes that were attached to each document found. The two selected documents were believed to have a good geographical scope (thereby a more holistic approach) and providing the most guidance.

Prior to assessing any of these community-based assessment models, it is worth mentioning that the model most often referred to when discussing community based assessments is the *Vulnerability and Capacity Assessment (VCA)*, which is a Red Cross/Red Crescent (RC) model. However, this model is not included within this section of the report, but will instead be discussed within section Documents originating from the IFRC. The selected documents within this section include:

- Participation by Crisis-Affected Populations in Humanitarian Action A Handbook for Practitioners (*Active Learning Network for Accountability and Performance in Humanitarian Action [ALNAP]*, 2003); and
- Community-based disaster risk management Field Practitioners' Handbook (Abarquez & Murshed 2004).

Both these documents give guidance on how to conduct the full scope of participatory projects including; assessment, design, implementation, monitoring and evaluation and are thus much more comprehensive than the type of guidance that we are searching for. Hence, only the parts of these two documents where guidance is given on how to conduct an initial assessment of the current capacities and vulnerabilities were included in the analysis below.

8.4.1 Participation by Crisis-Affected Populations in Humanitarian Action A Handbook for Practitioners (PCAPHA)

The first community based model studied was written by Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP) and is called “*Participation by Crisis-Affected Populations in Humanitarian Action A Handbook for Practitioners*” (PCAPHA). The handbook is aimed at international humanitarian personnel as well as staff working for a national and local organisation (ALNAP, 2003:7).

Within the foreword of the handbook it is stated that:

It provides the most detailed road map to date for field workers to find practical approaches for involving affected communities in the design and implementation of humanitarian interventions. It offers a deeper understanding of what participation in humanitarian assistance involves, and how in conflict situations and disaster environments participation can be given a more prominent role (ALNAP, 2003:7).

The main objectives of the handbook are also to provide guidance on how to adopt participatory approaches and how to avoid associated pitfalls and risks (ALNAP, 2003:12-13). Additionally, tools that could assist in conducting a contextual analysis are included in the handbook. Many of these tools could also be found within other CRA toolkits provided by other organisations.

Overview of main characteristics

The handbook comprises three main components:

- Part 1: Designing A Strategy for Participation in Humanitarian Action;
- Part 2: Participation Throughout The Project Cycle; and
- Part 3: Sector-related Issues.

The first section includes some general fundamentals related to the participatory approach, while the second part comprises a bit more detailed information related to assessments and goes through the suggested steps of a project cycle and how a participatory approach could be practised. The third and final section discusses specific sectors of a project (including food security; water and sanitation; habitat and shelter; health; and education) and how participatory approaches could be used in those sectors.

In accordance with the title, the use is intended for humanitarian actions, which would imply that the document is focused on actions taken after a disaster has occurred. However, the processes described within the handbook would require long time to conduct and the projects described are not intended as quick fixes.

The main objective of the report is to emphasise a participatory approach and a large part of the contents is based around how to achieve such an approach. We do not intend to analyse this approach, only the suggested projects, with the focus being on what areas they address.

We found that the section within the handbook most applicable to our project is chapter 3 “Assessment” within Part 2, as it describes how the context; the crisis and its effects; the relevant stakeholders; vulnerabilities and capacities; as well as the needs and demands should be analysed. Examples of questions to ask and relationships that should be analysed are also provided and this section thus gives examples on how a community based assessment could be conducted. The introduction to the chapter states that:

This section is concerned with the need to understand better the socio-cultural, historical, ethnic, geographic and economic components that, together, form the context. Some elements of it are generic, and these are presented here; others are more sector-specific and are dealt with in Part 3. (ALNAP, 2003:100)

Consequently, in addition to what is included in the Assessment-chapter (within Part 2), the handbook also includes more details about how to assess capacity within Part 3. Part 3 outlines a project cycle comprising five suggested steps for each specific sector (as mentioned previously). The first step of the cycle is assessments, which also has been included in the analysis below.

Results from analysis

To our understanding, the (PCAPHA) model focuses on capacity from an individual perspective and assesses how individuals would be able to manage a disaster. Accordingly, aspects that are centred on individual’s livelihood and survival strategies are included rather than aspects related to for instance financial aspects from a national perspective.

Areas that are covered include the importance of interactions between people within a community and to some degree the geography and climate of their surroundings. We found that the depth of discussions and explanations within different areas ranged from only being mentioned to fairly comprehensive.

The assessment method does neither expand the scope to include areas outside the community nor does it address the availability or need for external assistance. As a result, the model does not give any guidance on many of the aspects that are considered to be vital when conducting an assessment from a national perspective. As an example, aspects like *Legal and Regulatory Framework, Corruption* or *Media* are not included.

Furthermore, it seems to us that the model was designed as a tool for humanitarian organisations to understand the context in which they are working in, and not so much as a model that could be used by community members to increase the awareness and understanding of their own situation.

Another viewpoint of ours is that the model does not always give specific details in relation to what areas that should be assessed with the different tools suggested. As an example, one suggested tool is to create a historical timeline, a method that could be used to assess history from a number of different perspectives and involving a number of different aspects. This could be both an asset and a predicament since it does make the model slightly more flexible, but it could also result in that important areas might be omitted from the assessment. Either way, we found it difficult to analyse the coverage since some of the tools mentioned could be adapted to assess different aspects depending on the user’s knowledge and preferences. Furthermore, there are a number of aspects that are just mentioned with a couple of words. Thus, more than simply highlighting certain areas of importance it does not provide any further guidance.

In summary, the model assesses the closest sphere of the community and hence provides guidance on how to conduct an assessment from the community and individual perspective. The community perspective is important also from a national perspective, but it would have to be complemented with another type of assessment in order to achieve a more holistic representation of the entire society.

8.4.2 Community-based disaster risk management Field Practitioners' Handbook (FPH)

The Field Practitioner's Handbook (FPH) was written by Abarquez and Murshed (2004), and published by the Asian Disaster Preparedness Centre as a response to the rapid expansion of Community Based Disaster Risk Management (CBDRM) projects conducted within South East Asia. Within the handbook's introduction it is stated that the handbook was created to meet the demand of guidance since many practitioners lack education through courses due to inadequate funding or language problems (Abarquez & Murshed, 2004:1).

The handbook was written from a community perspective to educate and assist disaster managers with theories and provide practical tools (Ibid.). The book represents an early version, compiling the work of practitioners in South East Asia, and the scope within the model is therefore limited and does not address all concerns and expectations of CBDRM practitioners. Consequently, the model is by the authors described as an incomplete set of tools and resources (Abarquez & Murshed, 2004:3).

Overview of main characteristics

The handbook is divided into three parts, where the purpose of the first part is to clarify the basic concepts of CBDRM. The second part comprises a resource package that covers essential tools used for implementing various stages of the CBDRM process. This part gives guidance on how different stages in a project cycle should be conducted, including two chapters focusing on the assessments of the current situation. The contents of those two chapters, "Rapport Building and Understanding the Community" and "Participatory Disaster Risk Assessment", will be subjected to further analysis below. The third part of the handbook discusses tools focusing on a gender conscious approach and disaster risk communication. According to the authors, the handbook also advocates three key concepts:

- Community Implementation;
- Participatory Disaster Risk Assessment and Action; and
- Gender Conscious Approach to Disaster Risk Reduction.

The chapters studied within the handbook first include a short discussion about the contents of each chapter, followed by concrete advises on how related activities should be conducted. The assessment section within the resource package of section two includes a number of key questions that should be asked when conducting the assessment. Those key questions constitute the basis for our analysis with regards to what areas of society they cover.

Results from analysis

Similar to the PCAPHA model analysed previously within this project, guidance on how an assessment should be conducted is also provided by the FPH model. The difference is that within this document such discussions are held separately from parts related to aspects and indicators. Consequently, one of the main advantages with this model is that it fairly clearly states what aspects and indicators that are considered important for the assessment, without mixing that information with the description of the tools used to retrieve such information. This allows the user to choose the tools deemed applicable depending on the user's preferences and other circumstances.

The model is focused on the individual and community perspective and identifies areas concerning individuals - how they could handle and recover from a disaster and the interaction between the community members. The model addresses areas related to social capital at a number of occasions, hence emphasising the capacity that community members could create for themselves. The requirement to receive external assistance is also mentioned and a number of resources that could increase the capacity of the community are identified. However, these discussions are not expanded further than to simply identify such possible resources. For instance, there are no discussions related to the institutional and legal framework or material and human resources from a national perspective. Thus, although some external aspects in addition to the community are identified, we still consider the model to be limited in scope to mostly cover only the community perspective.

Additionally, the aspects identified within the model are only mentioned with key questions and neither discussions about why these aspects should be considered are included nor are any explanations given of how the aspects could affect a country's DMC.

Another comment we would like to make is that these key questions often focus on identifying areas that we do not consider directly related to capacity, but instead which could be used to indicate the general situation within the country. Such indirect factors are something we throughout this report refer to as indicators. For example, "How many are elderly?" "How many of the elderly are living alone?" "How many are disabled?" are three of these key questions. Although we do acknowledge that such information is relevant, we argue that the output of those questions (i.e. the answers), are related to identifying if there are vulnerable groups within the society that might require extra assistance in case of a disaster. Such distinctions are not made within the handbook and questions regarding both what we refer to as aspects and indicators respectively, are given the same priority and no explanations are given on how to compile the information to create a thorough understanding of a country's DMC.

Thus, the FPH model could be used as a source of reference on aspects that should be included from a community perspective, but the user must be aware of its limitations in scope and how to use the information that results from such an assessment. The model also incorporates a list of tools that could be used when conducting a capacity and vulnerability assessment.

8.5 DOCUMENTS ORIGINATING FROM THE IFRC

As indicated in the Research Question for this project the International Federation of Red Cross and Red Crescent Societies (IFRC) is considered to be one of the main actors in the international DM field, and thus, their assessment methods are of large interest. Prior to continuing the discussion about why we have chosen to analyse documents originating from the IFRC, we will conduct a very brief introduction to the Red Cross/Red Crescent (RC) and the IFRC to ease further discussions⁴⁷.

The National Societies (NS) are the RC bodies within each member country and acts as an auxiliary to the authorities in the humanitarian field. The NS could provide a range of services including disaster relief, health and social programmes, and assistance to people affected by war. NS have 97 million members and volunteers, and 300,000 employees, assisting some 233 million beneficiaries each year (Internet 3). As a result, the NS constitute large resources within a number of countries.

The NS could in some countries constitute the organisation responsible for the entire response system whereas it could in other countries be responsible of a specific sector of the response phase, or it could also have a more supportive role. NS in neighbouring countries could also function as an

⁴⁷ The discussion will be very brief, for further information please see, <http://www.ifrc.org> .

extra resource for the NS in the affected country should their capacity be insufficient during a disaster (F. Nielsen direct communication on the 5th of July, 2007). The NS could also be active within DRR⁴⁸, which would make the RC an important actor within the entire DM process.

The IFRC is a central organisation for all the NS and works to inspire, facilitate and promote the humanitarian activities carried out by the member NS. The IFRC also directs and co-ordinates international assistance to victims of natural and technological disasters, to refugees and in health emergencies and promotes co-operation between different NS. Another objective for the IFRC is to strengthen the NS capacity to carry out effective disaster preparedness, health and social programmes (Internet 4).

In summary, the RC and its NS can be active within the entire DM process with the IFRC constituting the central organisation working to facilitate their efforts. As part of their assistance, the IFRC develop and publish different guiding documents. The NS and IFRC are independent bodies and can not exercise authority over each other (Internet 4) and the documents published from the IFRC are guidance documents only. Furthermore, the capacity of each NS will vary in different countries depending on culture and traditions as well as the general level of development and the respective structure of the NS (F. Nielsen direct communication on the 5th of July, 2007). Thus, the NS can choose to follow guiding documents that suit their objectives and that are in accordance with their own ability.

As the IFRC provides guidance documents for the NS to use in their work, a part of such guidance will relate to how the NS should work with assessments of capacities and vulnerabilities, both within the country and related to the status of the NS itself.

The documents that we initially chose to study are therefore both focused on analysing the capacities/vulnerabilities of the NS as well as the situation within a country. One of the studied documents further intends to give guidance on how the NS should plan for disasters, including how to conduct assessments. These initially studied documents include:

- Well Prepared National Societies (IFRC, -);
- Disaster Response and Contingency Planning (IFRC, Draft Version 2007-05-22); and
- Vulnerability and Capacity Analysis toolbox (IFRC, 1996).

A problem with both the Disaster Response and Contingency Planning (DRCP) (IFRC, Draft Version 2007-05-22) and the Vulnerability and Capacity analysis (VCA) toolbox document (IFRC, 1996) were that they both are currently being revised and the updated versions are yet to be published. With regards to the DRCP document we were able to receive a draft version that could be used for further analysis, but unfortunately this was not possible for the VCA toolbox. The older version of the VCA toolbox originates back to 1996 and is therefore considered to be fairly out of date. Since our result from an analysis of this old version would not be valid following the publication of the newer version, we decided not to include it in the analysis. Furthermore, we also argued that should we have analysed the newer version (if that would have been possible), the result would have been similar to the result from the CRA models analysed previously (see section 8.4), since the structure and focus of these assessment methods in many ways are similar.

⁴⁸ Preparedness would be the corresponding RC term.

Below, we will analyse the two other IFRC documents, i.e. the Well Prepared National Societies, (IFRC, -), and the Disaster Response and Contingency Planning documents (IFRC, Draft Version 2007-05-22), but it should be remembered that in order to get the full picture of how the IFRC intends the NS to work with regards to assessments, the results from analysis needs to be expanded to also include an analysis of the areas covered by a community based assessment (i.e. the VCA).

8.5.1 Well Prepared National Societies & Disaster Preparedness and Contingency Planning

Well Prepared National Societies (WPNS) is a project aiming at creating an overall picture of the status of the different National societies (NS) as well as creating a method for self-assessment with regards to DRR in a RC country context (Internet 5). It also gives the foundation for a well-planned support from partner NS and the IFRC as a whole (IFRC, -:1). As one step towards those objectives, the IFRC has developed a checklist for the NS, which is intended to cover critical aspects identified within NS that have been recorder to cope well during disasters. It is stated on the IFRC's web page that the checklist could be used as a model for excellence in practice related to DRR capacities and that the analysis can be a tool from which more detailed assessment, such as a Vulnerability and Capacity Analysis, can be built (Internet 5).

The second document analysed is a draft version of the IFRC's Disaster Response and Contingency Planning Guide (DRCP), which intends to serve as a working tool for disaster response staff from within NS and the IFRC at local, national, regional and global levels (IFRC, Draft Version 2007-05-22:3). The document, although not completely finished, aims to guide the NS through the disaster planning process and identifies crucial steps and important areas in the process of constructing a plan for the NS's actions. Consequently, it strives to ensure that RC disaster response is consistent and of high quality.

Overview of main characteristics, WPNS

The WPNS assessment document is structured as a questionnaire with Yes or No questions as well as questions where the NS must indicate which areas that are of more relevance to their specific circumstances. According to the document the NS's senior leadership should appoint small focus groups of relevant paid Disaster Management staff and volunteers to discuss and complete the questionnaire (IFRC, -:1). The questionnaire does not provide any discussions or explanations regarding the different questions except that is to some degree define the used terminology and its relation to the DM process. However it does give suggestions on where additional guidance might be found. The checklist is structured under seven headings:

- Emergency Preparedness, Policy, Plans and Laws;
- Damage, Needs, Hazard/Risk/Vulnerability and Capacity Assessment;
- Co-ordination;
- Information and Report Management;
- Resource and Response Mobilisation;
- Community-Based Disaster Preparedness, Mitigation and Disaster Risk Reduction; and
- Advocacy.

Since the questionnaire is developed for analysing the different capacities of a NS there will obviously be questions that cannot be directly applied to our scope. However, our intention with the analysis below is only to evaluate what areas that are covered, not if there are (from our viewpoint) "less relevant" questions within the questionnaire. Thus, if the original question reads "Does your National Society have an emergency preparedness policy (this may also be called a disaster preparedness and response policy) which reflects its role in full compliance of its legal base and bylaws?" (IFRC,-:2), this will be interpreted as an identification that "having an emergency preparedness policy in full

compliance with the legal and regulatory framework” is an important aspect. If a question is considered to be strictly related to a NS capacity and not an aspect that could affect a country’s capacity, the question will simply be omitted from the analysis.

Overview of main characteristics, DRCP

Within the second document, the Disaster Response and Contingency Planning, it is stated that contingency planning is a responsibility at all levels of the NS and that the guide could be used for developing either a multi-hazard disaster response plan with hazard-specific annexes, or several hazard-specific contingency plans to cover high-risk disaster events (IFRC, Draft Version 2007-05-22:2). It is also stated that the document should be considered as a guiding document, not as a strict set of rules that should be complied. The main sections of the document include:

- The response planning process;
- Steps involved in developing the plan;
- Communication and co-ordination of disaster response;
- Plan implementation, training, updating and evaluation; and
- Standards, tools and templates.

The DRCP guide starts off with discussing the importance of planning as well as different types of plans that can be created. The guide lists different features that should be included within the plans and discusses what to plan for, who to plan with, when to plan and at what levels within the organisation that should be included in the plans. The Guide also goes through different steps that should be included when constructing a plan.

Within the DRCP document it is stated that planning helps to assure that “relevant information has been gathered and analysed” and also that “potential difficulties have been anticipated and attempts have been made to overcome problems” (IFRC, Draft Version 2007-05-22:2). Our analysis will focus on Section 2 of the DRCP report and what aspects that are identified as relevant information or sources of problems. We will consequently focus on parts within the document that highlights specific areas of the current situation that should be analysed and the width of their coverage.

Results from analysis

We have compiled the results from the analysis of the two IFRC documents. This approach was chosen since the two documents complement each other and hopefully, since both of them will be implemented within the different NS.

The two documents were created to assess preparedness measures, response capacities or to plan for response actions. Hence, they are much focused on aspects related to the Institutional Profile, especially the DMOs. As the documents are written for a NGO, they do not focus as much on the Legal and Regulatory aspect, with the exception of assuring that their own actions are in accordance with laws and regulations. Nevertheless, they do emphasise the importance of mandates, responsibilities and co-ordination of the organisations, but not from a legal perspective.

The documents identify tasks and sectors of responsibility that should be considered in the response phase, which many times include providing services that we have incorporated within the aspect *Infrastructure. Political climate and relations* is mentioned and the documents also discuss, and to some extent explain, the aspects of *DMOs* and *Early Warning Systems*. Agreements with other organisations, international agreements and the ability to receive international assistance are also mentioned at several occasions.

Some references are made to areas related to *The Economical Profile*, although these are considered to be limited. For example, financial factors from an individual perspective are not included at all. However, if considering the result from CRA documents above, it is likely that aspects related to the individual perspective would be better covered if the VCA document was included in the analysis as well.

Other aspects not covered by the two documents relate to *the Physical/Environmental profile* and the *Social/Cultural/Political profile*. We believe that some aspects within the latter could be covered by the VCA. Nevertheless, we consider it to be a bit dangerous to only rely on the VCA to cover such aspects, one reason being that the results from VCAs must be extrapolated to a national perspective. The VCAs gives an understanding of the community analysed, but the results might not be applicable for another community with different prerequisites. Consequently, to totally omit such aspects (i.e. *Financial Factors at Individual/Household Level*) from a national level assessment might be misleading unless VCA assessments are conducted for all different types of communities or the whole country.

Due to that the two different documents vary in scope, the depth of the discussions and explanations provided also vary. Many aspects are only mentioned, while others are discussed and even explained in more details. The most detailed discussions relate to the different sector responsibilities, early warnings and the need for understanding capacities and vulnerabilities.

In summary, the documents analysed are considered to identify a number of different aspects and to some degree discuss and explain them. The focus is much on the ability to respond to disasters and might therefore provide the most guidance in relation to aspects directly related to this specific phase. Furthermore, we argue that the width of coverage would probably have been much greater if also the VCA document would have been included in the analysis, which in fact also is indicated by the DRCP document.

8.6 CHECKLISTS/QUESTIONNAIRES

A checklist, or a questionnaire, can be design to facilitate assessments in a number of areas, including within the field of DM. During our search for different models or documents that could be used for guidance when assessing a country's DMC, this was one of the relevant groups of documents that we came across and that we decided to analyse further.

We argue that one of the benefits with using a checklist relates to its potential to create a uniform approach to assessments and to assure that all relevant information is compiled in a structured way. The results from such assessments could be used to gain an overall understanding and to prioritise and measure improvements, given that the questions are designed appropriately in relation to the sought information. One of the downsides with using a checklist however is that a checklist could make the assessment inflexible and restricted in lieu of adjusted and suited for the specific context.

The checklists/questionnaires that we initially considered to include in the project were designed to provide guidance for capacity assessments, including:

- In-Country Team Self-Assessment Tool for Natural Disaster Response Preparedness (IASC, -);
- ISDR Developing Early Warning Systems: A Key Checklist; (ISDR, 2006); and
- UNDP Disaster Management Questionnaire (UNDP BCPR, 2002).

After an initial contemplation, we found that the scope of these checklists listed above varied with regards to aspects assessed; level of background information given; and the level of details included in the questions. As a result, only one of the three documents was selected for further analysis. A very brief summary will be given below to motivate the choice, to only analyse the Disaster Management Questionnaire.

The IASC self-assessment tool was put together for the different UN in-country teams to assess their level of preparedness. It identifies an inventory of national capacities and an inventory of vulnerabilities as areas of priority without giving much more details on what should be studied in order to assess these areas or how to conduct such studies. We therefore considered that this document did not provide enough details, and as a result not enough guidance, in order for further analysis to be fruitful.

The Early Warning checklist is intended as a simple list of key elements and actions that national governments or community organisations could refer to when either developing new early warning systems; evaluating existing arrangements; or simply verifying that crucial procedures are in place in an existing system. Although this checklist is very detailed within the *Early Warning Systems* aspect, we argue that the scope of the checklist is too narrow and hence, we chose not to analyse this document any further.

The final checklist/questionnaire, The Disaster Management Questionnaire, was written to facilitate the assessment of the Disaster Management capacities of countries and considered to be the most holistic and detailed one out of the three documents initially studied. Consequently, this document was selected for further analysis.

8.6.1 Disaster Management Questionnaire

The UNDP (United Nations Development Programme), in collaboration with the Bureau of Crisis Prevention and Recovery (BCPR), has developed a questionnaire with the objective to facilitate the assessment of Disaster Management capacities of countries in the sub-region of South West and Central Asia⁴⁹. The purpose of studying this area was to determine opportunities to strengthen national and regional Disaster Management capacities. The results from the study were thus intended to serve as a national report on the current DMC's of the included countries.

Overview of main characteristics

The questionnaire is directed to key organisations of the participating countries such as government departments, the Red Crescent, NGOs, universities and research institutes (UNDP BCPR, 2002:2). Certain questions are specific to an organisation, while other questions could be answered by all organisations. The questions relate to areas such as Disaster profile; National policies; plans and projects; Government structures; Non-government structure; UN Country Office; Material and human resources; Funding; International and national assistance organisations; Links outside the country and finally Strengths, gaps, outstanding needs and requirements.

Additional to the areas outlined above, the forward to the Questionnaire states that it also comprises two excel files regarding the chronicle and description of past disasters and the level of risk and vulnerability in the districts. Since we were unable to find those excel files, the specific questions asked within those files have not been included within the assessment undertaken below.

⁴⁹ The South West and Central Asia include the following countries: Afghanistan, Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkey, Turkmenistan and Uzbekistan.

Results from analysis

The questionnaire was designed so that relevant organisations linked to the DM process within a country should answer the questions and so that the results should be compiled and subsequently contribute to create an understanding of the current situation within the country. This method would allow different views to be incorporated and compared and render it possible for a more authentic representation of the actual circumstances to be established. However, a problem with distributing a questionnaire to different users is that the results will depend on the amount of interest shown; the time invested; as well as how the questions are interpreted, and obviously, the degree of sincerity in the answers. As a result, answers to the same questions might vary significantly between different organisations.

In our opinion the questionnaire to a great extent covers aspects that relates to *The Institutional/Legislative Profile* and has a large focus on the society's capacity to respond to disasters in lieu of capacity possessed by individuals. The questionnaire emphasises the identification and incorporation of relevant stakeholders, particularly those identified under the aspect *Other Relevant Stakeholders*.

In line with this the questionnaire acknowledges the capacity of the NS society within the country. It also includes questions related to international agreements and the capacity that could be generated from such arrangements. How well the country has prepared for receiving international assistance is also mentioned. Furthermore, the document touches upon DM funding, early warning systems, general awareness, political inclusion and media's roles in relation to early warning. However, we consider that aspects related to the individual situation, the general situation of the population and their potential capacity in relation to disasters are not covered sufficiently. Neither is much attention given to the physical/environmental situation within the country. The above is stated with the reservation that such aspects might be included within the two excel files (mentioned within the introductory to this section) which we were unable to find.

Being a questionnaire, there are no explanatory texts or discussions about the different questions included within the document. We have neither been able to find any documents attached to the questionnaire giving further explanation and guidance to the areas included. This leaves the interpretation of the questions very much up to the person or organisation using the questionnaire. We argue that the lack of explanation limits the coverage of the assessment to only include what is specifically asked for within the questions. Using a questionnaire thus enhances uniformity but could cause areas of interest to be overlooked unless the questions are extremely comprehensive.

9. DISCUSSION

The objectives of this final section of the report are to summarise and discuss the framework, results from the analysis of the models and, just as importantly, to tie together some important findings and conclusions made during the course of this project. Moreover, we will discuss how some choices made could have affected our results. A number of potential sources of error will also be addressed and finally, we will give some ideas for further research. However, first of all, let us return to the research question, which reads:

What general aspects affect a country's Disaster Management Capacity and to what extent are these covered by assessment models, with a national perspective, used by agencies such as the United Nations and the International Federation of the Red Cross and Red Crescent Societies in disaster prone countries?

To answer the question we have addressed the four main research areas (as discussed in the section Objectives). These areas are:

- What aspects affect a country's Disaster Management Capacity (DMC);
- What models are used by different actors active within Disaster Management (DM);
- What aspects do these models cover; and
- Why the models are constructed the way they are, what the logic behind them is and what the general predicaments with regards to the assessment phase are.

The two bullet points in the middle will be addressed in relation to discussing the different models incorporated and analysed within this project (section 9.3 below). The fourth area does in our opinion relate very much to what is found to be the main conclusion of this project, which will be discussed within section 9.2 below. But firstly, we would like to discuss the first bullet point and the Framework constructed.

9.1 ASPECTS AFFECTING A COUNTRY'S DMC

As an initial objective for the report we started of by identifying general aspects that could affect a country's DMC. This was done both to facilitate a later analysis of the models, but also since the subjected area per se was interesting to study.

Whenever conducting an assessment of a country's capacity it is important to have knowledge of what aspects that should be included in such an assessment. Although this information can be found in a number of various literature it was found that no literature approached the problem from merely an assessment point of view. As a consequence, the information related to assessments and what aspects to include are spread throughout these books. If instead studying the models analysed, even though some aspects often were identified, they were seldom discussed and explained and the documents hence required that the user understood why and how the information could be used to obtain a more holistic perspective.

Due to the lack of information specifically addressing the assessment phase we argue that a compilation of all general aspects, including explanations of why they are important and how they relate to capacity and vulnerability, as well as the more holistic picture, would be useful. This was thus one of the reasons for setting up our Framework. The Framework might be an information resource and a common base for communication between different organisations and within different levels of governance. It might also be useful for people conducting assessments and simply putting the problem area in better light might thereby increase the awareness of the importance of capacity assessments.

Within the Framework we have tried to compile all general aspects that we argue could affect a country's DMC at one place and also to describe and discuss them. We have also tried to show how we see that the different aspects are connected to each other and that, in order to conduct a holistic assessment, it requires that all aspects are understood and catered for.

We believe that the Framework is a good representation of general aspects that could affect a country's DMC. However, to fully understand all aspects in detail more information is required and the Framework then constitutes a good starting point. Where further information is required this can be sought specifically for the subject country. The Framework is not a model per se, and it was not written as a model either, but it could in our opinion be a foundation to build a model on. This said, we have not had time to conduct a proper validation of the completeness of the Framework. Consequently, any model using the Framework as a foundation must first assure that all aspects affecting a country's DMC is included.

9.2 THE LACK OF A HOLISTIC MODEL WITH A NATIONAL PERSPECTIVE

Already in the initial stages of the project we established that it is crucial to base any capacity development project on the existing prerequisites of the subject country. It was also established that capacity, the way we defined it, could be created within all areas of society and with regards to all phases of a disaster. A thorough and holistic assessment of existing vulnerabilities and capacities within the subject country thus becomes essential. However, during our search for models we were unable to find any model taking a holistic perspective and identifying all aspects related to the time and space dimension of a country's DMC.

This lack of models is in our minds very surprising since all the literature we have studied and the persons we have been in contact with have emphasised upon the importance of assessments and the need for a holistic approach. Nevertheless, we do feel fairly confident stating that no such model exist to this date. We base this argument on that we have been privileged to discuss (through meetings, telephone conversations or e-mails) the subject with a broad spectrum of persons working actively within the field⁵⁰ and that much of the literature that we have studied has been fairly recently published. Thus, if there were such a model, we believe we would have found it during the course of the project.

Consequently, one of the main findings of the project is that we were unable to find any generally applicable model that from a national perspective and in a holistic manner covers all central aspects of society in time and space. With model, we here refer to a document that both indicate what areas of society that should be included in an assessment, and also provides guidance on how to practically conduct the assessment.

Since we are unable to find any such model, a natural question to ask is obviously what this lack of models could depend on. This is not an easy question to answer and there are probably a large number of possible reasons. Below we will outline and briefly discuss what we believe to be a few of them.

Potential reasons for the lack of model

DM efforts have been, and still are, most commonly related to the response and recovery phases; perhaps partly due to that the results within such project can be seen more directly. As a consequence, and although there has been a fairly recent shift in focus from a response-driven to a more DRR-oriented approach within the DM realm, the area of capacity assessments might not yet

⁵⁰ For a list of persons that we have been in contact with throughout this project see Appendix A.

have been given the adequate attention. Accordingly, it is possible that no organisation have yet been able to invest enough time and funding to develop such a model.

Another reason might be the precarious issue of ownership. Which international organisation should be responsible for putting together such generally applicable model? And how should the experience and knowledge from the various stakeholders be included? Such task would most certainly require a vast amount of research and resources, and although there are much knowledge and experience within different organisations, merging different views together is in our opinion a challenging task. Organisations have their own agenda and interests and also the DM domain is a competitive environment. Based on the interviews conducted, we conclude that to this date, co-operation and co-ordination between different organisations do not work as well as it should, especially considering the field within which they work. Thus, as long as no organisation takes the lead and also tries to incorporate the experience and knowledge of other organisations, we argue that there is small chance of such a model being produced.

Additionally, different organisations have, at least to some degree, different viewpoints on the problem. Some organisations (such as for instance the World Bank) have adopted a top-down approach and focus on hazards and the link to losses, whereas other organisations (such as for example many NGOs) have taken a more bottom-up approach and focus on people's vulnerabilities. A third perspective, which is somewhere in the middle, is the one focusing on developing organisational capacities. Not questioning the importance of any of these perspectives, none of them take a holistic approach. We do not argue that any one of these approaches is better or worse than the others, instead we argue that they all bring something essential to the process. It would therefore be beneficial if organisations with different approaches were able co-operate. However, until such co-operation is deemed more successful, designing generally applicable tools and co-ordinating efforts to conduct holistic capacity assessments is not uncomplicated.

Focusing on a country instead of international organisations working within the DM field, we find the question of ownership to appear clearer. We argue that it is always the government who has the utmost responsibility of the DM process, and subsequently to ensure that adequate capacity assessments are conducted. However, stating the obvious, this is a very complex task and in many cases governments will need assistance to conduct such assessments and to carry out long-term DRR activities. Even though such work in the long run may result in large improvements for the country, working on national level might be considered very slow and sometimes found too complicated for an international organisation. Therefore, addressing communities instead could give more immediate results and also be less time- and resource consuming. Assessments or other DM related work at national level also require that the government acknowledge, understands and accepts their responsibility and accepts the necessary long-term commitment.

Furthermore, it might even be argued that achieving a holistic national assessment is impossible due to the very nature of human beings, as we are reluctant to show our deficits. The kinds of assessments that take all aspects into account require an openness and honesty within the very top layers of the controlling organs within a country - qualities that most likely do not fully exist anywhere. Thus, it might be easier for different organisations to work on a more local scale, work that do not necessitates the development of a holistic model with a national perspective.

Considering the many obstacles to overcome, it is perhaps not so strange that no generally applicable holistic model exists to this date. But the lack thereof does not make it less important. We do believe that there are many benefits from having such a model and that much work can be done in order to enable more holistic assessments to be conducted.

9.3 ANALYSIS OF MODELS

The main objective with this project was to analyse models regarding what aspects (that in time and space could affect a country's DMC) they cover. Since we were unable to find any holistic model, we had to base our continuing research on a set of models and guiding documents that in our opinion only cover smaller areas of the DM process. Hence, these documents have different foci and objectives, include a varying degree of details and in most cases they provide only a limited amount of guidance on how to actually conduct an assessment. The latter make them, in our opinion, unqualified to even be called models. However, to this date, and to our knowledge, these documents constitute some of the best options available for anyone who seeks guidance on what areas of society that should be included when conducting a capacity assessment.

Six different types of documents were analysed against our Framework, including: the Hyogo Framework for action (HFA) with its Words into Actions (WIA) guide, case studies, index methods, community-based assessment models, checklists/questionnaires and documents originating from the International Federation of Red Cross and Red Crescent Society (IFRC). Below, we will discuss some of the main benefits and inadequacies we see with these documents as well as the logic behind their construction, objectives and limitations.

Hyogo Framework for Action

Out of the guiding documents analysed, we found that the HFA and its WIA guide are the ones most commonly referred to when turning to both literature and experienced persons asking for guidance on capacity assessments. Although the persons referring to the HFA and the WIA do recognise that these documents are not models per se, they still consider them to be the best option available. The main benefits with the HFA and WIA are in our opinion their broad take on the DM process and the explanations given within the WIA related to the 22 suggested tasks. These explanations contain more background information than many other documents. Furthermore, the HFA has been adopted by 168 countries and thereby constitute a politically accepted document. Therefore, if we were only to recommend one group of documents, we consider that these two documents provide the best guidance available. The rather ambitious approach of the HFA and WIA would to us also imply that countries that are working with all the Priorities for Action and Key Activities would have a relatively "good" DMC. Moreover, additional information related to assessments can, with a little bit of detective work, be found in all its sections.

Notwithstanding the above, there are in our opinion at least two downsides with the HFA and WIA. The first one is that, although the WIA constitutes a guiding document that was written to facilitate the implementation of the HFA, it does not provide specific guidance on any methods regarding how to practically assess current capacities. The second one is the lack of concrete objectives on what the country should be able to achieve once they have implemented the HFA. Although we appreciate that it might be difficult to dictate what a specific country should be able to perform, we believe that some sort of guidance would be beneficial. Capacity must always be put in relation to performance (OECD, 2006). The desired performance of the country must be one of the main factors determining what measures should be taken to increase the DMC.

Case studies

Case studies were, even though not comprising directly applicable models, analysed as they could provide guidance on how assessments previously have been conducted and thereby indicate what areas that should be included in such assessments. Being case studies, they are obviously country-specific and have a varying scope and degree of details. As a result, the benefits of using them as guidance documents depends upon either that the used know exactly what documents to look for or that he/she combine a large number of documents. Otherwise, we argue that it would be difficult to

use case studies to get an adequate understanding of what aspects, as identified in the Framework, should be included in an assessment.

Out of the two case studies analysed, we found the UNDAC mission to be of specific interest, being an assessment of DMC from a national perspective. The UNDAC mission addressed many of the aspects within *The Institutional/Legislative Profile* however it did have a restricted scope which makes it far from holistic. Furthermore, UNDAC assessments are made on a rather ad hoc basis, which to a very high degree makes the results of such assessment depend on the skills of the participating team members. This approach allows the assessment to be flexible, but on the other hand could result in that important aspects are overlooked if not attracted attention to, by the team members. Thus, we argue that guidance is essential to assure the completeness of assessments, but this guidance should be as flexible as possible.

Indexes

There are quite a large number of index-methods available, but the question is how useful they are from a country assessment perspective. Indexes have a somewhat differing objective and the index number per se does not provide more information than enabling a comparison between countries or regions. The information we used for the analysis from this group of documents was instead the background information given to the listed indicators. Due to the objectives of these methods, such background information only focuses on measurable indicators, which obviously is a limitation since there are many aspects within the Framework that are of a more subjective nature. Thus, although aspects such as for example *Demography* and *Financial Factors from a National Perspective* are rather well covered, the analysis against the Framework shows that aspects such as *Climate/Climate change*, *Indigenous Knowledge* and *Corruption* are not included.

Additionally, even though an indicator is quantitatively measurable, it might not provide a direct valuable input. It is thus important to assure that the input corresponds to the sought information when conducting an assessment. A distinction between what we refer to as aspects and indicators, must always be made, and if using indicators, a thorough understanding of how these correlate to the sought aspect is required - an important but difficult issue to address.

Community based assessment models

Community-based assessment models are based on many years of experience and are probably the assessment methods given the most recognition by actors within the DM field. Based on the results from the analysis, we found that aspects related to the capacity of individuals and households are well covered by these models and that they to a larger degree also explain how a capacity assessment could be conducted. However, although many tools for conducting such an assessment are provided, less information is given related to the actual goals of the assessment. Thus, even though many tools for assessment are identified, these tools do not include information on what the main objectives with conducting the different tasks are or what aspects they strive to cover. This limitation could result in that the coverage from such assessment varies.

One of the greatest advantages with these models, although not specifically addressed within this project, is in our viewpoint that they adopt a participatory approach, which engages the people at risk and thereby raises awareness about disasters. The process by its own is thus contributing to the increase of the DMC.

Even though focusing on a community level, we argue that these models could be of great value in the expanded scope of a national assessment. After all, even if adopting a national approach, local level assessments must also be included. This said, we do not suggest that it would be as easy as to conduct a number of assessments and then claim that the results are applicable for the whole

country. In our opinion, the results from such assessments are only applicable for the communities assessed and in order to aggregate the results to a national level, these models would require some modification. Further specifications on what aspects that the different tools should cover would also be required. If these modifications are accomplished, the community-based assessment models could be used to gain a good understanding of the local-levelled prerequisites for the whole country.

Documents originating from the IFRC

Based on the findings of this project, we consider that the International Federation of the Red Cross and Red Crescent Societies (IFRC) is the organisation that to this date has some of the most comprehensive documents written as tools for assessing capacities within a country. We also believe that if including the new version of their VCA⁵¹, which we unfortunately were unable to get hold on, these three documents together would cover many of the aspects listed within our Framework. However, it should be kept in mind that these documents are written for their National Societies and Local Branches to first and foremost enable them to *respond* to disasters. Thus, they focus less on some of the more long-term areas related to DRR work. Additionally, for the documents to be useful as guidance when conducting a national assessment, the user have to distinguish and select only the aspects related to assessments of national capacities and disregard the areas that specifically relate to the RC society.

The IFRC with their National Societies (NS) is one of the major actors within the field of DM, partly since the NS often have an auxiliary role to the countries' governments. This unique position is also probably one of the reasons why the IFRC has found it necessary to develop such comprehensive documents. As per the analysis against the Framework, some of the more sensitive aspects such as *Political Climate and Relations* and *Corruption* were not included in the documents, a fact that perhaps could be explained by this special relationship between the NS and the counties' governments. Thus, even though these documents are considered fairly comprehensive, a number of the aspects identified within the Framework are not addressed within these documents.

As an additional comment, we found that the term "Vulnerability and Capacity Assessment" is often referring specifically to the community-based assessment model originating from the IFRC. The title it-self could thus be a bit confusing since it, at least in our opinion, is the most suitable "group name" for the type of models assessing capacities and vulnerabilities. It is therefore important to assure that there are no misunderstandings when discussing vulnerability and capacity assessments.

Checklists/Questionnaires

Questionnaires are used in a wide range of contexts, the DM field being one of them. In our opinion, there are a number of benefits with using questionnaires. The most obvious one might be that they allow the user to compile information and different viewpoints from relevant stakeholders. Thus, if all relevant stakeholders were to partake in completing a questionnaire, compiling the results would make a good starting point for an assessment. The method could also ensure the uniformity of assessments that are spread in time and space, thus making them comparable and enabling measurements of progress. As oppose to ad hoc assessments, questionnaires could also ensure that all aspects identified as important are included in assessments. Notwithstanding this, the questionnaire analysed within this project was found to have a fairly limited scope and only include a few of the aspects outlined in the Framework.

Furthermore, we consider that it would be more or less impossible to capture all aspects in one questionnaire and also assume that participants completing the questionnaire would have enough knowledge to answer all questions. Instead, we argue that if using this method, an assessment would

⁵¹ The VCA is a community based assessment model constructed by the IFRC.

require several questionnaires targeting specific areas and designed for different stakeholder groups. Moreover, there are also some general restrictions with questionnaires. For example, the answers given in a questionnaire are always dependent upon the knowledge and honesty of the participants and the validity of the answers could thus vary. A questionnaire could also make assessments less flexible and hamper creative initiatives.

Summary of analysis

It is important to remember that none of the analysed documents have succeeded in including all aspects identified in our Framework - aspects that we consider necessary to include in order to achieve a holistic capacity assessment. Furthermore, the analysed documents were all designed with different objectives, origins and limitations and based on different prerequisites, which obviously affect and to some extent explains the result of the analysis. Thus, when using different documents as guidance, it is important to consider who has written the document and for what reason, this in order to be able to determine where the documents are likely to be lacking in coverage. For instance, documents written by organisations conducting assessments initiated by the subject country's government would naturally be more reluctant to address politically sensitive aspects. This could for example be seen when comparing the two case studies analysed. We found that Oxfam GB adopted a much more critical position towards the government than the UNDAC report. Such considerations must hence be catered for when using these documents because as always, insufficient knowledge regarding the limitations of any document is a cause for misinterpretations and could lead to dubious results.

With the current lack of more guiding documents, and with regards to the analysed documents herein, we argue that capacity and vulnerability assessments will vary greatly in both how they are conducted and their coverage. The results will to a large extent be dependent on skills and knowledge of the person/organisation conducting them. Until there is a holistic model, it is therefore important to find a way to use the available material in the best possible way. Based on the models and guiding documents included in this project, two questions sprung to our minds:

- Could these models be combined in a good way to cover an increased number of aspects?
- What knowledge could be gained from studying these models?

We believe that adopting the HFA is a good start to any DM related work and that much is gained from not only touching on the surface of its substance. Real commitment and really trying to capture the essence of the Framework would be of great value for any country. Any kind of DM efforts would most certainly also benefit from being supported by such a politically accepted document that the HFA is.

Nevertheless, the HFA is not sufficient on its own. It needs to be complemented with other documents, which more specifically address the aspects and sub-aspects that are not included within the HFA such as for example *Infrastructure, Geography/Natural Resource Management and Climate/Climate Change*. The other documents analysed (especially documents originating from the IFRC) could make a valuable contribution. We also believe that it is important that the assessment areas discussed in the HFA are measurable in some way⁵². A reason for this argument is that it otherwise would be difficult to evaluate the current level of DMC compared to a desirable level. Thus, first the desirable level of performance (in relation to the hazards the country is exposed to) need to be established. The capacity and vulnerability, and consequently the likely performance, can

⁵² By measurable we do not mean that these areas need to be quantitatively measurable, a qualitative estimate could be adequate.

then be assessed and measured against this desirable level and subsequently, targeted actions to improve the DMC can be decided upon.

Using a combination of different documents, or documents that were originally designed for another purpose, puts very high demands on the user to know what he/she is looking for. It requires that he or she has a general understanding of how the different components of a society relate to the DM process. Without such understanding, it would be impossible to know if the assessment covers all areas of the time and space dimensions. Consequently, the guiding documents analysed within this project could provide guidance within their specific areas, but unless a very large number of documents are sourced, it would be difficult to conclude whether or not an assessment is holistic or not.

Notwithstanding the above, studying the range of documents included in this project, which all are highlighting different areas of importance, has widened our own perspective on capacity assessments and what aspects that should be included in such assessments. Consequently, all material studied will be of some value. The increase of knowledge is obviously important, especially since a thorough understanding of the complexity of disasters is not only required to conduct an assessment, and could in the end never replace a model. It is thus beneficial to study a variety of documents. To determine how many documents that needs to be studied in order to assure a holistic perspective is however impossible to answer.

In summary, we argue that documents such as the ones included within this project provide the best available guidance there is today, and that studying these kinds of documents increases one's knowledge regarding disasters and assessments. They could be used as guidance to specific areas, but it is very difficult to conclude whether or not one has achieved to adopt a holistic perspective by using a variety of documents. Instead, we argue that an assessment model that highlights and explains all areas that are relevant to an assessment must be developed. Such a model should strive to merge the top-down and bottom-up approaches, promote that the desirable level of performance is quantified, and adopt a sustainability approach emphasising the importance of DM being a long-time commitment.

9.4 CHOICE OF METHODS

During the process of conducting any project, a number of choices have to be made. Within this section we would like to address two important factors that we found to be central in this project. The first one relates our view on capacity and vulnerability and the second to how we have chosen to construct the Framework, particularly the fine line between what we refer to as aspects and indicators. Hence, this section does not discuss any results from the project; it merely discusses the work leading up to the results and consequently addresses the validity of the results.

Capacity and Vulnerability

Almost at once, we realised that regardless of how the words and the relationship between capacity and vulnerability are defined; the use and definitions of the words could always be questioned. We have, (as previously discussed within section 4.2, Capacity and Vulnerability), chosen to look at the two as opposites on a relative scale, claiming that it is impossible to discuss capacity without also addressing vulnerability. We have also chosen to use the same terminology regardless of whether discussing individuals, organisations, the environment or man-made constructions.

Referring to capacity as the opposite of vulnerability is not very controversial. However, we have found that the two words are used differently by various authors depending on the context. If considering the definition of capacity within the paper "The challenge of Capacity Development, Working Towards Good Practice (OECD, 2006:12), we get the impression that capacity is only

discussed within the context of people and organisations. Similarly, vulnerability is often discussed only in relation to people, where specific attributes make some people more vulnerable than others should they be subjected to some sort of threat (Wisner et al., 2004).

Thus, when using the phrases capacity and vulnerability in a wider context, i.e. also including for example structural and geographical measures as we have chosen to do, it could be a subject for discussion. For example, some authors argue that adopting single phrases in a wide range of areas could contribute to create confusion (Davies, 2003:3). Wisner et al. (referenced in Davies 2003:3) advocate the use of different terminology for each area discussed. The authors suggest that vulnerability only should refer to people whereas buildings should be called susceptible or unsafe, economies fragile, unstable slopes hazardous and regions on the earth's surface hazard prone. Even though we can see a point in such reasoning, we argue that there are a number of reasons supporting the use of one single phrase for all areas, some of which will be discussed below.

The first argument is that it to us seems like an unnecessarily complex task to try to assign each area with different terminology, terminology that then has to be accepted and adopted by all relevant actors in order for effective and efficient co-operation. Considering the already rather widespread confusion related to different terminology used within the DM field today, we do not believe that introducing a number of "new phrases" would be easy to agree upon. Furthermore, using more words would require more terms to be defined, and although perhaps clarifying what area is being discussed, we argue that more definitions could make the discussions more bureaucratic and complex. It could also be difficult to decide what aspects that should be included under each word, especially since the aspects often are so closely linked to each other. A final argument is the language. Native English speakers might not have a problem with using different terminology, but for others (including ourselves) it would certainly make discussions more complicated if having to take into account such fine distinctions in different wordings. Thus, even if it might not be correct to maintain that for example infrastructure per se could create vulnerability, instead of putting weight on wordings, we simply emphasise upon the importance of including all aspects within an assessment in order to determine a likely performance. Accordingly, at least in the context of this report we are of the opinion that the words "capacity" and "vulnerability" are sufficient.

One additional issue with regards to the word capacity is that capacity development is often discussed from an enabling environment (policy and legal framework, norms and values, structures of power and influence) and an organisational and individual perspective. It is also stated that capacity should be measured against the desired performance (OECD, 2006). In this context, it is therefore interesting to discuss how performance is quantified, if good performance relates to how the triggering event is managed or if it relates to the total outcome of the triggering event (meaning how the whole response and recovery phase is handled). If good performance is just how the triggering event is handled it might be sufficient to include the areas above in the word capacity, but if instead the final outcome is considered to represent the total outcome of the triggering event we argue that the word must have much wider contents. For instance, building a resilient bridge that allows transportation possibilities to a community (which would be disconnected in case of flooding) affects the likely total outcome, i.e. performance, since it reduces that community's vulnerability and hence increases the capacity. Such dimensions must not be forgotten when discussing capacity development and consequently capacity assessments.

Construction of framework

Within our Framework we have identified and discussed profiles and a rather large number of aspects that we consider could affect a country's DMC. Again, we would like to point out that we do not see that the chosen structure of the Framework, i.e. the way in which we have arranged the four profiles and the aspects, should have any impact on the outcome of the analysis. The important part

was instead to make sure that all central aspects were included. However, dividing and naming the included aspects was many times a not uncomplicated since there is a fine line between what we consider as aspects and what we on the other hand have referred to as indicators. We argue that the areas that we have chosen to include as aspects more directly affect the DMC, whereas indicators have more of an indirect effect. Although such choices are subjective, we have tried to motivate our choices and explain how the aspects affect the DMC. The aspects' links to the DMC are important since, when conducting assessments, it is essential not only to study the information that is easily available and quantifiable, but the factors that really will affect the DMC.

It is however easy to see why some guiding documents focus on the more quantifiable aspects as the intention with them is to express the current status, enable measurements of improvement and the quality of undertaken efforts. All such measurements thereby require quantitatively measurable indicators. For example, index methods are "per definition" requiring that each included area is quantifiable. However, only including measurable indicators could result in that the input to an assessment is based only on easily quantifiable aspects and not on the information that would provide the best foundation for further work. We argue that this is a central problem and that understanding how the input relates to other areas, and in the end how it affects the DMC is crucial. Thus, in order to evaluate the likely performance, capacity with regards to all aspects affecting the DMC must be evaluated (OECD, 2006) and it is pointless to use a set of quantifiable indicators if not knowing how these indicators could affect the DMC.

Perhaps could also the motive for putting together the Framework be questioned as it to a large extent consists of already publicised information. However, we argue that even though many of the references used throughout the report indeed are very comprehensive, they mostly address the entity of the DM process. The assessment part is often included only as a smaller part, which often we found to be limited in scope. The information required for conducting an assessment was thus spread throughout the documents. Compiling all areas that need to be included in an assessment in one place (the Framework) made the analysis of guiding documents possible as well as ensured us that we by mistake did not overlook any areas. We further argue that the Framework could constitute a good foundation for discussions regarding what aspects that could affect a country's DMC and perhaps be a foundation to construct a model from. Constructing the Framework has most certainly increased our knowledge regarding what should be considered when assessing DMC and we hope and believe that it is thus could do the same for others. Even though the aspects within the Framework at a first glance might appear rather obvious, we argue that a Framework is required to achieve a holistic assessment.

9.5 SOURCES OF ERRORS

As with any project, there are always a number of sources of errors that potentially could affect the outcome of the research undertaken. We will below discuss some areas specific to this project. Again, this section will not present any additional results from the analysis; instead the discussions below will address the validity of the results.

Framework and included aspects

We have already clearly stated that we do not maintain that we have managed to include all potential aspects that could affect a country's DMC within our Framework. Nevertheless, we do believe that we have managed to include the most central aspects.

One of the arguments we would like to highlight to verify the broad coverage of central aspects within the Framework is related to the analysis of models. We found that we only needed to make a few minor adjustments to the Framework when studying the models and guiding documents, and subsequently what aspects they include. To us, this indicates that we have managed to cover the

central aspects rather well. We also argue, that even if not being able to ensure that all aspect that could affect the DMC have been included, this will not have any impact on the result of the analysis but merely on how holistic the Framework could be considered to be.

With regards to holistic, the word has been used extensively throughout the report. For instance, we have stated in the Research Question section that our ambition is to analyse the models and guiding documents with an as holistic approach as possible. Additionally, the objective with constructing the Framework was to, as holistically as possible, represent the areas throughout the society that could affect a country's DMC. However, the word holistic is not entirely uncomplicated. For instance, how could we judge whether or not our Framework is holistic? We argue that in order to determine if anything could live up to the meaning of the word, one needs to know the entire range of components that should be included. Thus, in the context of this project, and in order for us to know if our Framework is holistic, we would have to have knowledge of all areas that could affect a country's DMC. Hence, any gaps in our knowledge (including what we have gained during this project through literature and discussions with people knowledgeable within DM) would adversely affect the endeavour to achieve a holistic representation. Accordingly, we by no means claim that the Framework set up in this report fully covers all potential aspects, however, to our best ability; we have made it as holistic as we can.

Analysis of models

A restriction that could have affected the findings of the report is the number of analysis conducted within the project. Only a limited number of documents in each category were analysed. These documents were, on the other hand chosen from a larger selection of documents. Thus, we argue that the eight models and guiding documents analysed represent a larger set of documents and that by including more of them within each group, this would not have affected the outcome substantially.

With regards to the analyses conducted, we sometimes found it a bit difficult to identify what aspects they cover since the documents often frame the areas and problems related to DM slightly differently or use different terminology. This said, we conducted the analyses to our best ability and maintain that they are a fairly good representation of the documents' coverage.

One issue that might have altered the outcome of the analyses is if the documents also would have been analysed with regards to how they included hazards. Such an approach might have resulted in that some of the documents would include a larger number of aspects, especially related to the physical situation within the country. This since the aspects included within that profile often are fairly closely related to hazard assessments. We have not incorporated hazards in the analyses since we chose to create the Framework without making it hazard-specific. The reasoning behind this is explained in the Method

Personal Skills

The outcome of this project is also depending on our own skills. For example, interviews were conducted at two occasions, first when listing aspects and constructing the Framework, and later when discussing the use of different assessment models. Since we do not hold any specific skills related to conducting interviews, we argue that this could have affected the result in the way that we might have gained even more input if knowing how to better frame the questions.

Furthermore, even though rather comfortable with the English language, it is not our native tongue and we do appreciate that this could be a source of error. Also, a qualitative analysis will to a certain degree always be subjective. Within this project the results most likely to be subjective are related to

indicating the level of details within the included models. And even though trying to be as objective as possible, this could be a source of error.

9.6 CONCLUDING REMARKS AND IDEAS FOR THE FUTURE

With the recent attention towards DRR with the International Decade for Disaster Risk Reduction, and especially the Hyogo Framework for Action, its importance can no longer be questioned. Nevertheless, in many places the allocation of resources and the political commitment to address hazardous conditions have been concentrated on short-term response activities (ISDR, 2004:7) and even though the exact number of dollars saved per dollar invested in DRR usually varies in different studies, it is widely recognised that such savings are substantial. It is therefore important to facilitate efforts striving towards strengthen DRR initiatives and thus capacity assessments, since they are considered to be to foundation for all capacity building projects.

However, we have experienced that most vulnerability and capacity assessments today are conducted on a rather ad hoc basis and thus to a high degree rely on the knowledge, skills and thoroughness of the person conducting the analysis. We therefore argue that a generally applicable vulnerability and capacity assessment model would be of great value. This was also emphasised by many of the persons that were in contact with during our project. Despite the many difficulties with a holistic model, we do not see creating one as an insurmountable task.

A holistic national perspective assessment model

The way we see it there are some substantial benefits with a single, generally applicable model with a national perspective. For instance, assuring that all central aspects, both in time and space, are sufficiently covered would be a daunting task if using a large amount of documents in lieu of a single one. Such effort is most likely to be both time-consuming and require a large amount of skills and knowledge from the person conducting the assessment. Even though a national approach might be considered complex, slow and bureaucratic decisions regarding all areas of society are made on national level and thus, such decisions need to be supported by adequate assessments on that very level.

To speculate on how exactly such a model should look like is not within the scope of this project, but given the opportunity, we argue that it is important that all the three components of the holistic perspective are adopted, i.e. the all-of-society-, whole-government- and all-hazard approach. We suggest that the Framework created within this project could constitute a good starting point on the coverage of such a model. Furthermore, the core in capacity development is that such projects should enhance the country's own ability to manage disasters and thus not be externally induced. It is therefore essential that a model is written as a participatory model for the country to raise its awareness and analyse its capacity themselves, and that it is not dependent on external interventions. It is also important that it gives clear guidance on how the assessments practically should be conducted. It should in our opinion also have a strong link to the desirable performance of a country related to relevant hazards, both with regards to the time- and space dimension of DM. We maintain that the current lack of guidance on how to conduct the assessment and the missing link between assessing capacities and the desirable performance within the documents analysed constitute considerable limitations.

When it comes to constructing a model, it is important to reflect over how detailed it could be without hampering the flexibility. We are of the opinion that flexibility, no matter in what area, is of utmost importance and that the lack thereof could in the end make the persons working with it less active, less inventive and less motivated to search for new approaches and better alternatives. Hence, there is indeed a fine line between providing sufficient guidance and providing a model too rigorous.

We do not argue that there should be a model outlining a step by step approach to address the problem but instead that a model should be more of an information resource where a user could obtain information and that could be used to facilitate discussions related to the subject area. A model should in our opinion include a large amount of information about what aspects that affects a country's DMC as well as ideas and suggestions about how such information can be gathered compiled and assessed from the country. Furthermore it should be written so that the subject country could use the model without requiring external assistance and thus should the international organisation, instead of conducting the assessment, provide guidance to the subject country through the process and be an additional resource for discussions and advices. The constructed Framework could be a good starting point for such a model/information resource but again it would need to be tested and validated. The Framework would also need to be complemented with information about how to assess hazards and as well as suggestions of how the information can be gathered. Last but not least it would need to be complemented with information about how the process can be quantified and measured and related to the country's desired performance.

Deriving from the HFA, the ISDR has initiated the foundation of a Global Platform for Risk Reduction, and subsequently National platforms (ISDR, 2007). The objectives of these National Platforms are to serve as an advocate of DRR at different levels and provide coordination between different relevant stakeholders (ISDR, 2007:14). In the context of capacity assessments, we argue that these National Platforms could perhaps constitute the most suitable forum to initiate related work within a country since the necessary information for conducting an assessment include input from stakeholders from all of society in order to achieve a holistic representation of the DMC.

Regarding ownership, the IFRC has come a long way in developing assessment tools and a legitimate question would thus be if the IFRC is the natural organisation to develop a more holistic and generally applicable model. In our opinion, such task is not within their responsibilities, and we argue that there are other coalitions that are better suited, for example CADRI⁵³. The important issue is that the organisation that tries to develop a model also incorporates the knowledge and experience from other actors.

Future development

Regardless of what organisation that should take the initiative to develop a more holistic assessment model, further research is required. To conduct similar analysis as the ones carried out in this project, but directed towards how specific countries have addressed the problem, might be one area that would be fruitful to study. To conduct such studies was suggested to us by a number of people. However, considering the timeframe, an expanded scope was not deemed feasible. This would also be a good way of validating the Framework to assure that it does achieve a holistic perspective.

Much work could also be done on improving the Framework within this report. It might for example be beneficial if the aspects within the Framework were translated into measurable quantities, provided that no aspects were omitted and that none of their contents would be lost in such transition. Measurable information would allow a better quantification of the aspects and would facilitate measurements of progress.

Further information is also required regarding how the information should be gathered and how hazards should be included within the Framework.

Furthermore, we have only listed and discussed what areas that we argue are important to include in a capacity assessment. In comparison to ranking their relative importance, this was a rather

⁵³ For a description of CADRI see section Previous Research Within the Field of DMC Country Assessment.

uncomplicated task. Developing a guide that assists in ranking such areas, depending on the relevant hazard profile of the subject country, would obviously require substantial research. Nevertheless, it would be very valuable since ranking the aspects level of priority in the end has to be done in order for the assessment to provide a foundation for decisions on a national level.

In summary we believe that the constructed Framework could be a good starting point to build a model on but much work is required before it could be called a model per se.

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A. Persons we have been in contact with

Throughout the course of our project we have been in contact with a number of people that, in one way or another, have provided input to our report. We have learned something from everyone and although not all persons are referenced within the main parts of the report they have all been very valuable to us. Without the input from these persons, who are knowledgeable and actively working within the field of DM, we would have felt less confident in our findings and in many cases unable to draw the conclusions that we have. We have met some of the persons for direct discussions while others have been contacted via phone-calls or e-mails.

The descriptions of the different persons to some degree vary in level of detail but this does not at all indicate their relative level of importance for the project. Instead it is only an indication of how much easily accessible information we were able to gather about the different persons.

The persons that we have been in contact with are:

Ann Enander

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Earl James Goodyear

Ph.D., Over thirty-five years experience in the design, negotiation, coordination and evaluation of global economic and social development programs and emergency relief to rehabilitation and recovery interventions

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⁵⁴ Translation by the authors of this report

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Henrik Johansson

Ph.D., Senior Lecturer at the Department of Fire Safety Engineering and Systems Safety, Lund University. Henrik's research areas are models for risk and vulnerability analysis as well as decision analysis.

Ian O'Donnell

Senior Officer at the ProVention Consortium Secretariat

Ilan Kelman

Center for Capacity Building National Center for Atmospheric Research, Boulder, Colorado, U.S.A. Ilan initiated, managed, carried out, and disseminated results from research and application projects on disasters, vulnerability, and sustainability

Jesper Holmer Lund

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Lars Hedström

Deputy Director General at the Swedish Emergency Management Agency

Lisa Mattson

Strategic Coordinator at the Swedish Rescue Service Agency (SRSA)

Magnus Nilsson

Strategic coordinator at the Swedish Rescue Service Agency (SRSA)

Mats Svensson

Researcher at Lund University Centre for Sustainability Studies

Marcus Abrahamsson

Ph.D. candidate at the Department of Fire Safety Engineering and Systems Safety at Lund University. Marcus's research area, related to our project, is the use of risk and vulnerability analysis as input to societal crisis management

Maria Hauer

Programme Officer at the Division for Humanitarian Assistance, Swedish International Development Cooperation Agency (Sida)

Michael Meier

Humanitarian Affairs Officer at the Emergency Preparedness Section, Office for the Coordination of Humanitarian Affairs (UN/OCHA)

Nicklas Guldåker

Department of Social and Economic Geography at Lund University. Nicklas' research areas are towards crisis management, risk and vulnerability analyses as well as Geographical Information Systems (GIS)

Ola Almgren

Senior Recovery Advisor at the Bureau for Crisis Prevention and Recovery (BCPR), United Nations Development Programme (UNDP)

Per Becker

Strategic Coordinator at the Swedish Rescue Service Agency (SRSA)

Reid Basher

Coordinator Policy and Inter-Agency Coordinator at the International Strategy for Disaster Reduction secretariat (UN/ISDR)

Ricardo Mena

Humanitarian Affairs Officer at the Office for the Coordination of Humanitarian Affairs (UN/OCHA)

Sophie Florin

Analyst at the Center for Crisis Management Research and Training (CRISMART), Swedish National Defence College

Ms. Stephanie Hodge

Policy Strategist and Evaluation Specialist at MPA Harvard University. For twelve years until September 2006, Stephanie Hodge held the role of as GEF and UNDP consultant – recently as team leader and Disaster Risk Reduction specialist Mongolia, Vanuatu, Chad developing national platforms for action

Terry Jeggle

Senior Adviser at the International Strategy for Disaster Reduction (UN/ISDR)

Thomas Alcedo

Senior Field representative for the American Red cross in Indonesia

Thomaz Carlzon

Advisor Disaster Preparedness & Response Department at the Swedish Red Cross

Tuija Nieminen Kristofersson

Ph.D. in social work, senior lecturer at University of Lund and Växjö, research areas are social vulnerability and support from social networks and from professional after disasters.

Xavier Castellanos M.

Senior Officer Disaster Preparedness & Response at the International Federation of Red Cross and Red Crescent Societies (IFRC)

B. Analyses of documents

B1. Hyogo Framework for Action

Checklist

	Mentioned	Briefly discussed	Discussed and explained
<i>The Physical/Environmental Profile</i>			
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity	✓		
Natural resource management, environmental degradation and related processes/activities	✓		
Awareness of risks associated with the geography and natural resource management, availability of updated information	✓		
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control	✓		
Comments: The links between environmental management and DRR policy, how the environment effects the vulnerability are mentioned. The ecosystem services, environmental impact assessments, identification of areas most exposed to risk as well as where consequences could be large are also mentioned.			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks	✓		
Awareness of potential effects due to climate change	✓		
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: If consideration to future climate change has been taken as well as how, for example, rainfall relates to hazards are mentioned.			
<i>Infrastructure</i>			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations	✓		
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure	✓		
Access to infrastructure for all persons regardless of social class			
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”			
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: The effects of critical facilities and infrastructure on vulnerability are mentioned.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perceptions within the society and the effects of potential discrepancy between general public and “Disaster Managers”, awareness of what factors that affect the perception.			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM			
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process	✓		

Comments: How indigenous knowledge is incorporated is mentioned.

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process	✓		
The incorporation of media as an important actor in disaster planning			

Comments: Media communication strategies are mentioned.

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year			
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups			
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted	✓		

Comments: The varying vulnerability within the population, the link between poverty alleviation and DRR policy, how information related to vulnerabilities are gathered and presented, as well as the link between DRR and land-use are mentioned.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors	✓		
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society	✓		

Comments: If gender aspects are reflected in planning, the linkage of social equity with DRR policy, how social groups could be used to build DRR activities on are mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns	✓		
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters	✓		
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between	✓		
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"	✓		

Comments: Knowledge of hazards, risks, preparedness, response, awareness raising activities, awareness through education system, how to reach vulnerable populations, preparedness aspects in awareness raising and awareness of response mechanisms are all mentioned.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach			
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments:

The Institutional and Legislative Profile

Discussed and explained
Briefly discussed
Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals	✓		
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach	✓		
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon	✓		
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response	✓	✓	✓

Comments: The presence of a legal basis giving relevant stakeholders the required authority to act, institutional mechanisms for preparedness, co-ordination between different levels, sufficiently decentralises and autonomy are mentioned and to some degree briefly discussed and explained. Sensitiveness to indigenous customary law, rules and regulations for implementation, sanction and enforcement mechanisms, sensitive to local context, integrated in national development frameworks and plans, participation in creating laws are also mentioned. Follow-up procedures and learning from previous disasters are mentioned. Implementation of DRR measures, evaluation of DRR policy options, sector specific DRR strategies and building codes are mentioned.

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present	✓		
Identification and incorporation of various DMOs into the DM process, pressure from the DMOs on the government to work with DM related issues	✓	✓	✓
Ability to identify hazards and act appropriately according to such information	✓		
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities	✓		
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance	✓		
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders	✓	✓	✓
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures	✓		
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster	✓		
Availability of relevant background information and statistical data to all actors within the DM process	✓		

Comments: Risk analysis profile, hazard maps, vulnerability assessment, information management platform, dissemination of information, communication network integrated in the national system, quality of information, redundancy of communication system, information to political leaders, public information and the preparedness plans are mentioned. The stakeholders' inclusion and commitment are mentioned and to some extent discussed and explained. If the plan based upon relevant information, if there are clear responsibilities, if it is realistic and includes implementation mechanisms, if it includes international assistance and if it is reviewed and updated are mentioned. Material stockpiling, human resources with appropriate skills, skilled and organised volunteers are mentioned. Response mechanisms and their familiarity, coordination with local NGO and society groups are mentioned. Special skills, mandates, roles, lines of authority, coordination are mentioned and to some degree discussed and explained. If the authority responsible to act is devoted, if there are vertical and horizontal linkages and an understanding of the broader DRR responsibilities are mentioned. The amount of background data available, how it is gathered and who should compile the data are mentioned. The links between the background data and the hazards as well as vulnerabilities, the understanding of importance of background data are mentioned. Appropriate training and education and if DRR is included in existing curricula are mentioned.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector	✓		
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military			

Comments: Understanding of DRR responsibilities, create partnership, engage professional organisations, different sectors information about hazards related to their sector, their actions are mentioned. DRR within different sectors, coordination within different sectors, implementation and the inclusion of private sector are mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country	✓		
Organisational ability to make decision and act upon the information given from the monitoring systems	✓	✓	
Ability to communicate warnings in an understandable and appropriate manner	✓		
Ability to disseminate the message to the people at risk	✓		
The populations knowledge and ability to act upon a warning			

Comments: If monitoring networks are included in the system, related warning systems, linking to response system, early warning at all levels, dissemination of message, integrated in other systems, reach all relevant actors, supported by legislation and policies, organisation to decide upon warning and appropriate funding are mentioned.

The Economical Profile

Discussed and explained Briefly discussed Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓		
Diversification of livelihood amongst the population, additional sources of income			
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way			
Measures taken to ensure the sustainability of livelihood			

Comments: Linkage of underemployment to DRR policy is mentioned.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process			
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations	✓	✓	
Awareness of how financial factors effects the DM process	✓		
Earmarked budget allocations for DM related activities			

Comments: National budget allocations for DM and emergency contingency funds are mentioned. Financial support and if the economic development increases vulnerability are mentioned.

B2. Case Studies/UNDAC report

Checklist

	Mentioned	Briefly discussed	Discussed and explained
<i>The Physical/Environmental Profile</i>			
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity	✓		
Natural resource management, environmental degradation and related processes/activities	✓		
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			
Comments: A very short introduction to the country's existing geography is given. Some further information is included within the sections that discuss possible hazards. The issue of deforestation as well as how the environment is managed on an everyday basis are mentioned.			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks	✓		
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: The occurrence of dry and hot periods is mentioned within the hazard chapter.			
<i>Infrastructure</i>			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and "daily life", decentralised and situated in safe locations	✓	✓	
Knowledge of how infrastructure could affect the "daily life" as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class			
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during "normal conditions"	✓	✓	
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.	✓		
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: The lack of basic services such as transportation, education, energy, telecommunications and water is discussed. A more thorough analysis is conducted of the health sector where materiel- as well as human resources are discussed. The provision of functioning water-, communication- and transportation infrastructure is discussed. Within the discussions about the infrastructure, references are also made to the functioning of the infrastructure during disaster conditions. The issue of old industrial sites who could increase the consequences in the event of a disaster is discussed.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perceptions within the society and the effects of potential discrepancy between general public and “Disaster Managers”, awareness of what factors that affects the perception.			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM			
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process			

Comments:

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process			
The incorporation of media as an important actor in disaster planning			

Comments:

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year			
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups			
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted			

Comments: The presence of community disaster response teams is discussed.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors			
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society			

Comments:

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns	✓		
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters	✓		
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"			

Comments: Disaster Awareness on community level is discussed but more from a disaster manager and local government perspective than from a general public viewpoint. A discussion about how public awareness is raised within the general public is also included.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach			
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments:

The Institutional and Legislative Profile

	Mentioned	Briefly discussed	Discussed and explained
<i>Legal and regulatory framework</i>			
Policy that encourage improvements and realistic strategies to reach the policy goals	✓		
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach	✓	✓	
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response	✓	✓	

Comments: A thorough discussion is undertaken regarding the legal and institutional framework within the country. Responsibilities, coordination and cooperation are identified as important areas and discussions about the different responsibilities of the different organisations are included.

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present	✓		
Identification and incorporation of various DMOs into the DM process, pressure from the DMOs on the government to work with DM related issues	✓		
Ability to identify hazards and act appropriately according to such information	✓	✓	
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities	✓	✓	
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance	✓	✓	
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders	✓	✓	
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures	✓	✓	
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster	✓	✓	
Availability of relevant background information and statistical data to all actors within the DM process	✓	✓	

Comments: A discussion about both DMOs stakeholders and other relevant stakeholders is conducted. The number of people working within different DMOs is mentioned as well as their education, training and material resources. The structure of the chain of commands is discussed. The lack of adequate emergency operations rooms and communication facilities is mentioned as well as how damage- and needs assessments could be carried out. Different special resources such as search and rescue, rapid response units, fire fighting services, mountain rescue units and military units is discussed. Disaster warehousing and stockpiling is discussed. An area that is discussed in further detail than the rest of the areas mentioned above is the country's ability to receive and incorporate international assistance into its own structure. A brief discussion about contingency planning is also conducted.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector	✓		
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military	✓		

Comments: A discussion about both DMOs stakeholders and other relevant stakeholders is conducted. A survey of the national Red Cross Society is conducted and NGOs, volunteers and Religious community organisations are mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country	✓	✓	
Organisational ability to make decision and act upon the information given from the monitoring systems	✓		
Ability to communicate warnings in an understandable and appropriate manner	✓		
Ability to disseminate the message to the people at risk			
The populations knowledge and ability to act upon a warning			

Comments: The importance of early warning systems is discussed but the discussion is mainly focused on the technical ability to monitor and evaluate hazards and to some degree on the organisational and communicational ability.

The Economical Profile

Discussed and explained
Briefly discussed
Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓		
Diversification of livelihood amongst the population, additional sources of income			
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way	✓		
Measures taken to ensure the sustainability of livelihood			

Comments: People's financial situation is discussed as well as their access to insurance and financial possibilities; the technological development with regards to livelihood is also discussed.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process	✓		
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations	✓		
Awareness of how financial factors effects the DM process			
Earmarked budget allocations for DM related activities			

Comments: A general discussion about the country's economy is conducted as well as acknowledging that foreign investments and international assistance to the country have increased. How the DM process is given appropriate resources during daily operations and in the event of disasters is discussed.

B3. Case Studies/OXFAM

Checklist

<i>The Physical/Environmental Profile</i>	Mentioned	Briefly discussed	Discussed and explained
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity	✓		
Natural resource management, environmental degradation and related processes/activities	✓	✓	✓
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			
<p>Comments: The organisations responsible for monitoring and analysing various threats are discussed for the included countries, as well as how these organisations communicate information and how such information is used. The occurrence of dams and the relation to flooding is mentioned. Natural resource management is discussed and to some degree explained especially in the areas of deforestation and air-, soil- and water pollution.</p>			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks			
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
<p>Comments:</p>			

Infrastructure

Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations	✓		
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class	✓		
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”	✓	✓	
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.	✓	✓	
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			

Comments: The risks associates with technology (industrial sites) are discusses, although in the context of being a triggering event to a disaster and not in relation to enhancing the effects from a natural trigger. The location of infrastructure, including for example communication systems and road networks, in relation to hazards is mentioned. Potential vulnerability of especially school- and hospital buildings is discussed. Further, when discussing living conditions of the population, the basic infrastructure such as water, sanitation and coverage of public health services are discussed in relation to the demand.

*The Cultural/Social/Political Profile**Risk Perception*

Awareness of risk perceptions within the society and the effects of potential discrepancy between general public and “Disaster Managers”, awareness of what factors that affects the perception.			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM	✓		
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process	✓		

Comments: The presence of indigenous knowledge and how such knowledge has been exploited or valued is mentioned.

Corruption

Awareness of the presence and extent of corruption within the country	✓		
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments: Corruption as an aspect affecting vulnerability is mentioned.

Discussed and explained Briefly discussed Mentioned

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process	✓		
The incorporation of media as an important actor in disaster planning			

Comments: Media is mentioned as an important factor in relation to raising awareness.

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year	✓		
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups	✓		
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted			

Comments: Rapid urbanisation and location of cities are mentioned, as well as density of the population in relation to the hazards. The study mentions that it studies the living conditions within a country as well as the degree of marginalisation and exclusion from social, economic and political systems. The standard of health; level of malnutrition; proportion of households headed by women; level of illiteracy; and living conditions are studied as aspects and indicators. The location of buildings is mentioned and the occurrence of vulnerable groups and their location is discussed.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors	✓	✓	✓
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society	✓		

Comments: Gender issues are discussed as an important factor to consider when discussing vulnerability of different groups. Also class equity and how to build capacity within the communities are discussed/mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns			
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters	✓	✓	
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"			

Comments: Awareness and understanding of potential hazards are mentioned and discussed in some detail under the analysis of threats, as well as later in the report. The education system is described to be an important factor.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach	✓		
Beneficial political climate, favourable governance and political stability to assure sustainability	✓		
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments: Political vulnerability is discussed as a function of the level of autonomy. Political stability and continuity, as well as awareness and will, are also mentioned (when stated that the nature of underdevelopment means that disasters are a second issue in the context of the many needs that must be met). Economical structural adjustments from the government are also discussed.

The Institutional and Legislative Profile

Discussed and explained Briefly discussed Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals			
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach	✓		
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon	✓		
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response			

Comments: The presence of building regulations and implementation of such building regulations are mentioned.

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present			
Identification and incorporation of various DMOs into the DM process, pressure from the DMO on the politicians to work with DM related issues	✓		
Ability to identify hazards and act appropriately according to such information			
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities	✓		
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance	✓		
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders	✓		
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures			
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster	✓		
Availability of relevant background information and statistical data to all actors within the DM process			

Comments: The organisation and co-ordination are discussed for the different countries and a limited amount of different stakeholders are identified. Vertical co-ordination is also mentioned. Their responsibilities, capacities and planning are also mentioned. Human and material resources, planning and implementation of the plan and education of staff are mentioned. The importance of areas such as preparation for protection and relief and disaster plans are discussed.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military	✓		

Comments: The situation for NGOs is mentioned as well as their formal involvement within the government DM response system. How other organisations are limited in their ability to respond to a disaster is also mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country	✓		
Organisational ability to make decision and act upon the information given from the monitoring systems	✓		
Ability to communicate warnings in an understandable and appropriate manner	✓		
Ability to disseminate the message to the people at risk	✓		
The populations knowledge and ability to act upon a warning			

Comments: The presence and importance of early warning systems is mentioned.

The Economical Profile

Discussed and explained Briefly discussed Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓	✓	
Diversification of livelihood amongst the population, additional sources of income	✓	✓	
Understanding of what aspects throughout the society that could affect the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way			
Measures taken to ensure the sustainability of livelihood			

Comments: The level of poverty is discussed which is closely related to livelihood. Survival strategies and food security are discussed as well as the level of and consequences of female headed households.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process	✓		
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations			
Awareness of how financial factors affect the DM process			
Earmarked budget allocations for DM related activities			

Comments: The economic status of the countries is mentioned as well as the GDP per capita.

B4. Indexes

Checklist

	Mentioned	Briefly discussed	Discussed and explained
<i>The Physical/Environmental Profile</i>			
Geography/Natural resource management			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity			
Natural resource management, environmental degradation and related processes/activities	✓		
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			
Comments: Environmental deterioration and sustainability are mentioned.			
Climate/Climate change			
Meteorological preconditions and assessment of associated risks			
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments:			
Infrastructure			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations	✓		
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class			
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”			
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: Number of hospital beds per 1000 people is mentioned, insurance of infrastructure is mentioned.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perception within society and the effects of potential discrepancy between the general public and “Disaster Managers”, awareness of what factors that affect the perception	✓		
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments: Collective risk perception is mentioned.

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM			
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process			

Comments:

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process			
The incorporation of media as an important actor in disaster planning			

Comments:

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year	✓		
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups	✓		
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted	✓		

Comments: The document discusses how destroyed housings is an important factor to consider as well as the spatial distribution of risk in a country. The consideration of risk in territorial planning is mentioned. Indicators of exposure and susceptibility are described to be; susceptible population, assets, investment, production, livelihoods, essential patrimony, and human activities. Human development is mentioned. Housing improvement and human settlement relocation from prone areas and reinforcement and retrofitting of public and private assets are mentioned.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors	✓		
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society			

Comments: Social disparities is mentioned, gender issues as well as social expenditure on pensions, health and education. Implementation of social safety nets and funds response is mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns			
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters			
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"	✓		

Comments: Preparedness to face crisis situation is mentioned.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities	✓		
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach	✓		
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments: The document mentions the connection between disasters and development and the connection to smaller scale disasters. Human insecurity is mentioned.

The Institutional and Legislative Profile

Discussed and explained Briefly discussed Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals			
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach	✓		
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response			

Comments: The promotion of rural and urban policy development is mentioned. Updating and enforcement of safety standards and construction codes are mentioned.

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present	✓		
Identification and incorporation of various DMOs into the DM process, pressure from the DMO on the politicians to work with DM related issues	✓		
Ability to identify hazards and act appropriately according to such information			
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities			
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance	✓		
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders	✓		
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures	✓		
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster	✓		
Availability of relevant background information and statistical data to all actors within the DM process	✓		

Comments: Systematic disaster and loss inventory, public information and participation are mentioned, training and education on risk management is mentioned. Organisation and coordination of emergency operation, equipment tools and infrastructure, simulation updating and test of inter institutional response rehabilitation and reconstruction training are mentioned.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military			

Comments: Inter-institutional response is mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country	✓		
Organisational ability to make decision and act upon the information given from the monitoring systems			
Ability to communicate warnings in an understandable and appropriate manner			
Ability to disseminate the message to the people at risk			
The populations knowledge and ability to act upon a warning			

Comments: Implementation of warning systems is mentioned as well as community preparedness and training.

The Economical Profile

Discussed and
explained
Briefly
discussed
Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓		
Diversification of livelihood amongst the population, additional sources of income			
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process	✓		
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way	✓		
Measures taken to ensure the sustainability of livelihood			

Comments: The document discusses the value of a hectare of crops. Indicators of exposure and susceptibility are described to incorporate; susceptible population, assets, investment, production, livelihoods, essential patrimony, and human activities. Unemployment is mentioned. Insurance and Human capital are mentioned.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process	✓		
Diversification of a country's sources of income and stability of economy	✓		
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness	✓		
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable	✓		
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations	✓	✓	
Awareness of how financial factors effects the DM process			
Earmarked budget allocations for DM related activities			

Comments: The document indicates the importance of planning ahead and estimating the Maximum Considered Event (MCE) to allow for a reduction of possible negative consequences (for a country). It also mentions a number of areas that should be considered when estimating possible disaster funds available to the government and the associated costs with having access to such possibilities. Inflation and debts is mentioned. Dependency of GDP on agriculture is mentioned. Furthermore the importance of financial resources for DM is mentioned.

B5. Community based assessment models/ Participation by Crisis-Affected population in Humanitarian Action a Handbook for practitioners

Checklist

	Mentioned	Briefly discussed	Discussed and explained
<i>The Physical/Environmental Profile</i>			
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity	✓	✓	
Natural resource management, environmental degradation and related processes/activities			
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			
Comments: The report proclaims that a general understanding of mountainous areas, fields, rivers etc. should be generated. Features of land, climate and environment are mentioned. The geography in relation to access to water is discussed.			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks	✓	✓	
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: The occurrence of seasonal variation and its effects within a country is discussed. The climate in relation to access to water is also discussed.			
<i>Infrastructure</i>			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations	✓	✓	✓
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class			
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”			
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: Critical facilities such as public buildings and religious sites are identified as well as infrastructure and production sites. Water supply and transportation are discussed and explained in more detail. Health programmes are discussed and explained in more detail.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perception within society and the effects of potential discrepancy between the general public and “Disaster Managers”, awareness of what factors that affect the perception			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM	✓		
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process			

Comments: Indigenous knowledge in relation to water issues is mentioned.

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process			
The incorporation of media as an important actor in disaster planning			

Comments:

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year			
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups			
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted			

Comments: Health and disability are mentioned. Relative poverty, wealth and housing are mentioned. Education is explained and discussed in more detail.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors	✓		
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society	✓		

Comments: Relationship between- and the role of different age groups, and social hierarchies are mentioned. Gender, ethnic composition and distribution of wealth within the villages are also mentioned. Family structures, kinship groups, clans, formal social and political organisations, informal social gatherings, division by gender, race ethnicity, class, caste religion, social capital are mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns			
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters	✓		
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"			

Comments: History of crisis, expectation of emergency relief and existing coping strategy are mentioned.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach			
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments:

The Institutional and Legislative Profile

Discussed and explained
Briefly discussed
Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals			
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach			
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response			

Comments:

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present			
Identification and incorporation of various DMOs into the DM process, pressure from the DMO on the politicians to work with DM related issues	✓		
Ability to identify hazards and act appropriately according to such information			
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities			
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance			
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders			
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures			
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster			
Availability of relevant background information and statistical data to all actors within the DM process			

Comments: The model highlights the importance of identifying relevant stakeholders from a community perspective.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military			

Comments: The model mentions the importance of identifying relevant stakeholders from a community perspective.

Early warning systems

Technical ability to monitor potential hazards faced by a country			
Organisational ability to make decision and act upon the information given from the monitoring systems			
Ability to communicate warnings in an understandable and appropriate manner			
Ability to disseminate the message to the people at risk			
The populations knowledge and ability to act upon a warning			

Comments:

The Economical Profile

Discussed and explained
Briefly discussed
Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓	✓	✓
Diversification of livelihood amongst the population, additional sources of income	✓		
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way	✓		
Measures taken to ensure the sustainability of livelihood			

Comments: The resources available to the population and people's coping and survival strategies are mentioned. An analysis of the production process is also mentioned. Food supply, staple crops, livestock and access to markets are mentioned. Access to capital and other assets are mentioned. Food security and nutritional circumstances are discussed and explained including the types of food available, beliefs concerning food, food preparation methods, infant feeding etc.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process			
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations			
Awareness of how financial factors effects the DM process			
Earmarked budget allocations for DM related activities			

Comments:

B6. Community based assessment models/ Community-based disaster risk management Field Practitioners' Handbook

Checklist

	Mentioned	Briefly discussed	Discussed and explained
<i>The Physical/Environmental Profile</i>			
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity	✓		
Natural resource management, environmental degradation and related processes/activities			
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control	✓		
Comments: Size of the community and its borders are mentioned, soil type, marine resources and grazed land are mentioned in a livelihood perspective. Actions that are being conducted within the DM process is mentioned.			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks			
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments:			
<i>Infrastructure</i>			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations	✓		
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class	✓		
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”			
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for	✓		
Comments: Location of some critical facilities is mentioned; locations of fire hydrants, schools, public buildings, water pipes, sewage water facilities, gas station and critical infrastructure found in the community are mentioned. Actions that are being conducted within the DM process are mentioned. Access to health care, water and sanitation are discussed.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perception within society and the effects of potential discrepancy between the general public and “Disaster Managers”, awareness of what factors that affect the perception	✓		
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments: How communities feel about disasters is mentioned.

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM			
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process			

Comments:

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process			
The incorporation of media as an important actor in disaster planning			

Comments:

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year	✓		
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups	✓		
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators	✓		
How demography is reflected in DM activities at all levels, if relevant analyses are conducted	✓		

Comments: Location of housing is mentioned as well as the identification of vulnerable groups. Different roles within a community are identified. Different groups of the community are identified throughout the aspects and indicators: rich/poor, cannot protect themselves, difficulties to recover, monthly income, livelihood, total population, men/women, boys and girls, pregnant and lactating women, elderly, living alone and disabled. Access to education is mentioned. The ability to cope with trauma is mentioned. The community's plans to reduce disaster risk and impact are mentioned.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors	✓		
Awareness of, and access to, social welfare programs for those in need, equity within the population	✓		
Governmental awareness of the existence and whereabouts of vulnerable groups	✓		
The presence of and difference in social capital within the society	✓		

Comments: Identification of ethnic class religion and language-based groups are mentioned as well as their relationships. Social capital is identified. Control of resources within the community is mentioned. Areas such as community based or peoples organisations available, the concept of a family, members of the community, do different groups help each other during the DM process are mentioned. If there is livelihood assistance is mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns	✓		
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters			
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"			

Comments: The history of disasters is mentioned.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach			
Beneficial political climate, favourable governance and political stability to assure sustainability	✓		
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries			
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments: The function roles of the elected village council and council of elders are mentioned.

The Institutional and Legislative Profile

Discussed and explained Briefly discussed Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals			
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach			
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response			

Comments:

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present	✓		
Identification and incorporation of various DMOs into the DM process, pressure from the DMO on the politicians to work with DM related issues			
Ability to identify hazards and act appropriately according to such information			
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities			
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance			
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders			
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures			
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster			
Availability of relevant background information and statistical data to all actors within the DM process			

Comments: The available relief assistance, security and legal assistance is mentioned.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military			

Comments: If there are other organisations providing basic services to the community is mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country			
Organisational ability to make decision and act upon the information given from the monitoring systems			
Ability to communicate warnings in an understandable and appropriate manner			
Ability to disseminate the message to the people at risk			
The populations knowledge and ability to act upon a warning			

Comments:

The Economical Profile

Discussed and explained Briefly discussed Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓		
Diversification of livelihood amongst the population, additional sources of income	✓		
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster	✓		
Access to insurance and credit constructed in an appropriate way			
Measures taken to ensure the sustainability of livelihood	✓		

Comments: The document mentions major livelihood sources, division of labour and seasonality of livelihoods. Problems to recover from a disaster, monthly income. Resources found in the market and factories nearby, major sources of food and income in the community. Actions conducted within the DM process are mentioned.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process			
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations			
Awareness of how financial factors effects the DM process			
Earmarked budget allocations for DM related activities			

Comments:

B7. Documents originating from the IFRC

Checklist

	Mentioned	Briefly discussed	Discussed and explained
<i>The Physical/Environmental Profile</i>			
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity			
Natural resource management, environmental degradation and related processes/activities			
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			
Comments: Topography is mentioned.			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks			
Awareness of potential effects due to climate change	✓		
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: The Climates and Climate change's effects on hazards are mentioned as well as seasonal changes.			
<i>Infrastructure</i>			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and "daily life", decentralised and situated in safe locations	✓		
Knowledge of how infrastructure could affect the "daily life" as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class	✓		
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during "normal conditions"	✓		
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: Telecommunications coverage and resilience, water and sanitation, logistic and distribution, health management, psychosocial support, are mentioned. Access to health services, sanitation, quality means of communication, presence and quality of public infrastructure, evacuation routes are mentioned.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perception within society and the effects of potential discrepancy between the general public and “Disaster Managers”, awareness of what factors that affect the perception			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM	✓		
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process	✓		

Comments: Local knowledge with regards to shelters is mentioned.

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process	✓		
The incorporation of media as an important actor in disaster planning			

Comments: Media relations are mentioned.

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year	✓		
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups			
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups	✓		
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted			

Comments: Location of structures and dwellings, number of people at risk, geographical location, quality of dwellings are mentioned

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors			
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society	✓		

Comments: Community-based organisations and community resources are mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns	✓		
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters	✓		
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"	✓		

Comments: Awareness raising campaigns as well as disaster education in schools and through neighbours are mentioned. Means of raising awareness and level of awareness are mentioned

Political climate and relations

Security of everyday situation and in disasters, trust of authorities	✓		
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach	✓		
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries	✓		
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries	✓		
Compliance with the universal Declaration of Human Rights	✓		

Comments: Promotion of human law and advocacy for risk reduction are mentioned. Supply agreements, awareness and commitment of local authorities are mentioned.

The Institutional and Legislative Profile

Discussed and explained Briefly discussed Mentioned

Legal and regulatory framework

Policy that encourage improvements and realistic strategies to reach the policy goals	✓		
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach			
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response			

Comments: Disaster preparedness policy, in compliance with legal and regulatory framework, content of policy, legislations plans and instructions for DM are mentioned.

Disaster Management organisations

The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present	✓		
Identification and incorporation of various DMOs into the DM process, pressure from the DMO on the politicians to work with DM related issues	✓		
Ability to identify hazards and act appropriately according to such information	✓		
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities	✓	✓	
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance	✓		
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders	✓	✓	✓
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures	✓	✓	
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster	✓	✓	✓
Availability of relevant background information and statistical data to all actors within the DM process			

Comments: Disaster response and security guidelines; department responsible for coordinating of DM activities and its specific responsibilities; specific skill; possibility to analyse threats; information and reporting; needs assessment; search and rescue, shelter camps, security and safety; relief supply; first aid are mentioned and to some degree explained and discussed. Occurrence and content of a recognised disaster plan, structures systems and procedures to respond efficiently and effectively; creditability of DMOs, Human resources, and status of local level resources, use of hazard analysis for planning, sourcing of information for planning, tools used in planning, acting upon information are mentioned and to some degree explained and discussed. Identification of and coordination between various stakeholders, local national and internationally, coordination between preparedness and response activities, capacity of DMOs nationally and locally, training and testing of resources, ability to fulfil mandates, material resources, propositioning of resources, working with communities are mentioned and to some degree explained and discussed. Standard operating procedures, defining mandates and roles within the organisation, centralised or decentralised organisation, person responsible for handling media, information management in the areas of public-, operational-, internal information, reporting and institutional communication, sector abilities in emergency assessment, continuity of operation during emergency, rescue and medical assistance, health services, water sanitation and hygiene promotion, food and nutrition, relief, shelter, restoring family links, protection safety and security, logistic and transport, IT and telecommunications, communication and reporting, monitoring and evaluation are mentioned and to some degree explained and discussed.

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military			

Comments: Comprehensive planning for and coordination of international disaster response are mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country	✓	✓	
Organisational ability to make decision and act upon the information given from the monitoring systems			
Ability to communicate warnings in an understandable and appropriate manner	✓		
Ability to disseminate the message to the people at risk			
The populations knowledge and ability to act upon a warning	✓		

Comments: People-centred early warning, evacuation procedures, monitoring ability, community's ability to act, main source of livelihood are briefly discussed or mentioned.

The Economical Profile

Discussed and explained
Briefly discussed
Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population	✓		
Diversification of livelihood amongst the population, additional sources of income	✓		
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way			
Measures taken to ensure the sustainability of livelihood			

Comments: Economic vulnerability for families, earnings, unemployment rates, food availability at markets, and diversification in foods are mentioned.

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process			
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations	✓		
Awareness of how financial factors effects the DM process			
Earmarked budget allocations for DM related activities			

Comments: Financial assistance from international organisations is mentioned, emergency fund in place, ability for record keeping and financial accountability are mentioned.

B8. Checklists/Questionnaires

Checklist

<i>The Physical/Environmental Profile</i>	Mentioned	Briefly discussed	Discussed and explained
<i>Geography/Natural resource management</i>			
Given geographical attributes and modifications of such attributes, assessment of related risks and also the environmental carrying capacity			
Natural resource management, environmental degradation and related processes/activities			
Awareness of risks associated with the geography and natural resource management, availability of updated information			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered for, sustainable planning and environmental control			
Comments:			
<i>Climate/Climate change</i>			
Meteorological preconditions and assessment of associated risks			
Awareness of potential effects due to climate change			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments:			
<i>Infrastructure</i>			
Infrastructure and the associated functions (including transportation systems, supply systems, and critical facilities), which are adequate to both disasters and “daily life”, decentralised and situated in safe locations	✓		
Knowledge of how infrastructure could affect the “daily life” as well as the DM process, knowledge of critical infrastructure			
Access to infrastructure for all persons regardless of social class			
Resilience and redundancy of all components of infrastructure, ability to provide the functions in times of disasters as well as during “normal conditions”			
Knowledge of risks associated with damaged infrastructure			
Ability to repair damage infrastructure, prioritisation of critical infrastructure			
Location and safety of industrial sites as well as understanding risks associated with industrial sites.			
Transfer of knowledge into actions, relevant assessments conducted, long/short term risks catered and planned for			
Comments: Historical infrastructure; preparedness of health organisation; and communication systems are mentioned.			

The Cultural/Social/Political Profile

Discussed and explained
Briefly discussed
Mentioned

Risk Perception

Awareness of risk perception within society and the effects of potential discrepancy between the general public and “Disaster Managers”, awareness of what factors that affect the perception			
Accommodating for different views, communication and information about risks accordingly, incorporating risk perception in decisions			

Comments:

Indigenous knowledge

Understanding the existence of indigenous knowledge at all levels of society, in various areas related to DM			
Ensuring that indigenous knowledge is incorporated into measures taken during all phases of the DM process			

Comments:

Corruption

Awareness of the presence and extent of corruption within the country			
Knowledge of the short and long term effects of corruption at all phases of the DM process			
Actions taken to reduce corruption and improve the adverse effects on the DMC due to corruption			

Comments:

Media

The presence of “free” and impartial media within the country helping to raise awareness and inform about DM related issues			
The accessibility of media, presence of various communication channels			
Media’s knowledge regarding the DM process and their own potential roles related to the entire DM process, how this knowledge is reflected in what is being “published”			
Media’s ability to provide correct, clear and timely information, ability to survey governments actions and give constructive criticism			
Understanding, recognising and allowing for the potential roles of media in relation to the entire DM process			
The incorporation of media as an important actor in disaster planning	✓		

Comments: Media’s involvement in warning systems is mentioned.

Demography

Current state of size, growth, density and distribution of the population, variation in distribution of population during the day and during the different seasons of the year			
Social situation (gender, age etc.) of the population, identification and mapping of vulnerable groups	✓		
Physical situation (construction, status and location) of the population, identification and mapping of vulnerable groups			
Awareness of risks associated with the current situation, understanding how the situation affects other aspects within the DM process, difference between aspects and indicators			
How demography is reflected in DM activities at all levels, if relevant analyses are conducted			

Comments: Presence of vulnerable rural villages is mentioned.

Social safety nets

Social welfare programs improving the situation for the most vulnerable groups, consideration taken of gender and ethnicity factors			
Awareness of, and access to, social welfare programs for those in need, equity within the population			
Governmental awareness of the existence and whereabouts of vulnerable groups			
The presence of and difference in social capital within the society	✓		

Comments: Communities ability to organise themselves is mentioned.

Public awareness

Background factors to public awareness and ability to raise public awareness, ability to design appropriate awareness raising campaigns			
Awareness within the general public of potential hazards and how to avoid, limit and prepare for disasters	✓		
Awareness within the general public of the capacity of the country's Disaster Management organisations, their own capacity and the gap therein between			
Awareness within the general public of how to recover appropriately and to use the "window of opportunity"			

Comments: The level of awareness of disaster risk, disaster awareness, and public information projects being undertaken are mentioned. Training at community level is also mentioned.

Political climate and relations

Security of everyday situation and in disasters, trust of authorities			
Political awareness and will to address and implement DM related activities, long term preventive risk reduction, all hazard approach			
Beneficial political climate, favourable governance and political stability to assure sustainability			
Co-operation and good relations between parties and countries, peoples best at interest, DM related issues are studied beyond the borders, ability to seek assistance from neighbouring countries	✓		
International relations, awareness of global pressures, use and recognition of international experience, openness to other countries			
Compliance with the universal Declaration of Human Rights			

Comments: Regional and international co-operation and agreements are mentioned. The possibility to provide assistance to other countries is also mentioned.

The Institutional and Legislative Profile

	Mentioned	Briefly discussed	Discussed and explained
<i>Legal and regulatory framework</i>			
Policy that encourage improvements and realistic strategies to reach the policy goals			
Legal and regulatory measures capable of reducing vulnerability and increasing capacity within aspects as identified applicable, foundation for actions, constructed in a easily understandable way, promote a sustainable approach	✓		
Presence of administrative structures and systems with resources to assure that the legal and regulatory framework are implemented and acted upon			
Awareness and acceptance of legal and regulatory framework			
Presence of a legal and regulatory framework that identify stakeholders and define their roles, responsibilities and mandates, allows for actions to be taken and assures timely response	✓		
Comments: National Disaster Management policy, act and legislation are mentioned. Mandates and responsibilities, as well as building codes are also mentioned.			
<i>Disaster Management organisations</i>			
The DMOs' capacity to meet the needs created in relation to disasters in all parts of society and during all phases of a disaster. Both local, regional and national focus on all issues, understanding of different actor's capacity and where deficits might be present	✓		
Identification and incorporation of various DMOs into the DM process, pressure from the DMO on the politicians to work with DM related issues	✓		
Ability to identify hazards and act appropriately according to such information	✓		
Human resources, educational level within overall understanding of DM and relevant specific parts of DM, special skills, educational abilities	✓		
Material resources or knowledge of where and how material resources can be obtained, sufficient funding both before and during a disaster, knowledge of and ability to receive international assistance	✓		
Coordination and cooperation within DMOs actors, both vertically and horizontally, effectiveness and efficiency, level of centralisation, command/co-ordination structure, inclusion of other relevant stakeholders	✓		
Material resources and organisational skills for both internal and external communication during all phases of a disaster, ability to disseminate appropriate messages via suitable media to the recipient, understanding the value of symbolic gestures	✓		
Disaster response plans focusing on the most vulnerable areas, incorporating all relevant stakeholders and factors affecting the outcome. Implemented, evaluated, revised and trained. Planning for recovery and actions prior to a disaster	✓		
Availability of relevant background information and statistical data to all actors within the DM process	✓		
Comments: The occurrence of databases, GIS systems and maps related to hazards and organisations responsible for managing them are mentioned. Plans and procedures are mentioned. Training of disaster managers, strategy, plan, who, where and how training have been conducted are mentioned. The structure of DMOs, available human resources, identification of relevant stakeholders are mentioned. Presence of national Disaster Management office, its functions, all hazard approach, is it a military force, education of officers, vertical structure coordination- and understanding of different roles of all stakeholders are mentioned. Academic institutions and their involvement are mentioned. Information management system, material resources, evacuation procedures, capacities for industrial accidents, means of communication and planning for communication are mentioned. Knowledge of their own situation and areas of improvement are mentioned.			

Other relevant stakeholders

Awareness of how actions related to the everyday business activities could affect the DM process, both government and private sector			
How well all other relevant stakeholders throughout the society are identified and incorporated into the DM process, both international and national DM actors, also including local organisations, volunteers and individuals	✓		
Capacity of Other Relevant Stakeholders, capacity of military	✓		

Comments: Incorporation and identification of relevant stakeholders through a framework is mentioned. Identification of Red Cross capacity, responsibilities, training and functions. UN offices, UN Disaster Management team, co-ordination, incorporation of international assistance, identification of international organisations that can play a role and international agreements are mentioned. Gaps in and problems with international assistance are mentioned.

Early warning systems

Technical ability to monitor potential hazards faced by a country	✓		
Organisational ability to make decision and act upon the information given from the monitoring systems	✓		
Ability to communicate warnings in an understandable and appropriate manner			
Ability to disseminate the message to the people at risk	✓		
The populations knowledge and ability to act upon a warning	✓		

Comments: Communities understanding and reacting to warnings are mentioned as well as their preparedness to act. EW systems in place, organisation responsible, channels of dissemination are also mentioned.

The Economical Profile

Discussed and explained
Briefly discussed
Mentioned

Financial factors at individual/household level

Availability and redundancy of livelihood options and resilience of those livelihoods, understanding of various livelihoods within the population			
Diversification of livelihood amongst the population, additional sources of income			
Understanding of what aspects throughout the society that could affects the livelihoods of the population, why people have a certain livelihood and how it affects the DM process			
Number of persons dependent upon one source of income			
Existing measures to re-establish livelihood activities after a disaster			
Access to insurance and credit constructed in an appropriate way			
Measures taken to ensure the sustainability of livelihood			

Comments:

Financial factors from a national perspective

Gross domestic product, as an indicator of financial ability to invest in the DM process	✓		
Diversification of a country's sources of income and stability of economy			
Access to credits and knowledge of how indebtedness hampers DM related activities, a low level of indebtedness			
Financial structure for all phases of DM to reduce level of risk and improve the situation for the most vulnerable			
Existing disaster financial planning for response and recovery actions, insurance, disaster funds, mutual agreements and plans for how to receive donations	✓		
Awareness of how financial factors effects the DM process	✓		
Earmarked budget allocations for DM related activities			

Comments: Influence of previous disasters, budget allocations, cost of disasters, sources of funding, international funding are mentioned.

