Netherlands Commission for
Environmental Assessment
Dutch Sustainability Unit

An Inventory of existing Risk Profiles on Climate Change and Disaster Risk Reduction

Desk study

September 2013

Desk Study: Climate Change and DRR

CONTENTS

1. INTRODUCTION

The DSU received a request from DGIS/DME on the 13th of August, 2013 to make an inventory of risk profiles that provide country-specific information on climate change and Disaster Risk Reduction (DRR). The background for this request is as follows. The Dutch Government has 4 spearheads for its development cooperation policy for the coming period (women's rights and sexual and reproductive health and rights, water, food security and safety and rule of law) and the integration of 3 cross-cutting issues - Environment/Climate, Gender and Good Governance. DRR is one of the five main elements of the climate policy of Minister Ploumen. As climate change is expected to increase disaster risks resulting from hydro-meteorological hazards in many countries, the Netherlands with its well-known expertise in water management has specific added value in this area of DRR.

Embassies and the departments of the Ministry of Foreign Affairs (MFA) are expected to mainstream Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) in their programmes. The DSU has been asked to deliver the following result for the 15 partner countries (Afghanistan, Bangladesh, Benin, Burundi, Ethiopia, Ghana, Indonesia, Yemen, Kenya, Mali, Mozambique, Uganda, Palestinian Territories, Rwanda and South Sudan):

- an inventory of existing risk profiles on climate change and DRR
- conclude that such risk profiles are not available.

DGIS, however, does not intend to re-invent the wheel, which is the reason for an inventory of existing risk profiles in the 15 partner countries. E.g. WHO, UNEP, World Bank or other relevant international organisations may have developed such risk profiles already. In that case it is only necessary to provide the links to such sources to DGIS and to advise how embassies can make use of these.

This inventory has, at the request of DGIS, and given the short time span a 'quick and dirty' character, through an internet search and interviews (see annex 1 of resource persons interviewed) with relevant organisations in the Netherlands and elsewhere. The DSU has co-ordinated the request and reports its finding below.

Chapter 2 presents the results of the inventory, the risk profiles. Chapter 3 summarizes results of the inventory in the form of matrices. Chapter 4 presents some overall conclusions and recommendations. Finally, Chapter 5 gives background information on the concept of DRR and its relation with climate change and the trends in mainstreaming DRR. It also mentions the key players in the field of DRR at international, regional and national levels. Three appendices give further details.

2. INVENTORY OF RELEVANT RISK PROFILES

Chapter 2 presents the results of the inventory, structured along three different types of risk profiles:

- Combined profiles on climate change and DRR
- DRR profiles
- Climate Change Risk profiles

For each type of risk profile, the results of the inventory are presented for international organizations and potentially also for Dutch organizations. The section on DRR profiles, also gives a selection of links to relevant disaster risk databases/maps.

A selection of the risk profiles presented in this chapter have been included in the DSU Key sheet on risk profiles.

2.1 Combined profiles: Climate change and DRR

2.1.1 International organizations

UNISDR PreventionWeb – http://www.preventionweb.net/

PreventionWeb is provided by UNISDR in support of the Hyogo Framework for Action (HFA). It is a very intuitive website and is set up nicely. It covers the main topics of disaster reduction in detail and is highly useful to get introduced to the subject. Preventionweb provides very wide-ranging and clear country specific information on disasters and government policies (especially regarding the progress of the HFA). It is also useful for the general public as it gives clear overviews and graphical representations. More specifically, Preventionweb provides for country information regarding DRR institutions, national policy, plans and statements, risk maps, and publications etc. Also, national disaster statistics are given. The indicators used in the statistics are number affected, number killed and economic damage. An interesting indicator is exposure, which shows the number of people living in an area that is at risk.

With respect to DRR government policies, regional, national and local HFA progress reports are published on Preventionweb. The national ones thus describe the implementation of the HFA for those countries that are committed to HFA (http://www.preventionweb.net/english/hyogo/progress/).

Some of the information presented per country in the Preventionweb is also available in the country profiles of the UNIDSR website .(http://www.unisdr.org/partners/countries).

Preventionweb provides detailed information on DRR for over 200 countries, including **all partner countries**.

Available at: http://www.preventionweb.net/english/countries/

World Bank Climate Risk and Adaptation Country Profiles (CRACP)

The Climate Change Knowledge Portal (see section 3.2) contains environmental, disaster risk, and socio-economic datasets, as well as synthesis products, such as the Climate Risk and Adaptation Country Profiles (CRACP). They provide a common platform to access, synthesize, and analyze the most relevant data and information for disaster risk reduction and adaptation to climate change. They provide data and information on climate baselines, natural hazards, climate trends, vulnerability and impacts and their implication for DRR and on adaptation. The profiles are built and packaged for specific user-focused functions such as climate change indices for a particular country.

The CCKP contains Climate Risk Adaptation Country Profiles (CRACP) on 48 countries of which 9 show overlap with the 15 partner countries, namely: **Bangladesh, Ethiopia, Ghana, Indonesia, Kenya, Mali, Mozambique, South Sudan and Yemen.**

Available at: http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile

Disaster Risk Management programmes (DRM)

In the context of the Global Facility for Disaster Reduction and Recovery (GFDRR), nationally-owned comprehensive programs for disaster risk management and climate change adaptation for 20 priority countries and 11 donor earmarked countries have been developed. The countries have been selected due to their high vulnerability to natural hazards and low economic resilience to cope with disaster impacts, including anticipated climate impacts.
In these Disaster Risk Management (DRM) Programs, the disaster risks in a country are summarized, priorities for the HFA and climate resilience identified and strategies to integrate the selected approach in policies and programs formulated.

Of the 31 countries where DRM Programs have been formulated, 7 are partner countries: **Bangladesh, Ethiopia, Ghana, Indonesia, Mali, Mozambique, Yemen.**

Available at: https://www.gfdrr.org/CountryPrograms

2.2 DRR profiles

2.2.1 International organizations

Views from the Frontline (VLP) Country Reports

The Global Network of Civil Society Organizations for Disaster Reduction (GNDR) initiated the 'Views from the Frontline' project in 2009. The participatory monitoring program is designed to strengthen public accountability for DRR policy execution. It provides the first independent global

review of progress towards the implementation of DRR at the local level. It shows the perspectives from communities, local authorities and civil society organizations who are most affected by disasters. Three surveys have been done so far, in 2009, 2011 and 2013. In 2013 surveys have been held for 57 countries. For some Views from the Frontline (VLF) Country reports are published. Various issues are covered by these national reports, for example the main hazards, perceptions to disaster, the context of disasters, DRR in the country etc.

For the following partner countries of DGIS, VLF National Reports are available from the survey of 2011 and/or 2013: **Afghanistan** (2011, 2013); **Benin** (2011, 2013); **Burundi** (2011, 2013); **Ethiopia** (2011); **Kenya** (2011, 2013); **Mali** (2013); **Uganda** (2011).

Available at: http://www.globalnetwork-dr.org/views-from-the-frontline/vfl-national-reports.html

ADRC Country reports

The Asian Disaster Reduction Centre (ADRC) publishes DRR country reports. These reports provide information on natural hazards, disaster risks, and the disaster management systems and DRR strategies.

Country reports are provided for all 35 member countries, of which **Bangladesh, Indonesia, Yemen** are partner countries.

Available at: http://www.adrc.asia/disaster/index.php

Other donor agencies

A quick search among relevant donor agencies such as DFID, FINNIDA, DANIDA, DFID, NORAD, AfDB, CIDA, GIZ, USAID, AusAID, ADB, IDB did either not reveal any specific country disaster risk or climate change profiles, or merely profiles for non-partner countries.

2.2.2 Dutch organizations

Partners for Resilience country information

Partners for Resilience (PfR) contribute to the resilience of communities by integrating climate change adaptation and ecosystem management and restoration into Disaster Risk Reduction (DRR). With this integrated approach, communities strengthen their capacities to reduce the impact of disasters. They also believe a community approach will be strengthened if the institutional environment can be made more conducive to climate and ecosystem DRR, and they engage with civil society and government actors to apply a combined approach.

Partners for Resilience consists of 5 Netherlands-based partners (Netherlands Red Cross (lead agency), Cordaid, CARE Netherlands, Wetlands international, Red Cross Red Crescent Climate Centre) and 74 Southern partners, all with specific mandates and expertise in DRR. By joining forces, the partners believe they can make a difference where humanitarian, developmental and

environmental gains can be won. The PfR have also established cooperation with knowledge centers worldwide such as Wageningen, Colombia and Yale universities.

The PFR web-site contains 1 page information for 9 countries about Natural hazards and disasters, Effects on people, What PfR does and an example project.

PFR has activities in 9 countries of which 5 overlap with the 15 partner countries, namely **Ethiopia, Indonesia, Kenya, Mali and Uganda.**

Available at: http://www.partnersforresilience.nl/paginas/home.aspx#

The Partners for Resilience (PfR) partners are:

Netherlands Red Cross (lead agency)

The NLRS contributes to poverty reduction by reducing people's vulnerability and protecting their health, livelihoods and socio-economic base. NLRC activities include mapping and analysis of risks, reducing disaster risks, early warning and evacuation, the organization of rescue teams, and building emergency supplies.

Cordaid

Cordaid works with local organizations and authorities, supporting communities to identify the risks themselves, both from natural and man-made disasters and political or economic conflicts. Through Cordaid's approach, communities increase their own resilience, prevent disasters and safeguard their lives and livelihood assets.

In 2012, Cordaid made a series of **disaster risk mappings and analyses** for (initially) 14 countries (out of 25) including an analysis of the natural hazards, conflicts, environmental and health risks. These assessments are based on the premises that natural disasters are a function of exposure to hazards, vulnerability and capacities. The risk mapping is to be used as for internal use by Cordaid and its partners.

These risk mappings (around 10 p.) contain facts and information on man-related hazards and conflicts, natural hazards, vulnerability, government capacity and all have a synthesis, an overview of resources & contact persons. An appendix contains a 1 page hazard map and/or conflict map.

The risk mapping is based mostly on desk research making use of websites and databases, with additional information derived from interviews. In a 14 p. Disaster Risk Mapping Analysis & Discussion document, an overview is given of the 14 countries and the main hazard events that can occur on the short or long term and the number of people that may be affected. This document also contains on overview of web-sites used, especially the ones on natural disasters contain useful information (see annex 4).

Fourteen priority countries have been selected, mainly based on numbers of people at risk. The 8 countries overlapping with the partner countries are **Afghanistan, Bangladesh, Burundi, Ethiopia, Indonesia, Kenya, Uganda and South Sudan.**

Available at: http://www.cordaid.org/en/publications/?tag=risk-analysis

CARE Netherlands

CARE recognizes and supports groups in marginalized positions, such as women and girls, indigenous people, youth and elderly, and people with disabilities. At the core of its work on resilience, CARE Netherlands analyses the root causes of vulnerability, creates ownership of communities, and links local solutions with scientific knowledge.

Wetlands International

Wetlands International is an independent, non-profit, global organization that targets sustaining and restoring wetlands, their resources and biodiversity. The organization believes healthy wetlands are a cost-effective strategy for DRR and Climate Change Adaptation, with strong benefits for poverty reduction and biodiversity conservation.

Besides the Partners for Resilience (PfR), other relevant Dutch organizations have also been checked for country risk profiles:

WUR / Alterra

WUR/Alterra does not have risk profiles. For the EU however, they have made Climate Adapt, which is an information system for policy makers with a whole range of examples for adaptation strategies for certain settings. (http://climate-adapt.eea.europa.eu/)

Netherlands Environmental Assessment Agency (PBL)

PBL is the Netherlands institute for strategic policy analysis in the fields of environment, nature and spatial planning. It has publications related to climate change extreme weather and disasters, related to the Netherlands but also with an international focus. PBL does not have specific country profiles. (http://www.pbl.nl/en/dossiers/Climatechange)

Deltares

Deltares does not have risk profiles per country but has contributed to a publication of the Delta Alliance (with WUR and IHE) called: Comparative assessment of the vulnerability and resilience of 10 deltas (2010). Three of these overlap with the 15 partner countries (Incomati, Mozambique, Ganges-Brahmaputra-Meghna in Bangladesh and Ciliwung in Indonesia). This information can be found on the Delta Alliance web-site: www.delta-alliance.org

Faculty of Geo-information Science and Earth Observation (ITC), University of Twente (UT)

UT-ITC frequently uses existing risk profiles that are available at different organizations and knowledge institutes, but does not have/develop risk profiles themselves. They do contribute to such profiles upon request, for example by doing hazard assessments using climate data and historical inventories of local and regional natural disasters, which are relevant for the risk analysis of potential climate change.

UT-ITC has contributed to this inventory by making use of in-house expertise in the area of climate change and risk analysis of natural disasters and by making use of their current knowledge on existing information sources on risk profiles through internet search. ITC has made overview of international (knowledge) organizations that have information regarding risk profiles concerning the effects of climate change and extreme weather for developing countries. Also an assessment has been made on whether these organizations provide information regarding vulnerability and exposure of the population in the countries concerned.

Although ITC has not been able, given the short time available, to perform quality check of the available risk profiles, they have made an attempt to give an initial judgment of the available information and some recommendations for its use. This is presented in Annex 2 to this report and is summarized in an easy accessible table for the 15 partner countries (in Dutch). Table 2 in this annex presents per organisation and per country which information is available: different symbols and colours distinguish different levels of information. Grey (X) means: no information, Blue (■): climate change including impact, green (□): climate change and extreme weather profile, but no information regarding impact and orange (O), links to information, no risk profile or no profile concerning climate change and extreme weather. An (*) indicates that there is information regarding disaster risk without a link to climate change. The numbers in the column Prevention web indicate how many publications are available per country through this resource. Annex 3 presents detailed information per country.

2.2.3 Disaster Risk databases/maps

EMDAT International Disaster database – http://www.emdat.be/

This International Disaster Database is created by the Centre for Research on the Epidemiology on Disasters (CRED) and was initially supported by the World Health Organization and the Belgian Government. It aims to rationalize decision making for disaster preparedness and vulnerability assessment. The website is very well known and it contains essential core data on the occurrence and effects of over 18,000 mass disasters in the world from 1900 to present. The database is compiled from various sources, including UN agencies, non-governmental organisations, insurance companies, research institutes and press agencies.

EMDAT is searchable and allows the creation of a user-tailored list of events. It provides **country disaster profiles** which rank the largest disasters per country based on number of people killed, number of affected people as well as economic damage. Natural disaster as well as technical disaster profiles are provided for each country. This gives a clear overview of the main disasters in each country. Similarly, disaster profiles are given which sort the data according to the type or group of disaster. The data is also transformed into maps and graphs and disaster trends are illustrated.

EMDAT provides information on past disasters for a large number of countries throughout the world. **All 15 partner countries** have a disaster profile.

Available at: http://www.emdat.be/country-profile

Global Risk Data Platform (GRID)

Preview GRID is a platform provided for by the UNIDSR and UNEP to share and visualize spatial data information on global risk from natural hazards. The Platform was developed as a support to the Global Assessment Report on Disaster Risk Reduction (GAR). Users can visualise, download or extract data on past hazardous events, human & economical hazard exposure and risk from natural hazards. It covers tropical cyclones and related storm surges, drought, earthquakes, biomass fires, floods, landslides, tsunamis and volcanic eruptions. The Platform allows for the visualization of natural hazards, exposure and risk on a world map. It is very interactive, allowing to zoom in and apply different layers, such as population density. Also graphs on risk indices, vulnerability and exposure are provided which indicate the position of individual countries. GRID is a large program and requires either some patience or a strong computer, but gives beautiful geospatial information on hazards.

The GRID Platform provides global information, thus information on **all partner countries**.

Available at: http://preview.grid.unep.ch/index.php?preview=home&lang=eng

DesInventar Database

DesInventar is an open source disaster information management system. It provides National Disaster Inventories and databases of disaster losses. It was initiated by the Network of Social Studies in the Prevention of Disasters in Latin America (Red de Estudios Sociales en Prevención de Desastres en América Latina - LA RED) with a focus Latina America. This efforts were then picked up by UNDP and UNISDR who sponsored the implementation of similar systems in the Caribbean, Asia and Africa. DesInventar provides for interactive **country-specific databases** with detailed information on natural disasters. The user can tailor the data to its needs and can present it in the form of maps, statistics, charts, etc. Data is also available at provincial level. The database can facilitate the dialogue for risk management between actors, institutions, sectors, provincial and national governments.

DesInventar provides interactive country databases for 43 countries/regions. 5 of them are partner countries, namely: **Indonesia, Kenya, Mali, Mozambique, Yemen**

Available at: http://www.desinventar.net/

GLIDENumber

The Asian Disaster Reduction Centre (ADRC) proposed to introduce a common unique ID code for disasters. Other centers, NGOs and research institutes joined to launch this idea which became GLIDE. This database is a very simple to use and to find information about disasters (technical and natural) in different countries. It allows to search per continent, country and event, and with keywords and dates. Information is often quite specific giving location and date of an event as well as figures. The completeness of information differs per country and hazard.

Glide allows a disaster search for a large number of countries, including all **15 partner countries**.

Available at: http://www.glidenumber.net/glide/public/search/search.jsp

UNISDR Risk Data Viewer

The interactive Risk Viewer is an open source software that was developed by UNISDR in collaboration with ERN, the World Bank and with support of the European Commission. It presents the global risk data from the Global Assessment Report on Disaster Risk Reduction (2013) in an easily accessible manner. This platform is set up in a similar interactive way as the above described GRID platform and also has the same objectives, namely to visualize spatial data on hazard risks, exposure and vulnerability. The Viewer covers a more limited number of hazards though, namely tropical cyclones and earthquakes. As it becomes available, information related to storm surges, drought, floods, landslides, tsunamis and volcanic eruptions will be added.

The Risk Data Viewer provides global information, thus information on **all partner countries**.

Available at: http://risk.preventionweb.net:8080/capraviewer/main.jsp?countrycode=gar

UN World Risk Index

The United Nations University Institute for Environment and Human Security has published a World Risk Report in 2011. It provides for the World Risk Index which ranks the countries according to their disaster risk potential. Each country is scored with respect to exposure to natural hazards, vulnerability (susceptibility, coping capacities and adaptive capacities). The report thus gives an impression of the disaster risk potential in a specific country. It focuses on those natural hazards that caused the most human causalities and material damage from 1970 to 2005 and additionally the potential threat of sea level rise. The hazards considered for the index are thus: earthquakes, storms, floods, droughts, sea level rise.

The UN World Risk Index gives an impression of the disaster risk within a country in comparison to others. It provides information on **all partner countries.**

Available at: http://www.ehs.unu.edu/file/get/9018

Humanitarian Early Warning Service (HEWSweb)

The IASC Humanitarian Early Warning Service (HEWSweb) is an inter-agency partnership project aimed at creating a common platform for humanitarian early warnings and forecasts for natural hazards. It is developed and maintained by the World Food Programme. The application allows navigation between different hazards in the world and provides real-time early warning with additional information on location and nearby population. It also provides country-specific information which involves the presentation of relevant hazardous events, a seasonal hazards calendar, hazard statistics per country and links to relevant maps.

The HEWSweb provides information on a large variety of countries, which includes **all 15 partner countries**.

Available at: http://www.hewsweb.org/countries/countries.asp

Columbia University Natural Disaster Profiles

The Center for Hazard and Risk Research of the Columbia University provides for Natural Disaster Profiles for Indian Ocean countries, created in 2005. They provide for maps that indicate hotspots for several types of disasters such as floods, landslides or volcanoes at subnational level. Some maps are weighted by mortality or by the proportion of GDP that is impacted. Multi-hazard disaster maps are also provided which show the combined risk of key hazards. The data used in the profiles is taken from EMDAT and the Natural Disaster Hotspots: A Global Risk Analysis report, published by The World Bank and Columbia University in 2005.

The Natural Disaster profiles exist for 13 countries, among them the following partner countries: **Bangladesh, Indonesia, Kenya.**

Available at: http://www.ldeo.columbia.edu/chrr/research/profiles/

IFRC Disaster Law database

To reduce disaster risk, the International Federation of Red Cross and Red Crescent Societies (IFRC) has three main strategies: 1. to strengthen the preparedness and capacities of communities so that they are in a better position to respond when a disaster occurs; 2. to promote activities and actions that mitigate the adverse effects of hazards; 3. to protect development projects from the impact of disasters. Disaster response is a large part of the work of the IFRC which operates through emergency response units. It further has a Disaster Law programme that seeks to reduce human vulnerability by promoting legal preparedness for disasters. As part of this programme, a Disaster Law database has been developed by IFRC. It can be searched by several factors, such as by country or by type of hazard. It provides legal and policy instruments related to disaster management at the international, regional, national, provincial and local level. This includes documents such as treaties, declarations, guidelines etc. Also, references to articles, book chapters and reports that are relevant to disaster law are given.

The Disaster Law database provides global information, thus it provide information on **all 15 partner countries**.

Available at: http://www.ifrc.org/en/publications-and-reports/idrl-database/

2.3 Climate Change Risk profiles

2.3.1 International organizations

World Bank Climate Change Knowledge Portal

In an effort to serve as a 'one stop shop' for climate-related information, data, and tools, the World Bank created the **Climate Change Knowledge Portal (CCKP),** supported by the Global Facility for Disaster Reduction and Recovery (GFDRR) and others. The CCKP provides a web-based platform to assist in capacity building and knowledge development. The aim of the portal is to help provide development practitioners with a resource to explore, evaluate, synthesize, and learn about climate related vulnerabilities and risks at global, regional and country level. The CCKP contains detailed country information on climate-related issues, hydro – meteorological hazards and vulnerabilities. Using climate science research results to inform the decision making process concerning policies or specific measures needed to tackle climate impacts, or even to understand low carbon development processes, is often a difficult, yet crucial, undertaking. The portal also provides intelligent links to other resources and tools. The CCKP consists of spatially referenced data visualized on a Google Maps interface. Users are able to evaluate climate-related vulnerabilities, risks, and actions for a particular location on the globe by interpreting climate and climate-related data at different levels of details. See also Annex 2.

Climate Change Knowledge Portal (CCKP) contains detailed information for a large number of countries, including **all 15 partner countries.**

Available at: http://sdwebx.worldbank.org/climateportal/index.cfm

UNDP Climate Change country profiles

The objective of the United Nations Development Programme (UNDP) **Climate Change Country Profiles** project is to make use of existing data to generate a collection of country level analyses of recent climate observations and the multi-model projections. The project uses a consistent approach for all countries studied to produce an "off the shelf" analysis of the data to provide basic observed and model output summaries, and also makes available the underlying data for each country in smaller, and thus more manageable, files for each country.

For each country, a report contains a set of maps and diagrams demonstrating the observed and projected climates as country average time series as well as maps depicting changes on a 2.5° grid and summary tables of the data. A narrative summarises the data in the figures, and placing it in the context of the country's general climate. A dataset containing the underlying observed and model data for that country, is made available for use in further research projects. The files are smaller, more manageable and in text format which can easily be downloaded, read and manipulated.

From the 52 Countries included in the UNDP Climate Change Country Profiles project, there are 9 overlapping the partner countries, namely: **Benin, Ethiopia, Ghana, Kenya, Mali, Mozambique, Uganda, Afghanistan and Yemen.**

Available at: http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/

National Adaptation Programmes for Action (NAPAs)

National adaptation programmes of action (NAPAs) provide a process for Least Developed Countries (LDCs) to identify priority activities that respond to their urgent and immediate needs to adapt to climate change. Between 2004 and 2011 almost 50 National Adaptation Programmes for Action (NAPAs) have been made available to the UNFCCC Secretariat.

10 of the 15 partner countries have these NAPAs namely: **Afghanistan, Bangladesh, Benin, Burundi, Ethiopia, Mali, Mozambique, Rwanda, Uganda and Yemen.**

Available at:
http://unfccc.int/cooperation_support/least_developed_countries_portal/submitted_napas/items/4585.php

SIDA Country policy briefs

The Swedish International Development Agency (SIDA) has carried out a series of desk studies (ranging from 2006 to 2011) resulting in so-called Environmental and Climate Change Policy Brief for several countries. In line with the Swedish development cooperation goal the documents aim to summarise the key issues pertaining to environment and climate change related to poverty reduction and economic development. The aim is to facilitate integration of environment and climate change risks and opportunities into Swedish Development Cooperation. The policy briefs also aim to provide a reference when discussing individual interventions under the future strategy, both among Sida staff and where appropriate cooperation partners. These environmental policy briefs are available at SIDA's helpdesk for Environment and Climate Change:

From the 35 available country policy briefs, the following overlap with the 15 partner countries: **Bangladesh, Ethiopia, Indonesia, Mali, Mozambique, Rwanda and Uganda**

Available at: http://sidaenvironmenthelpdesk.se/?page_id=15

Adaptation Learning Mechanism (ALM) Country Profiles

The ALM's Country Profiles have been developed in a collaboration of (GEF, UNDP, FAO, UNFCC, UNEP, USAID). They contain national information on how individual countries are addressing climate change adaptation, including National Adaptation Programs of Action, National Communications, climate change scenarios, impact assessments, and relevant strategies. This information is available for all partner countries except for South Sudan and the Palestinian Territories. See also Annex 2.

From the 15 partner countries, there are ALM country profiles available for the following 13: **Afghanistan, Bangladesh, Benin, Burundi, Ethiopia, Ghana, Indonesia, Kenya, Mali, Mozambique,**

Rwanda, Uganda, Yemen.

Available at: http://www.adaptationlearning.net/country-profiles

Intergovernmental Panel on Climate Change (IPPC)

http://www.ipcc-wg2.gov/index.html

The IPCC was established by the United Nations Environmental Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to assess the scientific, technical and socio-economic information relevant for the understanding of human induced climate change, its potential impacts and options for mitigation and adaptation. The IPCC has completed four full assessment reports, guidelines and methodologies, special reports and technical papers.

The IPPC Working Group II assesses the vulnerability (sensitivity and adaptability) to climate change of, and the negative and positive consequences for, ecological systems, socio-economic sectors and human health, with an emphasis on regional, sectoral and cross-sectoral issues.

The IPCC has started the Fifth Assessment cycle, which will include the Fifth Assessment Report. The Working Group II contribution to this report, "Climate Change 2013: Impacts, Adaptation, and Vulnerability", will be released in March 2014.

Although there is not a specific country focus, the following IPCC document published in 2012: Summary for Policymakers. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation is worthwhile reading: http://ipcc-wg2.gov/SREX/images/uploads/SREX-SPMbrochure_FINAL.pdf

2.3.2 Dutch organizations

Red Cross Red Crescent climate risk assessments

The Climate Centre helps the Red Cross Red Crescent Movement and other humanitarian agencies reduce the impacts of climate change and extreme-weather events on vulnerable people already confronted with a sharp increase in weather-related disasters. In forging links between climate scientists, policy-makers, health practitioners and disaster managers, the Centre enables a flow of resources and information to better manage the rising risk of extreme-weather events.

The Red Cross Climate Centre has an expert role, and **develops climate risk assessments** in a way that is not only scientifically sound, but also applicable in programs and projects. This is also shown through its contributions to documents like: “Minimum Standards for local climate smart Disaster Risk Reduction” and “Entry points for climate smart program development”.

The climate risk assessments are not meant to be static products, but should rather be considered as a continuous process, whereby a permanent dialogue between program developers and climate knowledge centers is essential. Not only should attention be paid to long term risks, but also to

how a better connection can be made with shorter term weather changes via seasonal forecasts which are issued on a monthly basis by the Climate Centre (see www.climatecentre.org).

Climate context analyses per country on the climate centre website are available for 9 countries, giving a 1 page overview of Natural climate variability and predictability, Climate Change projections, Climate Change Impacts and a list of sources/references. This is used as input for the PfR website (and therefore are the same countries as mentioned above already: Ethiopia, Kenya, Indonesia, Mali and Uganda)

For 4 countries, the Red Cross Climate centre has made background documents in 2011 on the Preparedness for Climate Change Program: **Bangladesh, Indonesia, Rwanda and South Sudan.**

Available at: www.climatecentre.org

Royal Netherlands Meteorological Institute (KNMI)

KNMI has a wealth of information all around the world on (i) current observations: climatology, trends (averages, extremes), variables (temperatures, precipitation, wind..) and (ii) projections: averages, extremes, variables, time horizons (2100, 2050 etc.).
This information is not available per country, but this can be done easily (e.g. within 1 day) through a set of tools which allow 'translation' to third parties in easy accessible information packages. However, as risks are determined by local circumstances, a correct interpretation of this information requires further analysis (couple of months).

KNMI has done this for example in 2011 for Eastern and Southern Africa through a publication called: 'Projected Changes in extreme precipitation in Africa under Global Warming'. Another example is KNMI's involvement in an ongoing joint cooperation program (with e.g. Deltares, Dutch Ministry of Infrastructure and Environment) in Jakarta, Indonesia. This is a risk analysis for a region (20 million people) to investigate the causes (climate change and/or urbanization?) of extreme precipitation.
KNMI also works in South-East Asia, on request of the World Meteorological Organization (WMO) on the establishment of a Regional climate data base.

KNMI does not consider risk profiles as their core business, but can make information available for each country and has relevant data for **Indonesia, and Eastern and Southern Africa**

3. OVERVIEW OF RESULTS

3.1 Overview Combined Profiles: Climate Change and DRR

The tables below presents an overview of the types of natural hazards covered by the Combined profiles, the type of information they provide and their availability per partner country.

Table 3: Type of information in Combined profiles

DRR profiles	Type of Natural Hazards			Type of information	
	Geo	Meteo	Bio	Climate change and disaster risk	Risk reduction / adaptation
Preventionweb	X	X	X	X	X
WB	X	X	X	X	X
DRM	X	X	X	X	X

Table 4: Availability of Combined profiles per partner country

Partner countries	Prevention web	WB	DRM
Afghanistan	X		
Bangladesh	X	X	X
Benin	X		
Burundi	X		
Ethiopia	X	X	X
Ghana	X	X	X
Indonesia	X	X	X
Kenya	X	X	
Mali	X	X	X
Mozambique	X	X	X
Palestinian T.	X		

3.2 Overview DRR Profiles

The Table 5 gives an overview of the types of natural hazards covered by the DRR profiles and the type of information which they provide, namely whether the DRR provide information on disaster risks and/or on disaster risk reduction. Table 6 shows the availability of DRR profiles per partner country and Table 7 indicates the same for disaster risk databases/maps.

Table 5: Type of information in DRR profiles

DRR profiles	Type of Natural Hazards			Type of information	
	Geo	Meteo	Bio	Disaster risk	Disaster risk reduction
VFL CP	X	X		X	X
Cordaid	X	X	X	X	
EMDAT	X	X	X	X	
GRID	X	X		X	

Table 6: Availability of DRR profiles per partner country

Partner countries	VLF CP	Cordaid
Afghanistan	X	X
Bangladesh		X
Benin	X	
Burundi	X	X
Ethiopia	X	X
Ghana		
Indonesia		X
Kenya	X	X
Mali	X	
Mozambique		
Palestinian T.		
Rwanda		
South Sudan		X
Uganda	X	X
Yemen		

Table 7: Availability of disaster risk databases/maps for partner countries

Databases	Partner countries
EMDAT	All
Desinventar	Indonesia, Kenya, Mali, Mozambique, Yemen
Glide	All
GRID	All
Risk Data Viewer	All
WorldRiskIndex	All
HEWSweb	All
Columbia Uni	Bangladesh, Indonesia, Kenya
IFRC disaster law	All

3.3 Overview Climate Change Risk Profiles

The table below indicates the type of information provided in the identified Climate Change Risk profiles, namely whether they merely focus on the risks for climate change or also on climate change adaptation strategies of countries. Table 9 presents an overview of the availability of Climate Change Risk profiles for the different partner countries.

Table 8: Type of information in Climate Change Risk profiles

Climate Change Risk profiles	Type of information	
	Climate change risks	Climate change adaptation
UNDP	X	
ALM	X	X
WB –CCKP	X	
NAPA	X	X
SIDA	X	X
Red Cross	X	

Table 9: Availability of Climate Change Risk profiles for partner countries

Partner countries	UNDP	ALM	WB – CCKP	NAPA	SIDA	Red Cross
Afghanistan	X	X	X	X		
Bangladesh		X	X	X	X	X
Benin	X	X	X	X		
Burundi		X	X	X		
Ethiopia	X	X	X	X	X	
Ghana	X	X	X			
Indonesia		X	X		X	X
Kenya	X	X	X			
Mali	X	X	X	X	X	
Mozambique	X	X	X	X	X	
Palestinian			X			
Rwanda		X	X	X	X	X
South Sudan			X			X
Uganda	X	X	X	X	X	
Yemen	X	X	X	X		

4. ADVICE ON THE USE OF RISK PROFILES[1]

This inventory shows that a lot of information is available among different organisations. Given the short time frame, it has not been possible to get insight in the quality and completeness of the information. The country risk profiles of the different organisations have not been compared mutually. This may result in contradictions after more a more thorough analysis.

There is not an unambiguous definition for risk profiles. The interpretation by different organization can also differ according to the specific goal of such profiles. The same applies to terminology like Disaster Risk Reduction, Disaster Recovery, Disaster Risk Management, Exposure, Hazard Assessment Vulnerability, Impact Assessment and Climate Change Adaptation.
The interpretation of the definition of 'risk profile' determines to a great extent which source is the most adequate one. This inventory has not revealed any sources with incorrect information. The level of detail differs per information source; some give a more general picture, while other focus on one aspect or some types of hazards only. This implies that the different sources are complementary to each other.

It is important to pose some questions regarding the scientific soundness of the available risk profiles, such as quality of data used for climate change/projections and the risk analyses. In most partner countries, access and availability of data is problematic, causing great uncertainty regarding future projections. The level of uncertainty needs to be analysed, because this may reveal that perhaps a society needs to be made 'disaster risk and climate –proof' first, before any potential future changes are looked at. When such reliable sets of measurements of meteorological or geological parameters over many years are lacking, showing the current situation, it is impossible to project an adequate future situation.
The same applies for the vulnerability of people and economic interests in relation to the current disaster risks, a step which is not always made. This first step is however needed to be able to assess the future situation. Without an assessment of the current state of affairs, a future impact analysis is not possible.

Vulnerability, exposure and coping capacity are equally important elements that are difficult to assess. It is a fact that vulnerability and exposure change much faster than disaster risk patterns and the climate: most capitals in the 15 partner countries will show rapid growth in the next 10 years. In addition, vulnerability, exposure and coping capacities are very variable in time and space. Analysis on these kind of issues is rapidly developing.

The inventory also showed that the spatial scale of disasters and climate change, but also that of exposure and vulnerability differs greatly. Some risk profiles contain information on provinces or a country, whereas the related problems only are relevant at regional or even local level. The exposure of a city, to mention an example, is very much different than that of the surrounding

[1] This advice is largely based on the views and perspectives of ITC.

rural areas. These local differences should have been addressed in the risk profiles, but this is not always the case.

As knowledge on climate change and disaster risk reduction is rapidly developing, it needs to be stressed that the most recent information should be used. Continuously, new insights are gained in techniques for analysis and interpretation of results.

5. BACKGROUND INFORMATION REGARDING DRR

5.1 Relevant Concepts and scope of this advice

The United Nations Office for Disaster Risk Reduction provides for the following definitions in relation to Disaster Risk Reduction (DRR):

Definition Disaster:
UNISDR (2009): "A serious disruption of the functioning of a community or a society involving widespread human, material, or environmental losses and impacts which exceeds the ability of the affected community to cope using only its own resources."

Definition Hazards:
UNISDR (2009): "a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage".

Definition Disaster Risk Reduction (DRR)
UNISDR (2009): "The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events."

A natural phenomenon can become a hazard when its consequences come into contact with humans. If a hazard affects a community or society in a way that it is unable to cope with it by using its own resources, the situation leads to a **disaster**. Whether and to what extent a disaster occurs is determined by three factors: the exposure to a hazard, the vulnerability of the affected community, and the capacity of the community to cope with the potential adverse consequences. A flood in Bangladesh will have other impacts than a flood in East Africa. And while most natural hazards are inevitable, disasters are not. (UNIDSR, 2004; UNISDR, 2009; USAID, 2011)

Hazards are dynamic and their potential impacts vary considerably. There can be a strong relationship between different hazards and primary hazards can trigger collateral or secondary hazards. For example, earthquakes can trigger landslides or tsunamis etc. Based on their origins, hazards are generally classified into natural hazards and technological hazards. This inventory

focuses on natural hazards, a natural process or phenomenon which affects a community. Natural hazards are generally divided into three main categories as the table below shows. (UNIDSR, 2004)

Table 10: Classification of Natural Hazards by origin:

Origin	Examples of Natural Phenomena
Geological hazards	- Eartquakes - Tsunamis - Volcanic activity and emissions - Mass movements (land slides, rock slides, submarine slides, liquefaction) - Subsidence (surface collapse, geological fault activity)
Hydro-meteorological hazards	- Floods, debris and mudflows - Cyclones, storm surges, rain and windstorms, and other severe storms, blizzards, lightning - Drought - Wildland fires - Heat waves, cold waves, extreme temperatures - Sand or dust storms - Snow avalanches
Biological hazards	- Outbreaks of epidemic diseases - Plant or animal contagion - Extensive infestations

Source: UNIDSR, (2004); USAid, (2011)

The risk for disasters caused by natural hazards can be decreased through reducing exposure to natural hazards, reducing the vulnerability of the community and through strengthening the coping capacity of the community. Driving forces of hazards, vulnerability and coping capacities are very complex though. **DRR** hence requires a dynamic, multi-sectoral and multi-disciplinary approach to reduce the potential of disaster losses. DRR involves the consideration of risks resulting from natural hazards in institutional structures and national and sectoral policies. Disaster reduction, recovery and management programs can be designed at national level while taking account of long-term development needs. Furthermore, at project level, individual development projects in hazard-prone areas should be assessed in the context of DRR, to spell out disaster-related consequences and include adequate risk reduction planning. Adequate risk reduction planning should be built into such projects at various stages in order to avoid disasters, preferably as part of the environmental assessment process. (USAID, 2011; Benson & Twigg, 2007)

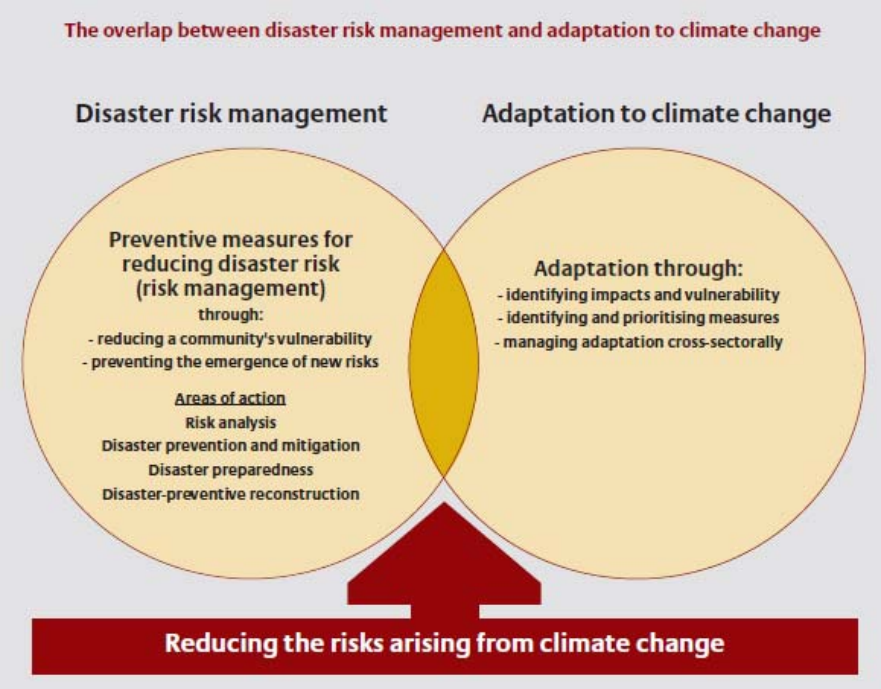
→ *This inventory focuses on disaster risks resulting from all three types of natural hazards.*

5.2 Climate Change and DRR

Climate change itself is not a hazard according to the above definition, but it is an important factor that contributes to disaster risks. Through changes to the global climate patterns and cycles, it can increase the frequency and intensity of natural hazards (e.g. of floods and hurricanes). Climate change can also be a main driver of slow-onset hazards such as droughts. Moreover, climate change can enhance the vulnerability of the people to hazards through environmental degradation and through adding additional stress to a community that may reduce their ability to cope with existing hazards (USAID, 2011). An understanding of climate change risk thus importantly contributes to DRR.

→ This inventory aims to provide links to country-specific information on climate change risks and climate change adaptation as well as on disaster risks and DRR.

Figure 1: Relation DRR and Climate change Adaptation



Source: BMZ, (2010)

5.3 Mainstreaming DRR

The effects of disasters can decrease the country's potential for long-term human development. Since the 1990s, mainstreaming DRR into development has increasingly become a policy priority on the international agenda, but also at regional and national level. DRR has traditionally focused on capabilities for forecasting hazards and on immediate humanitarian relief in case of a disaster. Gradually a shift in disaster management has occurred towards a more comprehensive understanding of the underlying causes of vulnerability to hazards. The development of long-term

strategies to reduce and manage disaster risks became a focus. In this changing context, the relations between climate change and disaster risk increasingly became recognized.

5.3.1 Mainstreaming DRR at international level

A number of international frameworks for DRR and policies have been developed since the 1990s. In 1989, the General Assembly of the United Nations launched the International Decade for Natural Disaster Reduction (1990-1999), resulting in the **Yokohoma Strategy plan of Action.** The ensuing **International Strategy for Disaster Reduction (ISDR)** built upon this experience in 2000. Following the World Disaster Reduction Conference of 2005, efforts to mainstream DRR were formalized through the adoption of the **Hyogo Framework for Action (HFA)** by the United Nations member states. The HFA provides a guideline for reducing vulnerabilities to natural hazards. Its goal is to strengthen the resilience of nations and communities to disasters and to reduce disaster losses substantively by 2015. It defines 5 priorities for action: 1. making disaster risk reduction a priority with a strong institutional basis for implementation, 2. knowing the risks and enhancing early warning, 3. building understanding and awareness, 4. reducing risk, and 5. being prepared and ready to act. The HFA emphasizes the need for collaboration and cooperation between various relevant stakeholders; states, regional and international organizations, but also civil society, the private sector the media, etc. (http://www.unisdr.org/we/coordinate/hfa).

Several international institutions were mandated/established to support the implementation of the HFA. Key ones are:

- **United Nations Office for Disaster Risk Reduction (UNISDR)** – http://www.unisdr.org/

The UNISDR is the secretariat of the International Strategy of Disaster Reduction and disaster risk reduction community. The disaster risk reduction community comprises numerous organizations, States, intergovernmental and non-governmental organizations, financial institutions, technical bodies and civil society, which work together and share information to reduce disaster risk. UNISDR serves as the focal point for the implementation of the Hyogo Framework for Action (HFA) 2005-2015.
UNISDR coordinates and supervises the preparation of an important tool to achieve the HFA; the *Global Assessment Reports on Disaster Risk Reduction (GAR).* This is a global assessment of DRR and a comprehensive review and analysis of the natural hazards that are affecting humanity. The Report is produced in collaboration and consultation with a wide range of stakeholders, including various UN agencies, governments, academic and research institutions, donors and technical organizations and specialists. It monitors risk patterns, trends and progress in disaster risk reduction and provides strategic policy guidance to countries and the international community.

- **Global Platform for Disaster Risk Reduction**

To support the implementation of the HFA, the Global Platform for Disaster Risk Reduction has been established by UNISDR. It aims to improve DRR through better communication and coordination among stakeholders. http://www.unisdr.org/we/coordinate/global-platform

- **Global Facility for Disaster Reduction and Recovery (GFDRR)**

The GFDRR was established 2006 to mainstream disaster risk reduction (DRR) and climate change adaptation (CCA) in country development strategies. It is a partnership of 41 countries and 8

international organizations and aims to support a country-led implementation of the HFA. https://www.gfdrr.org

❖ **Global Network of Civil Society Organisations for Disaster Reduction (GNDR)**

The GNDR is a network of over 500 non-governmental and non-for-profit organizations that work together to improve disaster risk reduction policies and practice at every decision-making level. The network aims to ensure the effective implementation of the HFA at the 'frontline' where communities are exposed to natural disasters. It should give these communities a stronger voice. GNDR was initiated with the close support of the UN-International Strategy for Disaster Reduction (UN-ISDR). The network was officially launched in Geneva during the first session of the Global Platform for Disaster Risk Reduction in June 2007. http://www.globalnetwork-dr.org/home.html

Against this background, **various international donors and development organizations** have undertaken institutional changes to mainstream DRR. For instance, the World Bank has established a Disaster Management Facility, now named the Hazard Risk Management team. It is managed by the GFDRR. The Inter-American Development Bank (IDB) and the Asian Development Bank (ADB) have set up disaster management focal points. The Food and Agriculture Organization (FAO) of the United Nations has set up the FAO Disaster Risk Reduction for Food and Nutrition Security Framework Programme which reflects the Hyogo Framework for Action. But also other donors engaged in mainstreaming DRR into their policies such as the Canadian Department of Foreign Affairs, Trade and Development (DFATD), the Danish International Development Agency (DANIDA), the European Commission (EC), Germany's Gesellschaft für Internationale Zusammenarbeit (GIZ), the Norwegian Agency for Development Cooperation (NORAD), the Swedish International Development Cooperation Agency (SIDA), the African Development Bank (AfDB), USAid and the Swiss Agency for Development and Cooperation (SDC). The same accounts for non-governmental organisations (NGOs) such as ActionAid, Plan International, Practical Action and Tearfund. (Benson & Twigg, 2007)

The HFA further encourages the establishment of regional as well as national frameworks and strategies for disaster risk reduction. Also it suggests the establishment of multi-stakeholder platforms at both levels which take responsibility to HFA implementation.

5.3.2 Mainstreaming DRR at regional level

Many regional bodies have formulated strategies at regional scale for DRR that are in line with the HFA, such as in the Andean region, Central America, the Caribbean, Asia, Pacific, Africa and Europe. The key regional platforms for DRR that have been established are listed below. For the EU, the EU Strategy for Supporting Disaster Risk Reduction in Developing Countries was adopted by the Council in May 2009. The strategy and its implementation plan (adopted in April 2011) provide the framework for the EU and its Member States in supporting the EU partner countries in DRR.

The box below provides an overview of regional organizations and platforms on DRR:

Regional Platform for DRR for The Americas

In November 2012, key actors in disaster risk reduction (DRR) from North America, Central America, South America and the Caribbean gathered in Santiago, Chile for the Third Regional Platform for Disaster Risk Reduction of the Americas. During the Regional Platform, the Communiqué of Santiago de Chile on Investing in Resilience: Accelerating the implementation of the Hyogo Framework for Action in the Americas was endorsed.
http://eird.org/pr12-eng/index.html

Arab Conference on Disaster Risk Reduction

The 1st Arab Conference on Disaster Risk Reduction (DRR) took place from 19-21 March 2013 in Aqaba, Jordan and was a forum for politicians, policy makers, planners, academia and development experts to discuss issues and challenges facing the region with regard to DRR. It was co-organized by UNISDR, UNDP, the Hashemite Kingdom of Jordan, the Aqaba Special Economic Zone Authority, the Swiss Development Cooperation and the League of Arab States.
http://www.preventionweb.net/english/hyogo/regional/platform/arabstates/2013/

Asian Ministerial Conference on Disaster Risk Reduction

The 5th conference took place in Yogyakarta, Indonesia in October 2012 to address topics that included: Integrating local level disaster risk reduction and climate change adaptation into national development planning; Local risk assessment and financing; and Strengthening local risk governance and partnership. The outcome of the event included the Yogyakarta declaration on DRR endorsed by Heads of Government, Ministers, and Heads of Delegation of countries in Asia and the Pacific. http://5thamcdrr-indonesia.net/

Africa Regional Platform for Disaster Risk Reduction

Over 250 participants from 45 African countries and partners gathered in Arusha, Tanzania, from 13-15 February 2013 for the 4th Africa Regional Platform for Disaster Risk Reduction. Facilitated by UNISDR, the Africa Regional Platform for Disaster Risk Reduction functions as the primary regional mechanism to support the implementation of disaster risk reduction strategies and programmes at regional, sub-regional and national levels, to monitor their progress and to facilitate coordination and information-sharing.

Pacific Platform for Disaster Risk Management, 9-13 August 2010

A key outcome document from the 2010 Platform was adopted with recommendations for enhancing the implementation of the Pacific Disaster Risk Management Framework for Action 2005-2015. The Pacific Platform was formally endorsed in October 2008 by the Pacific Islands Applied Geoscience Commission (SOPAC) Governing Council and seeks to harmonise existing regional mechanisms for Disaster Risk Management and serve as the link between Pacific Island Countries and the Global Platform for Disaster Risk Reduction.
http://www.pacificdisaster.net:8080/Plone/pacific-platform

European Forum for Disaster Risk Reduction

The European Forum for Disaster Risk Reduction facilitates discussion and advances on disaster risk reduction issues in a coordinated fashion at the regional level. The European Forum includes: HFA Focal Points and representatives of National Platforms in the European region, UNISDR-

Europe, regional organizations, in particular representatives from the Council of Europe, and representatives from the European Commission, Civil Protection - Prevention & Preparedness Unit DG ECHO, and sub-regional organizations/institutions as agreed by the forum.

Source: http://www.unisdr.org/partners/regional

5.3.3 Mainstreaming DRR at national level

Also at national level, DRR is increasingly integrated into policies and strategies and into the institutional set up. All 15 partner countries are committed to the HFA. The HFA National progress reports provide information on the state of affairs of the development of national disaster risk reduction and management strategies of the partner countries:
http://www.preventionweb.net/english/hyogo/progress/reports/?pid:222
An increasing number of countries also develop **national platforms for DRR**, as it is suggested by the HFA. The following table illustrates which of the 15 partner countries have officially declared national platforms.

Table 11: Availability of National DRR platforms in partner countries

Partner countries	National DRR platform
Afghanistan	Afghanistan National Disaster Management Authority (ANDMA), Department of Disaster Preparedness (DDP)
Bangladesh	None
Benin	Direction de la Prévention et de la Protection Civile (DPPC)
Burundi	Plateforme Nationale de RRC
Ethiopia	None
Ghana	National Disaster Management Organization (NADMO)
Indonesia	Indonesian National Platform for Disaster Risk Reduction (Planas PRB)
Kenya	Ministry of State for Special Programmes (MOSSP)
Mali	None
Mozambique	None
Palestinian T.	None
Rwanda	None
South Sudan	None
Uganda	Office of the Prime Minister, Disaster Preparedness and Management (national platform recognized by government)
Yemen	None

Source: Preventionweb, (2013)

References

Benson C. & Twigg J. (2007). Tools for Mainstreaming Disaster Risk Reduction: Guidance Notes for Development Organizations. International Federation of Red Cross and Red Crescent Societies / the ProVention Consortium, Geneva.

BMZ, 2010. Disaster Risk Management. Contributions by German Development Cooperation. Federal Ministry for Economic Cooperation and Development, Germany. BMZ Information Brochure.

ISDR, 2007. Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.

Preventionweb, 2013. Preventionweb. Serving the information needs of the disaster reduction community. Retrieved on 6th September 2013 from: http://www.preventionweb.net/english/

UNIDSR, 2004. Living with Risk. A global review of disaster reduction initiatives. 2004 Version, Volume I. UNISDR, Geneva.

UNIDSR, 2009. 2009 UNISDR Terminology on Disaster Risk Reduction. UNISDR, Geneva.

USAID, 2011. Introduction to Disaster Risk Reduction. African Centre for Disaster Studies NWU Potchefstroom Campus.

World Bank, 2013. Disasters affect everyone but they impact the poor and the vulnerable the most. Retrieved on 6th September 2013 from: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTDISMGMT/0,,menuPK:341021~pagePK:149018~piPK:149093~theSitePK:341015,00.html

APPENDIX 1

Resource persons

Cordaid
Monique Lagro, Director Disaster Response Cordaid
Monique.lagro@cordaid.nl

Red Cross
Juriaan Lahr, Head International Aid
jlahr@redcross.nl

Red Cross Climate Centre
Madeleen Helmer

KNMI
Rob van Dorland, rob.van.dorland@knmi.nl
Gerrit Burgers, gerrit.burgers@knmi.nl
Bart van den Hurk, hurkvd@knmi.nl
Albert Klein Tank, albert.klein.tank@knmi.nl

ITC
Janneke Ettema, j.ettema@utwente.nl
Thea Turkington, t.a.r.turkington@utwente.nl
Victor Jetten, v.g.jetten@utwente.nl

WUR/Alterra
Rik van den Bosch, rik.vandenbosch@wur.nl

Deltares
Cees van de Guchte, cees.vandeguchte@deltares.nl

APPENDIX 2

ITC overview of organisations with risk profiles of each country

Tabel 1 geeft een overzicht van de instanties die risico-profielen per land openbaar hebben gemaakt.

Instantie	Website
IPCC	http://ipcc-wg2.gov/SREX/
WorldBank – CCKP	http://sdwebx.worldbank.org/climateportal/index.cfm?page=global_map
WorldBank – CRACP	http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile
GCCA	http://www.gcca.eu/technical-and-financial-support/national-programmes
IFPRI	http://www.ifpri.org/countries
GFDRR	https://www.gfdrr.org/node/112
UNDP	http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/
Prevention Web	http://www.preventionweb.net/english/countries/
UNISDR	http://www.unisdr.org/partners/countries
ALM	http://www.adaptationlearning.net/country-profiles
CDKN	http://cdkn.org/regions/bangladesh/

Tabel 1 Lijst met instanties die per land klimaatprofielen beschikbaar maken op het internet en de bijbehorende website

IPCC
Het IPCC (Intergovernmental Panel on Climate Change) heeft in 2012 een rapport gepubliceerd met de titel “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)”. In dit rapport staan de belangrijkste bevindingen m.b.t. klimaatveranderingen in extreem weer en de potentiële impact op de gemeenschap. Dit rapport kan gezien worden als de bron met de meest complete achtergrondinformatie gebaseerd op wetenschappelijke internationale publicaties. Het rapport behandelt niet de risicoprofielen van individuele landen, maar is het resultaat van samenwerking tussen drie verschillende takken van wetenschap, te weten a) specialisten in disaster recovery, disaster risk management,
en disaster risk reduction, b) experts op het gebied van fysische wetenschappelijke basis van klimaatverandering en c) experts op het gebied van climate change impacts, adaptation, en vulnerability.

Wereldbank
De Wereldbank heeft twee programma’s waar relevante informatie te vinden is: Climate Change Knowledge Portal (CCKP) en Climate Risk and Adaptation Country Profiles (CRACP).
De website van CCKP geeft voor elk land een samenvatting van de historische klimatologie en klimaatprojecties voor impact en vulnerability d.m.v. een interactief format.

Wat betreft de historische weergegevens is het onduidelijk welke databronnen gebruikt zijn en hoe compleet de gegevens zijn. Voor de klimaatprojecties zijn gegevens van GCMs (General Climate Models oftewel Global Circulation Models) en Regional Climate Models (RCMs) beschikbaar. Voor natural hazards zijn er alleen historische gegevens beschikbaar, geen toekomstprojecties. Voor water- en landbouwsector zijn er toekomstprojecties voor overstromingen, droogte en veranderingen in de gemiddelde rivierstand (base flow). Er staat een disclaimer op de website dat deze gegevens niet geschikt zijn voor een ontwerpstudie.
De website van de CRACP geeft informatie voor alle 15 landen. Voor een selectie van deze 15 landen is nadere informatie beschikbaar m.b.t. distaster risk reductie en adaptatie aan klimaatverandering. De klimaatprojecties zijn gebaseerd op de CCKP informatie (hier geen aanvullende of nieuwe informatie). De beschrijving omvat een klimaatsamenvatting die beter de veranderingen verklaard en wat een bepaalde indicator betekent. Onze aanbeveling is om deze informatie te gebruiken boven CCKP, mits niet beschikbaar of als men bekend vertrouwd is met het gebruik van klimaatmodelgegevens.

GCCA
De Global Climate Change Alliance (GCCA) van de Europese Commissie heeft als doel om te functioneren als platform voor dialoog en het uitwisseling van ervaringen tussen EU en ontwikkelingslanden op het gebied van klimaatpolitiek en praktische aanpak om klimaatverandering te integreren in ontwikkelingspolitiek en budgettering. De GCCA geeft alleen een overzicht van de programma's en landen waarin geïnvesteerd is, inclusief een link naar de specifieke programma's.

IFPRI
De website van het International Food Policy Research Institute (IFPRI) bevat een lijst van rapporten voor de meeste landen, waarvan sommige specifiek gericht zijn op klimaatverandering. In 2010 heeft IFPRI een rapport gepubliceerd met als titel "Strategies for Adapting to Climate Change in Rural Sub-Saharan Africa". Dit rapport verschaft informatie over de beschikbaarheid van klimaatgegevens, maar ook over klimaatverandering. De kwaliteit van dit rapport is niet beoordeeld.

GFDRR
Global Facility for Disaster Reduction and Recovery (GFDRR) is een samenwerkingsverband tussen 41 landen en 8 internationale organisaties. De missie is gericht op het stroomlijnen van disaster risk reduction (DRR) en climate change adaptation (CCA) d.m.v. ondersteuning bij het ontwerpen van ontwikkelingsstrategieën per land. De website van GFDRR geeft links naar bestaande projecten voor de verschillende landen, meestal verwijzend naar programma's van de World Bank.

UNDP
De United Nations Development Program (UNDP) geeft voor 52 ontwikkelingslanden, inclusief 11 relevant voor deze inventorisatie, aan welke klimaatverandering te verwachten is, vaak gemiddeld over het gehele land. Er zijn alleen algemene overzichten van een temperatuur- en neerslagverandering (gemiddelde en sommige extremen). Van toegevoegde waarde is dat deze

website commentaar bevat over de kwaliteit van de klimaatgegevens. Het lijkt er sterk op dat dit rapport grote overeenkomsten vertoond met het AR4 rapport van IPCC.

UNISDR - Prevention web

Prevention web is een project van de UN Office for Disaster Risk Reduction (UNISDR). De focus is sterk op het huidige risico met betrekking tot natuurrampen – beiden de menselijke als economische exposure en vulnerability worden belicht van overstromingen en link naar extreem weer. Er is een lijst beschikbaar met relevante documenten en publicaties, maar hoe nauwkeurig en compleet deze lijst is, is niet beoordeeld. Een korte blik op de lijst van natuurrampen in Nieuw-Zeeland leert dat deze lijst niet compleet is en niet over de juiste informatie beschikt: twee gerapporteerde rampen zijn niet juist, anderen zijn niet opgenomen in de lijst.
Aangezien Prevention web onderdeel is van UN Disaster Risk Reduction (UNISDR), geeft de UNISDR zeer vergelijkbare informatie, welke meer gericht is op het huidige risico en niet toekomstige risico n.a.v. klimaatverandering.

ALM

Het ALM-project (Adaptation Learning Mechanism) heeft als doel om te fungeren als centrale plaats voor documentatie en databases over welke adaptatiemaatregelen en operationele procedures efficiënt en werkbaar zijn. UNDP faciliteert ALM in nauwe samenwerking met de UN Framework Convention on Climate Change (UNFCCC), UNEP, de World Bank en gespecialiseerde UN agencies, inclusief de FAO. Op de website staan samenvattingen van potentiële adaptatiemaatregelen en kwetsbaarheden voor de verschillende landen m.b.t. klimaatverandering. Deze informatie komt uit rapporten vanuit verschillende bronnen, gesponsord door een van de bovenstaande partijen. Op het eerste gezicht lijkt de referentielijst geschikt. Ook staan er samenvattingen van recente projecten.

Country	WB-CCKP	WB-CRACP	GCCA	IFPRI	IFPRI 2010 report	GFDRR	UNDP	Prevention web	UNISDR	ALM	CDKN
Afghanistan	X	■	X	O	X	X	□	O (17)	O	O	X
Bangladesh	■	■	O	O	X	O	□	O (106)	O	O	■
Benin	X	■	O	O	X	O*	□	O (7)	O	O	X
Burundi	X	■	X	O	O	O	X	O (7)	O	O	X
Ethiopië	■	■	O	O	O	O	□	O (44)	O	O	O
Ghana	■	■	X	O	X	O*	□	O (14)	O	O	O
Indonesië	■	■	X	O	X	O*	□	O (57)	O	X	O
Kenia	■	■	X	O	O	O	□	O (36)	O	O	O
Mali	■	■	O	O	X	O*	□	O (15)	O	O	X
Mozambique	■	■	O	O	X	O*	□	O (37)	O	O	O
Rwanda	X	■	O	O	O	O	X	O (6)	O	O	O
South Sudan	■	■	X	O	X	X	X	O (1)	X	X	X
Uganda	X	■	O	O	O	O	□	O (28)	O	O	X
Yemen	■	■	X	O	X	O	□	O (11)	O	O	X
Palestine	X	(Israel)	X	X	X	X	X	O (9)	O	X	X

Tabel 2 Lijst met namen en beschikbare informatie per bron.
Grijs (X): geen informatie,
blauw (■): klimaatverandering inclusief impact,
groen (□): klimaatverandering en extreem weer profiel , maar geen informatie m.b.t. impact,
oranje (O): links naar informatie, geen risicoprofiel of geen m.b.t. klimaatverandering en extreem weer –

een ster (*) geeft aan dat er informatie kan zijn over disaster risk zonder link naar klimaatverandering. De nummers onder Prevention web geven aan hoeveel publicaties er per land beschikbaar zijn via deze bron

APPENDIX 3

ITC inventory of countries with climate change risk profiles

Afghanistan

• ALM geeft beperkte informatie over klimaatverandering en de behoeften tot adaptatie, maar deze informatie lijkt zeer recent met referenties in 2010 en 2011

• CCKP geeft projecties voor mais, rijst en de 'beste' granen. Ook informatie m.b.t. overstromingen en droogte is beschikbaar, met de aantekening dat deze informatie niet geschikt is voor ontwerpstudies

Andere informatiebronnen

• Wildlife conservation society - http://programs.wcs.org/afghanistan/Challenges/ClimateChange.aspx Dit is een algemeen rapport over klimaatverandering in de region zonder referenties. Er is een discussie over wat WCS doet in antwoord op deze uitdagingen

• MDP – Master's in Development Practice - https://sites.google.com/site/mdpafganistan/ bevat beperkte informatie over klimaatverandering, maar er staan links naar andere MDGs

• MSc thesis – Rural Community Vulnerability to Food Security Impacts of Climate Change in Afghanistan (2011). http://uwspace.uwaterloo.ca/handle/10012/5965

• Vanuit HTSPE, een internationaal consultancy bedrijf, heft een rapport geschreven over de socio-economic impacts of CC on Afghanistan. Helaas is er geen rapport of datum beschikbaar op de website. http://www.htspe.com/climate_change.htm

Bangladesh

• Prevention Web – Er zijn meer dan 100 documenten gepubliceerd met als onderwerp on Bangladesh en klimaatverandering, waarvan de meeste gepubliceerd zijn gedurende de afgelopen 3 jaren. De meeste van deze documenten zijn echter niet Bangladesh specifiek.

• CDKN – link to a risk, vulnerability en adaptatiemaatregelen in Bangladesh 2007/2008

Andere informatiebronnen

• Boek: http://www.amazon.com/Climate-Change-Security-Bangladesh-Earthscan/dp/1849711305 van earth scan juni 2010

• Boek: Climate Change Adaptation Actions in Bangladesh (2013) – bevat een sessie over climate change impacts http://www.springer.com/earth+sciences+and+geography/earth+system+sciences/book/978-4-431-54248-3

• Bangladesh climate change resilience fund http://bccrf-bd.org/Default.aspx

• Rapport door Institute of Informatics and development, Bangladesh: Impact of Climate Change in Bangladesh: The role of public administration and

government's integrity
http://www.eldis.org/go/display&type=Document&id=63811#.UYo-uMrQSVg

Benin
IFPRI heeft een overzicht over "West African Agriculture and Climate Change: Benin" (2012) dit rapport is niet beoordeeld naar kwaliteit
Prevention web – slechts 7 documenten in de periode 2008-2011 en allen zijn niet land-specifiek, maar een samenvatting geschreven voor regio.

Burundi
Prevention web – slechts 7 documenten (2008-2011) en allemaal voor de region, niet land-specifiek.

Ethiopië
• IFPRI heeft een overzichtsrapport "East African Agriculture and Climate Change: Ethiopia" (2012)
• Prevention web bevat +40 documenten op het gebied van klimaatsverandering en Ethiopië waarvan sommige zich specifiek richten op Ethiopië, en andere op de regio

Andere informatiebronnen
• Rapport: Resources, risk and resilience: scarcity and climate change in Ethiopia (NYU)
http://cic.es.its.nyu.edu/sites/default/files/evans_security_ethiopia_2012.pdf
• Rapport: A climate change country assessment report for Ethiopia by Epsilon International R&D . http://climatecapacity.org/files/RC_-_Assessment_Reports/Ethiopia_Country_Assessment_Report_ECSNCC.pdf
• Climate investment fund heeft een webpagina:
https://www.climateinvestmentfunds.org/cifnet/country/ethiopia

Ghana
• IFPRI heeft een overzichtsrapport "West African Agriculture and Climate Change: Ghana" (2012). Verder zijn er vele rapporten beschikbaar. Er is ook een rapport op het gebied van klimaatverandering, landbouw en gewas productie in Ghana.

Andere informatiebronnen
• Rapport op het gebied van climate change financing and aid effectiveness (2011) door OECD.Op het eerste gezicht lijken de schrijvers niet goed thuis in de fysische achtergrond van klimaatverandering.
http://www.oecd.org/dac/environment-development/48458430.pdf
• Onderzoeksrapport: Republic of Ghana: the Challenge of Climate Change (2010)
http://books.google.nl/books?id=Wta9T0viso8C&pg=PA19&lpg=PA19&dq=%22ghana%22+climate+change+risk+profile&source=bl&ots=4RUlRSR-1-&sig=UWbOJRbMjcBme1ynnAWHLHUCjr8&hl=en&sa=X&ei=zEGKUbO1

BO6Y0AWw24GwCw&ved=0CGIQ6AEwCTgK#v=onepage&q=%22ghana%22%20climate%20change%20risk%20profile&f=false

Indonesia

Andere informatiebronnen

• Indonesia Climate change center : http://www.iccc-network.net/en/about-us/what-we-do

• (Grijs) rapport on impact of climate change on households: http://www.pep-net.org/fileadmin/medias/pdf/CBMS_country_proj_profiles/Philippines/Special_initiatives/EEPSEA/1114_Indonesia_Climate_change_Report_-REVfinal_22_May_2012_.pdf

• Rapport over klimaatverandering issues en mitigatiemaatregelen: https://crawford.anu.edu.au/accpforum/pdf/ppp/11_Yusuf.pdf

• Doctoral thesis: Welfare impacts of extreme weather events and palm oil production expansion in Indonesia: http://sro.sussex.ac.uk/40054/

Kenia

• IFPRI heeft het overzichtsrapport “East African Agriculture and Climate Change: Kenya” (2012)

• Van de ALM webpagina een 2002 rapport op het gebied van sustainable development, emissions, climate change impacts, vulnerability assessment, adaptation and mitigation as well as research, education and summary of projects. Benadrukt moet worden dat dit rapport al 10 jaar oud is, dus misschien achterhaald

Andere informatiebronnen

• WHO Climate change adaptation to protect human health. De focus is op malaria, maar maakt ook melding van andere rampen zoals overstromingen. Tijdframe is 2010-2014.
http://www.who.int/globalchange/projects/adaptation/en/index6.html

• Rapport van UNDP – Climate Risks, vulnerability and governance in Kenya: A review (2012). Dit lijkt of betere kwaliteit dan andere gevonden rapporten.
http://www.iisd.org/pdf/2013/climate_risks_kenya.pdf

• Rapport: Kenya Climate change briefing (2010), Cranfield university
http://www.wsup.com/sharing/documents/Kenyaclimatechangesummary2010.pdf

• Vroege studie (1992) Climate change and vulnerable places: Global food security and country studies in Zimbabwe, Kenya, Sengal and Chile
http://www.ciesin.org/docs/004-042/004-042.html

Mali

Andere informatiebronnen

• Rapport door World Resources: Increasing food security with agrometeorological information: Mali’s National Meteorological Service helps farmers manage climate risk
http://www.worldresourcesreport.org/files/wrr/wrr_case_study_increasing_food_security_mali_.pdf

• FAO rapport (2012) Potential impacts of climate change on food security in Mali http://www.fao.org/docrep/016/i2856e/i2856e.pdf

• Rapport (2008) Climate change and poor management of natural resources as binding constraint to growth in Mali – an annex to the Integrated Economic Analysis http://sidaenvironmenthelpdesk.se/wordpress/wp-content/uploads/2011/06/Mali-environment-and-climate-Annex-to-IEA-Oct-20081.pdf

Mozambique
• CRACP - Hydrologische modellering voor toekomstige projecties van overstromingen
• IFPRI heeft een overzichtsrapport "Southern African Agriculture and Climate Change: Mozambique" (2012)

Andere informatiebronnen
• Presentatie over climate change impacts and disaster. Risk reduction in Mozambique (2012 by INGC)
http://www.sarva.org.za/sadc/download/moz2012_10.pdf
• Rapport : Environment and Climate Change Policy Brief – Mozambique (Sida 2011). Hier staat weinig in over de fysische kant van klimaatverandering
http://sidaenvironmenthelpdesk.se/wordpress/wp-content/uploads/2012/01/Mozambique-Env-and-CC-Policy-Brief_20111.pdf

Rwanda
• IFPRI heeft een overzichtsrapport "East African Agriculture and Climate Change: Rwanda" (2012)

Andere informatiebronnen
• Rapport: National adaptation programs of action to climate change – Rwanda (2006) http://unfccc.int/resource/docs/napa/rwa01e.pdf
• Rapport (Rwanda Environment Management Authority, 2010) Assessment of operational framework related to climate change in Rwanda
http://www.rema.gov.rw/rema_doc/Climate%20change/Final_Report_CC_Dpt.pdf
• Economics of Climate Change in Rwanda (Stockholm Environment Institute, 2009). http://www.rema.gov.rw/ccr/Final%20report.pdf
• Rapport over Climate change and natural disasters. Het ziet eruit alsof dit ook van REMA komt, zoals de eerste 2 rapporten
http://www.rema.gov.rw/soe/chap9.php

Zuid Sudan
• CCKP – toekomst klimaatprojecties alleen voor de jaarlijkse gemiddelde temperatuur en neerslag (geen extremen)
• IFPRI heeft een overzichtsrapportage "East African Agriculture and Climate Change: South Sudan" (2012)
• Prevention Web – geen disaster statistieken. Zeer beperkte informative voor dit land beschikbaar

Andere informatiebronnen
• Een paar alineas in een Oxfam rapport:
http://www.oxfam.ca/sites/default/files/imce/country-profile-south-sudan.pdf

• Korte rapportage (2012) over hoe om te gaan met klimaatverandering in een conflictgebied http://www.ids.ac.uk/files/dmfile/LHcasestudy14-Sudan.pdf

Uganda
• IFPRI heeft een overzichtsrapportage “East African Agriculture and Climate Change: Uganda” (2012)

Andere informatiebronnen
• Rapport Climate change vulnerability and adaptation preparedness in Uganda (2010 Heinrich Boll Stiftung)
http://www.ke.boell.org/downloads/Uganda_Climate_Change_Adaptation_Preparedness.pdf
• Boek: Hidden Heat – Communicating climate change in Uganda: Challenges and Opportunities (2011)
http://psych.cf.ac.uk/understandingrisk/docs/hidden_heat.pdf
• Rapport: Climate change in Uganda: Understanding the implications and appraising the response (2008 LTS)
http://reliefweb.int/sites/reliefweb.int/files/resources/7F1BF4A7CF37F6A54925756F0016ED29-Full_Report.pdf
• Iets wat lijkt op een MSc thesis: Climate change, weather variability and food consumption: A multidisciplinary study of rural Uganda (geen datum, maar na 2010) https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=CSAE2013&paper_id=457

Jemen
• IFRPI heeft een rapportage “climate change and floods in Yemen” (2011).

Andere informatiebronnen
• Rapport en proceedings (vergadering van de PPCR Sub- Committee, 2011) Strategic program for climate resilience for Yemen
http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/PPCR%207%20Yemen%20SPCR.pdf
• Rapport (UNSIDR, 2012) Disaster Risk – Poverty Trends in Jordan, Syria, Yemen: Key findings and policy recommendations
http://www.unisdr.org/files/27853_arabriskpovertypolicynotejuly2012.pdf
• Rapport: Yemen country report (ADRC, 2012) Includes climate change. Not sure about quality
http://www.adrc.asia/countryreport/YEM/2012/YEM_CR2012A.pdf

Palestijnse gebieden
Andere informatiebronnen
• Presentatie: Expected impact of climate change on population and livelihood in arid and semiarid areas: case studies from Palestine. http://www.feem-project.net/xerochore/files/S3.3_N.Carmi.pdf van de Xerochore website
• Mason, Michael, Zeitoun, Mark and Mimi, Ziad (2012) Compounding vulnerability: impacts of climate change on Palestinians in Gaza and the West Bank. Journal of Palestine studies, 41 (3). pp. 1-16. ISSN 1533-8614
http://www.palestine-studies.org/journals.aspx?id=11374&jid=1&href=abstract

• Rapport: Climate Change Adaptation Strategy and Programme of Action for the Palestinian Authority (UNDP, geen datum)
http://www.undp.ps/en/newsroom/publications/pdf/other/climatechange.pdf