Helpdesk Research Report: Regional and national capacity to cope with humanitarian risk

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Query: Identify ways to define the regional and national capacity to cope with humanitarian risk. This is humanitarian risk relating to both natural hazards (e.g. adverse conditions, emergencies or disasters) and human-induced hazards (e.g. conflict). How is capacity being measured? Include a list of components, indicators, sources, limitations and criticality.

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Contents

1. Overview

There are few frameworks for assessing the capacity to cope with humanitarian risks at national scales, and those that exist vary greatly from one country to another; no clear common set of indicators was readily discernible. In general, however, the importance of governance, institutions, planning capacity and information management capacity were frequently seen, especially in regional (international) frameworks.

International frameworks for assessing risk management capacity often highlight governance and institutional issues. The most prominent overall framework is the Hyogo Framework for Action (HFA), which encompasses a number of processes including the *Toolkit for National Platforms for Disaster Risk Reduction for Africa* which includes indicators that check for the establishment of various institutional, legal and policy frameworks and the incorporation of disaster management concepts into them, and for information management and reporting capabilities. The Inter-American Development Bank's Risk Management Index (RMI) similarly considers a range of information management, communication and participation, planning capabilities, and governance issues. The Food and Agricultural Organization (FAO) Food Resilience framework is a more specific framework looking at

food security, and it contains many more specific indicators related to income and food access, access to basic services, social safety nets, assets, adaptive capacity and stability.

National frameworks differ markedly one from another; there does not appear to be a common focus, methodology or set of indicators across the tools and development plans reviewed. Mozambique has a detailed national plan focusing on natural disaster risk which focuses attention on drought, which the country is particularly vulnerable to, as well as cyclones, floods and earthquakes among other natural disasters. Indicators focus on the capacity to map natural disasters, data collection and institutional preparation. In the Philippines, the national development plan includes indicators that range from fire codes and the speed and quality of emergency response, to national planning capacity and several climate change related issues.

Climate change is an area that warrants particular attention since: 'In a humanitarian context, “risk” can be defined as the probability of harmful consequences… resulting from interactions between natural or human-induced hazards and vulnerability. Climate change has become one of the most significant “human-induced” hazards.' (Ehrhardt et al. 2009, 1) National frameworks for assessing capacity to cope with humanitarian risks arising from climate change highlight the importance of governance, civil and political rights, institutions and education (see Section 4).

There are also many tools looking at local adaptive capacity (e.g. Jones et al. 2010) and community resilience (e.g. Twigg 2007). Local-level indicators are generally based on what is important to each community and tend not to be readily comparable across countries and regions. Indicators have also often required extensive expertise and effort which has been difficult to mobilise (see expert comments in Appendix). There are also tools that examine national vulnerability without directly addressing risk management capacity (e.g. Harmelin 2011, Hughes et al. 2011). Both of these groups of tools are excluded from this report.

2. Regional / International Tools

2.1 Toolkit for National Platforms for Disaster Risk Reduction in Africa (Hyogo Framework for Action)

UNISDR (2010) sets out general guidance for building resilience to natural disasters, outlining a series of indicators for country governments to use when developing their reports as part of their monitoring for the Hyogo Framework for Action (HFA), in particular for countries in Africa. This reporting can help to monitor progress on achievements to build resilience to disasters and to identify gaps and necessary resources related to programmes and initiatives.

Hyogo Framework for Action: Priorities for Action

Priority for action	Recommended Indicators
1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation	i. National institutional and legal frameworks for disaster risk reduction exist with decentralised responsibilities and capacities at all levels. ii. Dedicated and adequate resources are available to implement disaster risk reduction plans at all administrative levels. iii. Community participation and decentralisation is ensured through the delegation of authority and resources to local levels.

	iv. A national multi-sectoral platform for disaster risk reduction is functioning.
2: Identify, assess and monitor disaster risks and enhance early warning.	i. National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors. ii. Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities. iii. Early warning systems are in place for all major hazards, with outreach to communities. iv. National and local risk assessments take account of regional/ trans-boundary risks, with a view to regional cooperation on risk reduction.
3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.	i. Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing system). ii. School curricula, education material and relevant trainings include risk reduction and recovery concepts and practices. iii. Research methods and tools for multi risk assessments and cost benefit analysis are developed and strengthened. iv. Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.
4: Reduce the underlying risk factors.	i. Disaster risk reduction is an integral objective of environment-related policies and plans, including for land use, natural resource management and climate change adaptation. ii. Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk. iii. Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities. iv. Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes. v. Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation processes. vi. Procedures are in place to assess disaster risk impacts of all major development projects, especially infrastructure.
5: Strengthen disaster preparedness for effective response at all levels.	i. Strong policy, technical and institutional capacities and mechanisms for disaster management, with a disaster risk reduction perspective are in place. ii. Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training iii. Drills and rehearsals are held to test and develop disaster response programmes. iv. Financial reserves and contingency mechanisms are in place to enable effective response and recovery when required. v. Procedures are in place to exchange relevant information during disasters and to undertake post-event reviews.

Hyogo Framework for Action: Strategic Goals

Strategic Goal	**Recommended Indicators**
1: The integration of disaster risk reduction into sustainable development policies and practices	i. National development plans include elements which address disaster risk reduction. ii. All international plans and programmes such as: a. poverty reduction strategies b. common programming tools of the UN and international agencies c. climate change adaptation plans and strategies d. donor-supported country development assistance programmes include elements which address disaster risk reduction.
2: Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards	i. A national policy framework for disaster risk reduction exists, which includes policies, plans and activities for national to local administrative levels. ii. A national multi-sectoral platform for disaster risk reduction is functioning. iii. Dedicated and sufficient resources are available for planned activities to reduce disaster risks.
3: The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes.	i. The national policy framework incorporates disaster risk reduction into the design and implementation of emergency, response, recovery and rehabilitation processes. ii. Post-disaster reviews are routinely undertaken to learn lessons on risk reduction and these lessons are incorporated into plans and preparedness for response

A Mid-Term Review of the HFA was undertaken in 2010 that highlights a need to develop and improve the opportunity to create synergies to ensure coordinated and coherent action on disaster risk reduction across different sectors of government (ESCAP 2011). Setting and monitoring national and/or regional targets can help in accelerating HFA implementation through 2015 and there is a need for further regional and national standards development.

Oxfam's response to the Mid-Term Review argues that governments should ensure that the views of civil society and vulnerable communities are incorporated into national reporting and evaluation (Oxfam 2010). They emphasise the need to disaggregate disaster-related statistics by gender to raise the priority of addressing gender inequality as crucial to reducing disaster losses. They suggest a system of voluntary national targets that work on a `peer pressure´ basis amongst national states as a way to generate more momentum behind the process. They suggest a baseline survey in order to facilitate an informed discussion to identify potential indicators and the appropriateness of voluntary national targets.

2.2 Inter-American Development Bank Risk Management Index (RMI)

The Inter-American Development Bank’s Risk Management Index (RMI) assesses the organisational, development, capacity and institutional actions taken to reduce vulnerability and losses, to prepare for crisis and to recover efficiently from disasters (Inter-American Development Bank 2010). The system of indicators covers: potential damages and losses resulting from extreme events; recurrent disasters

or losses; social and environmental conditions that make countries or regions more disaster prone; the capacity of the economy to recover; the operation 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 transfer); emergency response levels; and preparedness and recovery capacity. The RMI consists of major public policies or components, each of which is measured by six indicators with performance levels rated on a scale ranging from low to incipient, significant, outstanding and optimal.

Public Policy/ Component	**Indicator**
Risk Identification (RI) *Individual perceptions, how those perceptions are understood by society as a whole and the objective assessment of risk*	RI1. Systematic inventory of disasters and losses RI2. Hazard monitoring and forecasting RI3. Hazard evaluation and mapping RI4. Vulnerability and risk assessment RI5. Public information and community participation RI6. Risk management training and education
Risk reduction (RR) *Prevention and mitigation measures*	RR1. The extent to which risk is taken into account in land use and urban planning RR2. Management of river basins and environmental protection RR3. Implementation of control and protection techniques prior to hazard events RR4. Relocation of persons living in disaster prone areas and improvements to housing in those areas RR5. Updating and enforcement of safety standards and construction codes RR6. Reinforcement and retrofitting of public and private assets
Disaster Management (DM) *Measures of response and recovery*	DM1. Organisation and coordination of emergency operations DM2. Emergency response planning and implementation of warning systems DM3. Supply of equipment, tools and infrastructure DM4. Simulation, updating and testing of inter-institutional response capability DM5. Community preparedness and training DM6. Rehabilitation and reconstruction planning
Governance and Financial protection (FP) *Institutionalisation and risk transfer*	FP1. Decentralised organisational units, inter-institutional and multi-sector coordination FP2. Availability of resources for institutional strengthening FP3. Budget allocation and mobilisation FP4. Existence of social safety nets and funds FP5. Insurance coverage and loss transfer strategies for public assets FP6. Housing and private sector insurance and reinsurance coverage

Cardona and Carreño (2011) note that the demands for information for the Inter-American Development Bank Indicators, including the RMI are relatively onerous in some cases as certain variables or types of information are not readily available. Doubts may also exist as to the veracity and accuracy of some items of information. Official employees of national risk management institutions who undertake the analyses may be open to bias analysis to positively favour the country's capacity,

whereas the alternative, using informed independent persons and academics may create other problems. A cross-check double entry approach by officials and informed independent people or groups, may strengthen the analysis overall.

Though the system of indicators has been opened up to scrutiny and discussion by international advisors, academics, risk professionals and a limited number of national technical and professional staff it may be advisable to organise a series of national dialogues where the derived indicator results and implications are presented to a selected number of national level policy- and decision-makers. This would allow a testing of relevance and pertinence and offer conclusions for future research and refinement of the indicators.

Overall, Cardona and Carreño (2011) conclude that the RMI is novel and far more wide-reaching in its scope than other similar attempts in the past. It can show the fastest rate of change given improvements in political will or deterioration of governance.

2.3 FAO Resilience Score

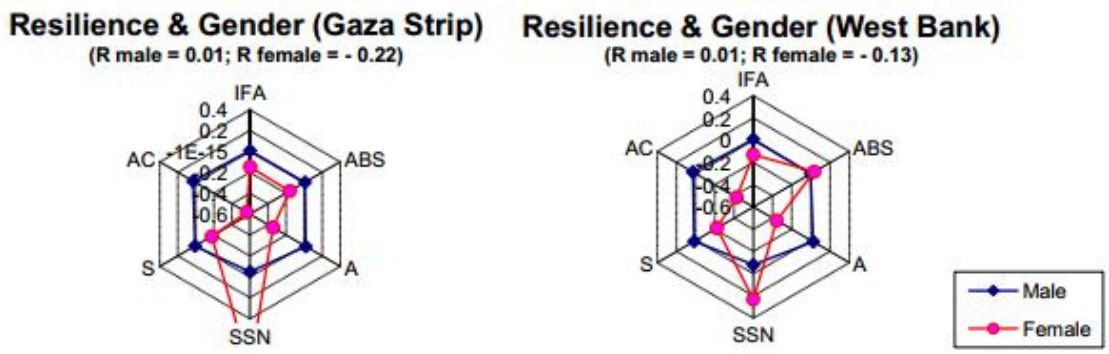
The Food and Agriculture Organization of the United Nations (FAO) has developed a food resilience tool together with the EU (EU-FAO n.d.) to identify factors that make households resilient to food security shocks and stresses, and which can be aggregated to the national level. Data from national household budget surveys are combined to give an overall quantitative 'resilience score' which can be used to identify where investments need to be made to build resilience to food security shocks.

Component	Indicators
Income and Food Access (IFA)	• Average per person daily income (local currency/person/day) • Average per person daily expenditure (local currency /person/day) • Household food insecurity access score • Dietary diversity and food frequency score • Dietary energy consumption (kcal/person/day)
Access to Basic Services (ABS)	• Physical access to health services • Quality score of health services • Quality of educational system • Perception of security • Mobility and transport constraints • Water, electricity and phone networks
Social Safety Nets (SSN)	• Amount of cash and in-kind assistance (local currency/person/day) • Quality evaluation of assistance • Job assistance • Frequency of assistance • Overall opinion of targeting
Assets (A)	• Housing (number of rooms owned) • Durable index (Principal Component Analysis on list of items: TV, car, etc.) • Tropical Livestock Unit (TLU) equivalent to 250 KG • Land owned (in hectares)
Adaptive Capacity (AC)	• Diversity of income sources • Educational level (household average) • Employment ratio (ratio, number of employed divided by household size)

	• Available coping strategies • Food consumption ratio (share of food expenditure divided by total expenditure)
Stability (S)	• Number of household members that have lost their job • Income change • Expenditure change • Capacity to maintain stability in the future • Safety net dependency • Education system stability

Though this framework does focus on resilience at the household level, this analysis is aggregated to a national or regional (i.e. sub-national regions) level. FAO (2010) demonstrates for example how this framework can be applied to food security in Palestine. Data collected according to each component or the five 'pillars' of the tool conceptual framework are converted into numerical variables to present the level of resilience on a logarithmic scale (see below).

Figure 1. Food resilience differentiated by gender in the Gaza Strip and the West Bank



The factsheet states that 'the level of resilience, as calculated, can help determine the kind of interventions needed in acute food shortages – cash or food aid – in that particular country' and this analysis 'helps design long-term aid interventions and provides a solid analytical basis for inter-agency joint programming' (FAO 2010: 2).

3. National Frameworks

3.1 Mozambique

Mozambique is affected by natural risks that include floods, drought, cyclones and earthquakes. The *Master Plan for Disaster Prevention and Mitigation* focuses on reducing community and infrastructure vulnerability (Mozambique Council of Ministers 2006). The programme is structured in general objectives, outputs and activities to be undertaken in order to achieve the defined results. For each output, performance indicators are defined.

Outputs	Activities	Performance Indicators
Objective 1: To reduce vulnerability to hunger due to drought in areas with cyclic lack of water and with annual precipitations bellow 500 mm.		
1. Build water reservoirs to supply the population that live in semi-arid and arid zones in the country.	• Map arid and semi-arid zones in sufficient detail for planning and monitoring. • Rapid appraisals to select reservoir locations. • Construction of water reservoirs.	• Number of people in semi-arid zones that have access to at least 50 per cent of their water needs per capita; annual availability of water; number of reservoirs functioning.
2. Guarantee that each family has at least 500m2 of irrigated land for vegetables and fruit trees.	• Community-managed small scale irrigation systems with priority to drip irrigation system or complementary irrigation.	• Number of hectares in small scale irrigation schemes.
3. Introduced conservation agriculture and agro-forests practices.	• Inventory of existing practices of conservation agriculture and agro-forest activities. • Expand practices using demonstration centres, extension services, and other means. • Introduce conservation agriculture and agro-forest practices.	• Establish agriculture experimental centres • At least 25 per cent of the target population participating in conservation agriculture. • At least 10 per cent of the target population must be engaged in agro-forestry.
4. Introduced post-harvest management practices.	• Identify and implement ways to harvest agricultural products by physiological maturations, ways of drying and storing agricultural products, off-on farming processing practices and micro-credit schemes	• Existence of agro-industrial extension units in all districts. • Distributed at least 100 agro-processing machines.
5. Introduced of drought tolerant crops and practices of cultivating wild crops that are adapted to arid and semi-arid areas.	• Identify and introduce drought tolerant crops through low-cost technology research and extension. • Investigate the nutritional value of these crops. • Select most promising plants and investigate methods for cultivation. • Disseminate results.	• Create and establish research stations adapted to semi-arid zones. • Development of short cycle cultures and varieties tolerant to drought. • Cultivate local crops currently considered as wild
6 Introduced ways of converting and/or integration of rural economy.	• Adopt community based land use planning system to identify non-agriculture resource uses. • Adopt and implement spatial planning methodologies to drive non-farming development. • Create incentives to attract private, community and family investments to explore comparative advantages. • Introduce new ways to disseminate appropriate technology in the development of non-agricultural	• Finish resources identification process and planning system. • Implement complementary or alternative projects to agriculture, by district, of which at least 10 will be in establishment and at least five in full flagged operation.

Outputs	Activities	Performance Indicators
	economic drivers.	
7. Introduced ways and means of ecological rehabilitation. .	• Introduce tree species in arid and semi-arid zones through reforestation nurseries. • Create incentives for communities, companies and public services to participate in reforestation and forest management • Implement firewood biomass management programmes • Identify erosion zones. • Define and implement ways to control the erosion.	• Hectares of forest planted.
8. Introduced ways of agricultural insurance schemes. .	• Implement community-based agricultural insurance projects. • Gather existing agricultural insurance experiences. • Create legal and regulatory mechanisms to incentivise insurance companies and agricultural producers to adopt the agricultural insurance practices.	• Insurance for natural calamities. • Legislation and regulation that incentivises insurance companies to implement agricultural insurance. • Incentives that motivate individuals to insure property against natural calamities
Objective 2: Reduce human losses and property destruction due to disasters caused by cyclones, floods, earthquakes and other natural induced calamities.		
1. Created and disseminated information about risks related with cyclones, floods and earthquakes.	• Mapping areas vulnerable to cyclones, storms and earthquakes in appropriate scale. • Map main river basins. • Expand weather forecast network system and points of measuring river levels. • Establish computerised system for efficient use of weather forecasting data, river basin information, food security and early warning systems. • Acquire computerised products to evaluate risks and impacts related to storms, cyclones and floods. • Acquire appropriate technologies and scientific investigation to improve planning, readiness, mitigation and response to disasters. Insure all public infrastructure of capital interest • Guarantee resistance of public infrastructure of capital interest to earthquakes, cyclones and floods. • Establish citizen incentives to insure	• Establish Agro-Processing Centres and Early Warning Regional Centres against floods and cyclones. • National coverage of data collection for rain and river levels. • Approve legislation related to the construction of infrastructure resistant to cyclones and earthquakes. • Establish risk management committees in each risk prone district.

Outputs	Activities	Performance Indicators
	property against natural calamities. • Establish community and district level insurance against property destruction by cyclones, floods and earthquakes. • Create community based risk management committees • Expand and modernise earthquake stations • Cooperation with international institutions so they have access to information that can improve early warning systems.	
2. Reduced human vulnerability to floods in the main cities in the country.	• Topographical maps of all capital cities to reasonable scale. • Identify areas easily flooded, population that live in the identified areas and places for relocation • Implement relocation strategies that take into account social, economic and cultural balances based on incentives such as better houses and less vulnerability to floods. • Formulate and enforce drainage system standards. • Establish agreements with municipalities for better latrines and public toilets.	• Resettlement of flood-affected urban population. • Agreements with municipalities to implement agreed standards and code of practices for drainage.
3 Existence of search and rescue units and emergency management plans.	• Establish with Ministries of National Defence, Interior and Health, Mozambique's Red Cross Civil Protection National Unit (UNAPROC) a search and rescue plan for victims of disasters, as well as monitoring of the impact of natural disasters. • Formulate emergency manual of procedures with detailed indication of tasks, duties and code of conduct of each sector • Deploy UNAPROC in units of intervention, information and monitoring in every school, hospital, neighbourhood, community and workplace. • Prepare training courses for every member of UNAPROC at all levels. • Acquire basic operation equipment for UNAPROC at all levels.	• Establishment of Search and Rescue Operations Bases. • Creation of Civil Protection National Unit and its operating rules and territorial deployment strategy. • Establishment of a Special Contingency Fund to use in case of emergency.

Outputs	Activities	Performance Indicators
	• Ensure updated emergency plans, permanent availability of contingency rehabilitation funds and infrastructures • Establish and enforce legal mechanisms to enforce education amongst security entities concerning ways to act in case of disasters.	
Objective 3: Minimise the suffering of population caused by natural disasters		
1 Created conditions for fast and efficient response to damages caused by natural disasters.	• Establish emergency operation rooms in key national agencies can operate continuously during an emergency	• Existence of information and direct communication channels between provinces and key national agencies
2. Established an organisational capacity that allows for coordinated intervention in case of emergency.	• Formulate manual of procedures for all emergency interventions • Identify meeting point for all organisations that intervene in the emergency. • Capacity to determine what is an emergency. • Establish legal and regulatory mechanisms that enforce a chain of command during a declared emergency. • Inventory in the whole country of methods that can be used in national emergency situations. • Create mechanisms that regulate cooperation with the private sector. • Design logistic mechanism that combines INGC capacities with partners to store, transport and distribute in time emergency goods and services. • Define operation base for humanitarian assistance. • Establish mechanisms to share information through the operation rooms and appropriated technologies. • Put available facilities that can act as temporary shelters, clinics and schools in pre-defined strategic places. • Define strategic points where water and water treatment products can be immediately available.	• Number of annual simulations per district and per province.

Objective 4. Reassure a quick and harmonious reconstruction process		
1. Created conditions for a quick mobilisation of resources for rehabilitation of affected social tissue and destroyed critical infrastructures.	• Create database about naturally induced disasters in the country. • Create evaluation system of the impact of disasters to assess effects. • Make use of the international appeal mechanisms. • Establish and maintain database of entities and individuals insured against property loss • Guarantee that insurance companies act quickly to compensate clients especially the most vulnerable.	• Establishment of a specialised unit in Law, Resources Mobilisation, Communication and Image.

3.2 Philippines

The 2011 Philippine Development Plan contains two sections related to national capacity to cope with humanitarian risk (Philippine National Economic and Development Agency 2011): Chapter 9 on Peace and Security (sector outcome: 'stable national security environment achieved'), and Chapter 10: Conservation, Protection and Rehabilitation of Environment and Natural Resources (sector outcome: 'resilience of natural systems enhanced with improved adaptive capacities of human communities').

Objectives/Results	Indicators/Unit
Highest standard of capability and preparedness for natural calamities and disasters.	Increase in number of buildings and establishments that are compliant with fire code as proportion of total number of inspections conducted.
	Percentage of calls for emergency/rescue due to fire incidence responded to within the prescribed period increased.
	Increase in the number of investigations with cause and origin of fire determined with prescribed time as proportion of total number of investigations conducted.
	Increase in the number of emergency medical rescue and other non-fire emergency calls responded to within prescribed response time of 10 minutes.
	Enhanced disaster response capabilities and operations.
Resilience of natural systems enhanced with improved adaptive capacities of human communities.	Reduced annual damages and losses (properties) due to natural disasters, environmental hazards, human-induced and hydro-meteorological events (proxy indicator).

Objectives/Results	Indicators/Unit
	Reduced loss of lives and causalities due to natural disasters, environmental hazards, human-induced and hydro-meteorological events (proxy indicator).
Adaptive capacities of national and local governments for CCA and DRRM increased.	Climate change adaptation and disaster risk reduction management enhanced national, sectoral, regional and local development plans.
Resilience of natural systems enhanced.	Climate change mitigation and adaptation strategies for key ecosystems developed and implemented.
Adaptive capacities of the communities improved.	Climate change-adaptive human settlements and services developed and/or implemented.
	Climate change-resilient, eco-efficient and environment-friendly industries and services, and sustainable towns and cities developed, promoted and sustained.

4. Adaptive capacity and risks related to climate change

Frameworks for assessing capacity to cope with humanitarian risk in the context of climate change have been explored at the national and regional levels. Adaptive capacity[1], resilience and vulnerability are key interrelated concepts in this field (Brown and Westaway 2011, 323). Adaptive capacity 'reduces a system's vulnerability to hazards occurring in the future (allowing the system time to adapt in an anticipatory manner) or to hazards that involve slow change over relatively long periods, to which the system can adapt reactively.' (Brooks 2003, 9)

Adaptive capacity can be assessed through a mix of generic indicators such as education, income and health, and more specific indicators such as institutions, knowledge and technology linked to specific risks relevant to a particular location, such as drought or floods (IPCC 2007, 17.3.1). Adaptive capacity is not only influenced by economic development and technology, but also by social factors such as human capital and governance structures (IPCC 2007, 17.3.1), while 'high income per capita is considered neither a necessary nor a sufficient indicator of the capacity to adapt to climate change' (Moss et al. 2001, in IPCC 2007, 17.3.1).

Governance and institutions are widely considered to be important factors for adaptive capacity and resilience. The IPCC for example highlights 'social capital, social networks, values, perceptions, customs, traditions and levels of cognition' as significant factors (2007, 17.3.1). Kaplan (2009) argues that illegitimacy, poor governance, and ineffective and illegitimate institutions harm the capacity for resilience, while highly resilient states make good use of 'local identities, local capacities, and local institutions'. The same, says Kaplan, applies to resilience to other kinds of shocks including the global financial crisis. Brown and Westaway (2011) suggest that at the highest level, adaptive capacity depends on six factors, many of which are related to governance or institutions:

1. recognition of the need to adapt;
2. a belief that adaptation is possible and desirable;

[1] "the ability or potential of a system to respond successfully to climate variability and change" (IPCC 2007, 17.3.1)

3. the willingness to undertake adaptation
4. the availability of resources necessary for implementation of adaptation measures;
5. the ability to deploy resources in an appropriate way; and
6. external constraints, barriers and enablers of implementation.

While these general principles seem widely accepted and suggest the need to explore indicators of governance and institutions, Brooks, Adger, and Kelly (2005) examine a range of more specific indicators of vulnerability and identify eleven that show significant correlations with mortality:

- population with access to sanitation,
- literacy rate, 15–24-year olds,
- maternal mortality,
- literacy rate, over 15 years,
- calorific intake,
- voice and accountability,
- civil liberties,
- political rights,
- government effectiveness,
- literacy ratio (female to male), and
- life expectancy at birth.

They too emphasise the particular importance of governance, civil and political rights, and literacy as indicators of adaptive capacity, and note that GDP *per se* is not a significant indicator.

CARE's *Climate Vulnerability and Capacity Analysis Handbook* (2009) presents an approach to assessing adaptive capacity which encompasses the individual, household, community, local government and national levels. When conducting analysis at the national level, CARE recommends undertaking an institutional mapping exercise, policy analysis and key informant interviews, and suggests the following 'guiding questions'.

Resilient Livelihoods	• Is the government monitoring and analysing current and future climate information related to livelihoods? • If so, is this information being disseminated? How? To whom? • What are the observed and predicted impacts of climate change for the country? • What livelihood groups or economic sectors are most vulnerable to climate change? • Is climate change integrated into relevant sectoral policies? • Is climate change integrated into poverty reduction strategy and/or other development policies and programs?
Disaster Risk Reduction	• What are the most important climate-related hazards the country faces? Non-climate related? • Are there particular parts of the country that are vulnerable? • How are hazards likely to change over time as a result of climate change? • Is the government monitoring and analysing disaster risk information? • If so, is this information being disseminated? How? To whom? • Is the government engaged in planning and implementation of disaster risk management? If so, which ministries and/or government agencies are actively involved?

	• Is climate change integrated into planning for disaster risk management? • Are functional early warning systems (EWS) in place at the national level? • Does the government have the capacity to respond to disasters? • Which other institutions are engaged disaster risk management at national level?
Capacity Development	• What institutions are involved in research, planning and implementation of adaptation? • What are the most important institutions in facilitating or constraining adaptation? • Does the government have capacity to monitor and analyse information on current and future climate risks? • Are there mechanisms in place to disseminate this information? • Is an appropriate structure in place within the government with a mandate to integrate climate information into relevant policies? • Is this information being integrated into relevant policies? • Are national policies rolled out at regional and local levels? Is the government responsive to local priorities? • Are resources allocated for implementation of adaptation-related policies? What is the budget? Where are the resources coming from? • What are the existing capacity and resource needs and/or gaps for climate change adaptation? • What new capacities may be needed to address changing circumstances due to climate change?
Addressing Underlying Causes of Vulnerability	• Do those responsible for climate change policies and programmes demonstrate understanding of the link between poverty and climate change vulnerability? • Do those responsible for climate change policies and programmes recognise the specific vulnerability of women and other marginalized groups to climate change? • Is this knowledge and recognition translated into policy and implementation of programmes? Do policies and programmes support empowerment of vulnerable groups? • Do vulnerable groups have advocates at national level? • Is civil society involved in planning for adaptation?

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