United Nations
International Strategy for Disaster Reduction

Briefing Note 04

Effective measures to build resilience in Africa to adapt to climate change

Key messages:

- Some evidence is available to show that Gross Domestic Product (GDP) growth in African countries is under threat from the impact of natural hazards, particularly agricultural drought. This evidence remains patchy as availability of data on disaster losses in Africa is low.
- National reports prepared by African countries on the implementation of the *Hyogo Framework for Action and the related Africa Regional Strategy for Disaster Risk Reduction (2006-2015)* provide useful examples of efforts by countries to address risk of natural hazards in their national and local planning and budgeting.
- Ongoing monitoring and analysis of the efforts to integrated disaster risk reduction into poverty reduction and key development sectors show that such efforts are cost effective however institutional capacity remains low and the level of financing insufficient.
- Climate change adaptation plans can benefit from the efforts carried out by countries and institutions to implement the *Africa Regional Strategy for Disaster Risk Reduction* and the funds available for climate change adaptation can be effectively used to assist African countries address the related gaps in capacity and resources.

Geneva, December 2011

United Nations

Context

African countries are amongst the most vulnerable to the impacts of natural hazards (see box 1), whilst also showing an increasing commitment to address disaster risk. This is necessary if the continent is to protect the development gains demonstrated by an economic growth rate last year of 4.9 percent and forecast growth of 3.7 percent in 2011 despite the global economic turmoil.

Governments in Africa, such as Mozambique, Senegal and Uganda are investing resources to reduce the risk to natural hazards. A close examination shows that African countries are experimenting with different approaches to offset the impacts of natural hazards on their economies, with contingency funds, emerging risk transfer schemes, as well as investments to address disaster risk in their national and local public planning and budgeting.

Globally, the relevance of existing disaster risk management institutions, expertise and tools to assist with climate change adaptation is well established (See UNISDR Briefing Note No 3). This applies particularly to the assessment of disaster impacts and vulnerability to climate change as well as to the identification of good national and community practices in climate risk management.

However, the importance of efforts by countries and communities to address the risk of future natural hazards remains insufficiently recognized in discussions on climate change adaptation and these efforts are seldom identified as potential activities to be funded as part of adaptation financing despite the proven cost-effectiveness, the contribution to longer term development objectives and the sustainable nature of the impact.

This Briefing Note seeks to address this gap and builds on the information provided by countries in their reports on progress in the implementation of the Hyogo Framework for Action. It also builds on the facts provided by the Special Report on Extreme Events of the

Intergovernmental Panel on Climate Change (IPCC/SREX)[1] and in particular the finding that 'opportunities exist to create synergy in financing for disaster risk management and adaptation to climate change'.

Impact of natural hazards and climate change in Africa

Africa is the world's second-largest and second most-populous continent after Asia. With about 922 million people (as of 2005) in 61 territories, it accounts for about 14.2% of the world's human population. In the period 2000-2008, Africa accounted for over 20% of all the weather and climate-related disasters that occurred globally while the economic set-back was only 0.6% of global economic losses (UNISDR, 2011)[2].

[1] Summary for Policymakers of the Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (IPCC/SREX, 2011)

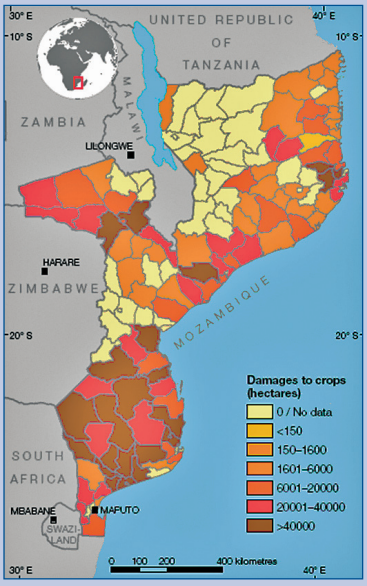
[2] The relatively low level of economic impact is probably due to the fact that Africa has less infrastructure and other assets exposed to disasters as well as the fact that a number of impacts, such as loss of human lives, cultural heritage, and ecosystem services, are insufficiently measured or reported and thus they are poorly reflected in estimates of losses. It is widely believed that in Africa the impacts of natural hazards on the informal or undocumented economy may be important in some areas and sectors, but these impacts are not generally counted in reported estimates of losses.

Africa has the highest mortality-related vulnerability indicators for droughts. In the last thirty years, seven out of the 10 worst drought disasters in the world have taken place in sub-Saharan Africa. The number of people exposed to floods in the region grew from 500,000 per year in 1970 to almost 2 million people per year in 2010. Flood mortality risk is still increasing consistently in sub-Saharan Africa, despite a downward global trend (see box 2) (GAR, 2009 and 2011). The famines that hit parts of Africa from the mid to late eighties account for the larger part of the burden regarding the number of casualties (Ethiopia – 300,000, Sudan – 150,000, Mozambique – 100,000, Somalia – 600). What is striking is that all these instances are characterized by having occurred during a period of civil conflict as well as in the context of high levels of poverty.

By 2008, 13 African countries had achieved middle income status and poverty had fallen from 58% in 1996 to 50% in 2005. However, 380 million people, approximately 50% of the continent's population, continue to live in poverty (taking the poverty line of 1.25 dollars a day) and 39 of the world's poorest countries are located in this region.

1. The disaster problematic in Africa[1]

While African countries have experienced large scale disasters, such as the 2011 drought in the Horn, most disaster impacts related to smaller, recurrent events with potentially high localized impacts. The Global Assessment Report (GAR 2011) demonstrates that this is the case in other regions as well. However, available data from countries like Mozambique, who monitor disaster losses due to drought systematically (see map), points towards a higher percentage of losses due to extensive risk in Africa.



Another important factor behind the levels of vulnerability is the dynamics behind the rapid urbanization in African cities. While growing urban populations in Latin America and Asia are partially driven by industrialization processes, studies show that this economic basis for urbanization is weaker in Africa. This is one of the possible elements that consequentially lead to insufficient levels of urban planning and government investments in infrastructure. The high proportion of informal settlements in African cities is one of the factors behind the high impacts of recurrent floods in Nairobi slums for example.

A direct implication of the above is the need to address the underlying risk drivers of poverty, rapid urbanization, desertification and environmental degradation in Africa, maybe more than anywhere else, by ensuring basic development, urban planning and infrastructure are in place. Factors such as access to irrigation, markets, credit and choice of crops in rural areas and investment in basic infrastructure in urban areas are critical factors for reducing disaster risk.

[1] Research papers are available and have been reviewed in the context of the Global Assessment Report and other publications that reflect the unique context of risk to natural hazards in Africa.

While key sectors such as transportation, infrastructure, water, and tourism are sensitive to extreme events in Africa, it is the agriculture sector that is particularly exposed and vulnerable (IPCC, 2011). It contributes approximately 50% to Africa's total export value and approximately 21% of its total GDP (PACJA, 2009). With the least efficient agriculture industry in the world, sub-Saharan Africa is extremely vulnerable to extreme climate events. The economies of many African countries rely heavily on rain-fed agriculture, dominated by small-scale and subsistence farming.

A continent committed to reducing disaster risk

Africa has a long history of regional political commitment to disaster risk reduction – often acting as a pioneer in recognizing the importance of preventive action to reduce disaster risk. Africa acted on the impetus provided by the global blue-print for disaster risk reduction, the *Hyogo Framework for Action 2005-2015: Building the Resilience* to adopt its own *Africa Regional Strategy for Disaster Risk Reduction.*

The topic is beginning to be discussed between finance ministers in Africa, who recently called for 'institutionalizing effective financial and other instruments such as strategic grain reserves, budgeted contingency funds as well as through sharing risk across [sub]regions' (African Ministers of Finance in Lilongwe, Malawi, 29-30 March 2010).

Shortly afterwards, at the Second Ministerial Conference On Disaster Risk Reduction, held in Kenya in April 2010, governments came closer to making a commitment to allocating a certain percentage of their national budgets and other revenue to disaster risk reduction and will report on progress in this area at the next Ministerial Conference in 2012. At the same event, ministers decided to initiate a study into the establishment of a regional funding mechanism for disaster risk reduction which allows Member States to access existing, and future, regional and global funds for climate change adaptation and disaster risk reduction.

Local authorities in Africa are also demonstrating some commitment to addressing climate change and disaster risk. The Mayors of Cape Town, Durban, St. Louis, Maputo, Dar Es Salaam, Kisumu, Nairobi, Arusha, Bujumbura, Kigali for example, have all recently signed up to an international campaign Making Cities Resilient: "My city is getting ready" that holds them accountable to 10 principles that strengthen the resilience of their urban populations (www.unisdr.org/campaign).

Investments in disaster risk reduction in Africa

Overall, investments in disaster risk reduction in Africa remain low. 29 African countries have now reported on progress in implementing the Hyogo Framework for Action and just over half have reported some form of resources dedicated to the implementation of disaster risk reduction, demonstrating the burgeoning move from policy to practice. Most countries reported funds allocated to disaster management institutions and a small number were referred to investment in planning and development sectors (see box 3).

2. Measuring impacts of disasters on economy and poverty in Africa remains challenging (GAR, 2009 and 2011)

Data availability is a major constraint to measuring the disaster impacts effectively in Africa. Some case studies are available, however, based on the analysis of the impact of drought in areas which benefited from quantitative data collection and/or with detailed data that allow an appropriate identification of what would have happened if the disaster had not taken place. Based on the available data, Kenya, Ethiopia, and Burkina Faso are among the most drought-prone countries in the region. However data is not available for all countries and does not, for example reflect the severity of the event. Zimbabwe and Nigeria do have sufficient information to demonstrate that drought impacts on their economies are as large as 8-9 and 4-6 percent of GDP, respectively (UNISDR/World Bank, 2008). A 2009 World Bank study of Malawi, using an economy-wide general equilibrium model, found that droughts and floods reduce total GDP by an average 1.7 percent per year and that GDP declines by at least 9 percent during a severe 1-in-20 year drought thereby establishing a strong case for investment in risk reduction in that country.

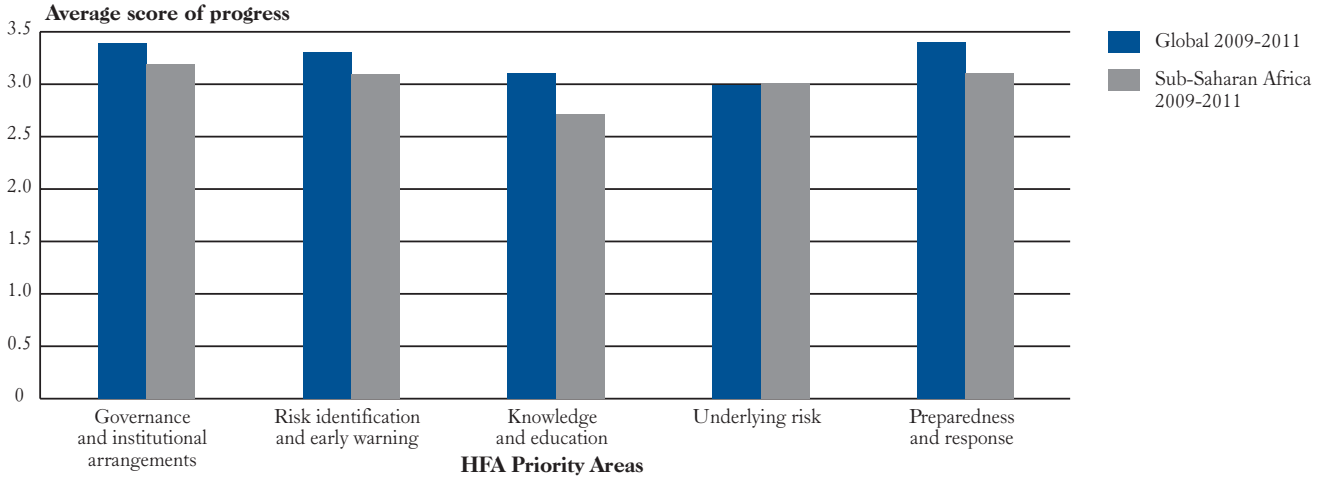
Evidence does show important long-run consequences of disasters on persistence of poverty. For example, evidence is available from Zimbabwe, Tanzania and Ethiopia that long term loss of assets, stunting and lower educational attainment are linked to drought occurrence. In Côte d'Ivoire, school enrolment rates declined by 14 and 11 percentage points among boys and girls, respectively, living in areas that experience a rainfall shock while increasing in all other areas.

In Senegal, the Ministry of the Interior's budget provides core funding for the Directorate of Civil Protection and, in Uganda, financial allocations are made annually to the Disaster Management Department based on its work plan and required budget which includes disaster risk reduction. Mozambique stated 53.9% of resources dedicated to the ministry in charge of disaster management were allocated to disaster risk reduction.

responsible for disaster management or disaster reduction.

In Senegal, a National Emergency Fund has recently been established, over and above the core funding provided for the functioning of the Directorate for Civil Protection. An alternative model is in place in South Africa, where all organs of state have to budget for disaster response and recovery costs, and once their budgets are exhausted they

3. The Global Assessment Report shows that in Sub-Saharan Africa, in line with global trends, investment levels lag behind political commitments (UN, GAR 2011)



International standards and methodologies for accounting for disaster risk reduction investments in development sector budgets do not exist yet, so comparing figures provided by countries should be done with caution. For example, the fact that Mozambique has indicated that 317.19 million USD of its national budget is allocated to hazard-proofing sectoral development investments is encouraging and the approach deserves to be better understood and documented. Budgetary information of this nature remains the exception rather than the norm as Governments often lack the capacity to disaggregate specific budgetary allocations to disaster risk reduction.

Inadequate financial resources were cited as a constraint by 74% of HFA reporting countries in Africa including those that had committed finance to disaster risk. Several also commented on the ad hoc nature of disaster risk financing and the need for a more stable and systematic stream of funding.

Most African governments make some regular annual budgetary provision for potential disaster events to help meet immediate humanitarian relief needs. 61% of the reporting countries indicated that they had established financial reserves for disaster response. The trend is that funds are generally held at the national level and administered by the institution

may request financial assistance from the national government using an additional contingency funding mechanism. In the case of Namibia, a national disaster emergency fund does exist and is used for emergency response and for the support of key recovery activities.

Catastrophe insurance facilities and catastrophe bonds have not received as much attention as national contingency funds. The Government of Malawi does use weather derivatives to transfer the financial risk of severe, catastrophic national drought to international risk markets and supports more efficient drought preparedness and contingency planning efforts in the event of poor rains (World Bank, 2009).

Finally, and encouragingly, there is growing uptake of 'build back better' principles in Africa. Most governments do not have dedicated funds for longer-term reconstruction needs. These are typically met via short-term budgetary re-allocations, future capital investment budgets and external grant assistance. While African governments reported overall on a shortage of funds available for longer-term recovery (over 70% of the reporting countries), countries such as Malawi, Burkina Faso, Morocco, Mali, Seychelles, Madagascar and Cape Verde indicated that their post-disaster recovery programmes explicitly incorporate

4. Community participation and decentralization can be ensured through the delegation of authority and resources to local levels (UNISDR, 2011).

Ensuring that resources assigned at the national level reach the communities for which they are intended continues to prove challenging for most countries in the region. Less than half of the countries who reported on the status of implementation of the Hyogo Framework indicated that they have budget allocations dedicated for disaster risk reduction at the local level. However, there are some examples of good practice. For instance, in Ghana, a percentage of the District Assembly Common Fund is allocated to disaster risk reduction activities at the local government level. In Egypt, all ministries and local administrative units (Governorates) have specific budget items for disaster risk reduction. In Namibia, while there is no direct budget allocation for local governments for disaster risk reduction activities from the consolidated revenue, organization of disaster risk reduction for the local level is legally streamlined. The national policy makes provisions for local governments to contribute financially to disaster preparedness, response and recovery through establishment of regional and local authority disaster funds. The local governments are also enabled to access the national disaster fund through requests to the national level when need be.

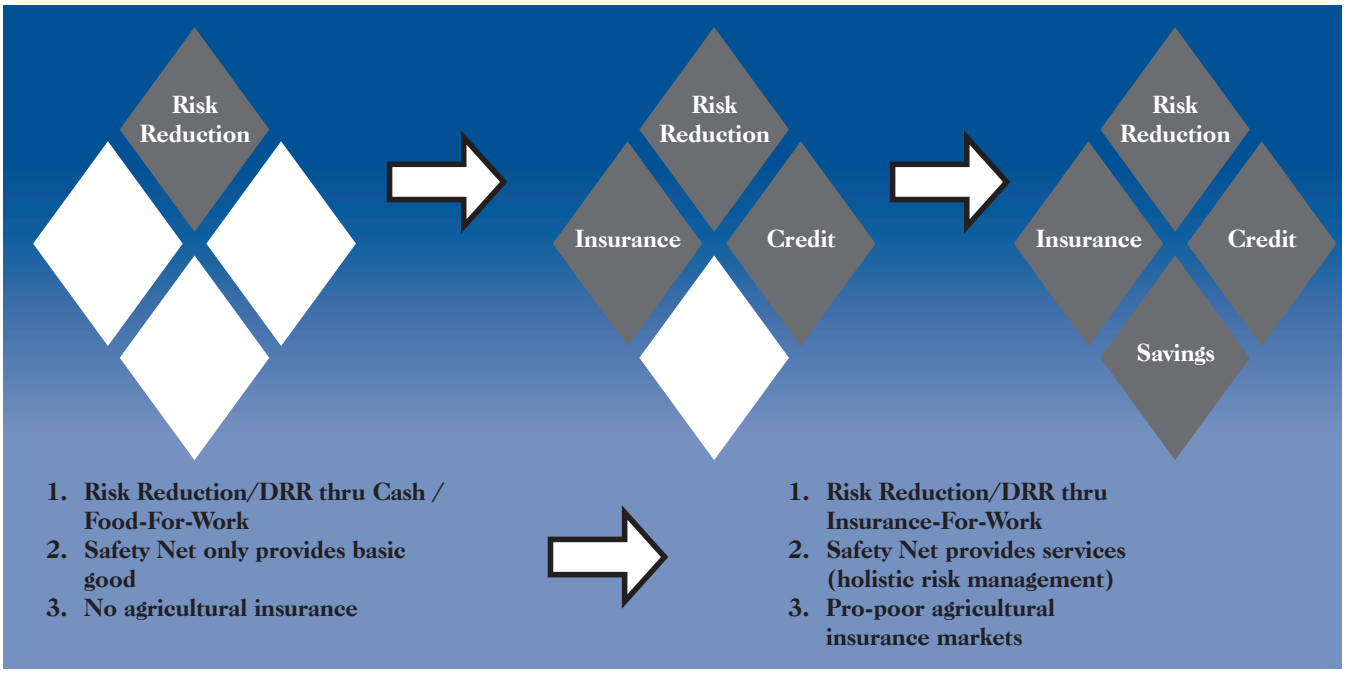
and budget for disaster risk reduction. For example, Senegal reported a 2% margin of reconstruction funds allocated to disaster risk reduction.

Practical actions that are demonstrating results

Innovative initiatives in the Horn of Africa demonstrate that risk reduction in the context of rural resilience and livelihood protection does work. In Ethiopia, for example, farmers pay for insurance with labour which is monetized for insurance purposes as part of an overall social safety net. This partnership between the government, private sector insurance and international partners, including Oxfam and others, has successfully targeted the poorer communities and created rural insurance markets to strengthen resilience. In this particular case, 12,900 households benefit from the crop insurance for drought and 10,965 pay their share with labor (85%), resulting in 383,775 days/work for disaster risk reducing activities, such as water retention schemes.

The Government of Uganda has also demonstrated the effectiveness of measures to reduce risk with a shift towards recovery and development in the drought-affected Karamoja region. The pastoralists in the region were overwhelmingly receiving food aid in 2009, in response to the 2005-2008 drought. With coordination provided nationally through the Office of the Prime Minister of Uganda and through the district local government and supported by international partners,

Figure 5. Ethiopian initiative (HARITA) strengthening resilience to drought and climate impacts through social protection, food security and insurance (Oxfam, 2011)



6. Nonstructural measures for drought resilience in parts of Kenya, Ethiopia and Uganda (UNISDR, 2011)

- **Measures such as 'early warning early action' enhancement, communication and community education have been used in a joint Drought Risk Reduction Project in the Horn of Africa jointly with ECHO, FAO, REGLAP and other implementing partners. Key lessons that emerged from this were the following;**
- **The need for strong chain of communication and cooperation between humanitarian and development partners to avoid duplication, promote joint actions and maximize the overall impacts in drought resilience building;**
- **The need for improved user-friendliness of, and accessibility to, early warning information to promote timely and informed actions by disaster risk management decision-makers and practitioners at different levels;**
- **The need for enhanced understanding of locally available resources, including community embedded knowledge and technologies, and their roles in systematic disaster risk management processes;**
- **The need to increase the role and capacity of media in communication of early warning messages and in disaster risk management in general in order to triggering political support, government commitment and community actions; and**
- **Strengthening of institutional and technical capacity for application of various space technology tools in meteorological, hydrological and agricultural drought monitoring, assessment and early warning.**

a new initiative was launched to protect household assets, by providing vulnerable households with timely employment opportunities along with food/cash transfers. The initiative also puts a strong emphasis on communication and sensitization, and contributes to drought resilience through asset accumulation and diversification. Such risk management principles resonate very strongly with the pastoralist tradition in Africa. While relief efforts in the 2005-2008 drought cost on average 120 USD per person, this recovery and development initiative cost 50 USD per person to implement (WFP, 2011).

While it is difficult to tie such initiatives directly to the commitment of resources for disaster risk reduction in national budgets and regional institutions, it is probable that such initiatives are the result of the growing understanding and capacity developed through national and sub-regional initiatives on disaster risk reduction. The efforts by the African Union Commission and sub-regional commissions such as the Economic Community of Central African States (ECCAS), the Economic Community of Western African States (ECOWAS), Inter-governmental Authority on Development (IGAD) the Southern African Development Community (SADC), the East African Community (EAC), regional and sub-regional specialized institutions are contributing to an enabling environment to better address risk in the development sectors of member countries.

For example, in collaboration with UNDP, ECOWAS governments were trained to do systematic evaluation and assessments of disaster risk. ECOWAS has also extended its Early Warning and Response Network (ECOWARN) - an observation and monitoring tool for conflict prevention and decision-making - to provide early warning of disasters with indicators developed related to natural hazard monitoring. An Emergency Fund has been put in place in order to support ECOWAS member states affected by natural disasters such as floods. Similar examples are available from other sub-regions including the Southern African Development Community which has just established a Regional Platform for Disaster Risk Reduction (see UNISDR Africa Office, www.unisdr.org/africa for additional cases).

The EAC has recently developed a disaster risk management framework for the sub-region and a disaster risk management unit is being created to address and coordinate disaster preparedness and response issues in the region.

Demonstrating that disaster risk reduction investment pays in Africa

A growing number of studies are now available in Africa showing that certain initiatives not only contribute to strengthening communities' resilience, they also make economic sense. For example, investments in activities such as terracing and construction of earth dams and embankments that enable households to increase and diversify agricultural activities in the Red Sea Hills of Sudan are also reducing the beneficiary communities' vulnerability to droughts. The cost benefit analysis indicated that these projects were not only highly beneficial for ensuring diversified incomes for the participating communities; they also reduce the cost of responding to future disasters by a ratio greater than 1:25 in some interventions (IFRC, 2011).

In another example, the cost-benefit analysis of a drought risk reduction and food security programme in a Malawian agricultural community shows that for every 1 USD invested the project activities delivered 24 USD of net benefits in terms of household income and assets, education, health and reduced mortality rates (Tearfund, 2010).

While the evidence of the net economic returns to investment is powerful and demonstrates that such spending can save money in the long term, each piece of analysis is highly context-specific and the overall body of evidence far too limited to draw up simple conclusions on the returns to different types of risk reduction investment. Net returns to individual disaster risk reduction investments vary according to a host of local demographic, socio-economic, geographical and other factors and, of course, to the frequency and intensity of the natural hazard(s) faced and the choice of discount rate (Benson, 2010).

As in other regions, ministers of finance in Africa, as well as development partners, the private sector and civil society, require hard evidence that risk reduction pays before they are willing to invest in it. It should be pointed out that positive cost-benefit ratios are not always sufficient grounds for ensuring investment as budgetary resources are limited and other investments may yield higher returns. Nevertheless, evidence of the potential net economic returns to investment in disaster risk reduction is an important foundation in developing a case for investment.

In addition to the net economic benefits, decision makers need to take account of a range of the other value added provided by investments that reduce risk to natural hazards and climate change impacts, such as protection of lives and livelihoods, community cohesion and other social and economic benefits.

Conclusions

There is evidence that investment in disaster risk reduction pays in Africa, reducing both the short and longer-term impacts of disasters on individual households, communities and the wider macro economy and therefore strengthening resilience to climate change impacts. Despite this rapidly growing body of documented evidence, the level of public investment in disaster risk reduction in many countries remains insufficient.

Efforts by national and local authorities to address risk to natural hazards in a holistic manner and which actively engage relevant government actors, civil society and private sector tend to prove more effective in Africa just as in other regions. In particular, if these efforts bring together critical group of development partners; namely those working on, food security, the environment, sustainable livelihoods, urban planning, water resource management and disaster management, while education and health also remain key sectors for this topic.

A useful target in this regard, is for governments and donors to integrate both disaster risk reduction and climate change adaptation concerns into relevant public, private and household investment decisions, based on principles of cost-effectiveness and acceptable levels of risk to human life. This can build on existing efforts initiated in the region.

In order to achieve this, collaboration between the disaster risk reduction and climate change adaptation communities should be enhanced and institutionalized. A strong emphasis must be placed on an enhanced understanding of what constitutes effective development investments that reduce risk to natural hazards, as a necessary guide to decision-making on climate change adaptation funding.

UNISDR Briefing Notes aim to provide practical and objective guidance to policy issues related to disaster risk reduction and climate change adaptation. They draw on information and evidence from the Hyogo Framework Monitor, the Global Assessment Report (GAR), country case studies and other relevant publications.

This and other UNISDR Briefing Notes are available on www.unisdr.org and www.unisdr.org/africa

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