

# Climate Change Adaptation Strategies for Local Impact

Key Messages for UNFCCC Negotiators



*Technical Paper for the IASC Task Force on Climate Change*

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## 1. Introduction

The Copenhagen Agreement to be adopted at COP-15 offers opportunities to significantly advance the climate change agenda and to establish a solid enabling environment for climate change adaptation (CCA). Yet ultimately success in adaptation must be measured in terms of impact on the ground at local level. Compared to climate change mitigation, climate change adaptation policy development is still in its infancy. Since adaptation was put on an equal footing with mitigation in the Bali Action Plan, significant progress in policy development can be observed. Yet the main focus of the debate is on the development of national adaptation strategies and programmes and the support by regional centres.

This paper argues that the proof of effective climate change adaptation strategies will be in improved resilience of the hundreds of millions of people living in communities most vulnerable to the impacts of climate change. Involvement of local authorities and community based organisations in the development of adaptation strategies will be crucial. Risk reduction and risk management are key elements of adaptation. Humanitarian organisations bring decades of experience in working with local actors to support local stakeholders to lead adaptation measures to protect their communities against impending climate risks.

This paper outlines six key strategies for supporting local action on adaptation. These are summarized at right and also described in greater detail in the remainder of the paper.

In addition Annexes 1 and 2 highlight sets of specific recommendations for strengthening the attention to the role of local actors within the current negotiating text. Annex 1 suggests new points for inclusion and Annex 2 suggestions modifications to existing text.

# Climate Change Adaptation Strategies for Local Impact

1. **Prioritize adaptation efforts in communities where vulnerabilities are highest and where the need for safety and resilience is greatest.**
2. **Build projected climate change related trends in today's risk and vulnerability assessment based on current climate variability.**
3. **Fully integrate adaptation into longer-term national and local sustainable development and poverty reduction strategies.**
4. **Prioritize the strengthening of existing capacities** – among local authorities, civil society organizations, and the private sector – to lay the foundations for the robust management of climate risk and the rapid scaling up of adaptation through community-based risk reduction and effective local governance.
5. **Develop robust resource mobilisation mechanisms for adaptation** that ensure the flow of both financial and technical support to local actors.
6. **Leverage the opportunities in disaster prevention and response**, through improved early warning systems, contingency planning and integrated response, to promote effective community-based adaptation and risk reduction.

## 2. Synergy between Adaptation, Development, Risk Reduction and Humanitarian Action

The Fourth Assessment Report of the IPCC (4AR 2007) observes that climate change is already happening. A further acceleration will likely lead to a global temperature rise of two degrees and related increase of extreme weather events.

More extensive adaptation than is currently being applied will be necessary to reduce vulnerability to future climate change. The 4AR states that the presence of other stresses can exacerbate vulnerability to climate change and therefore future vulnerability will depend not only on the degree of climate change but also on the development “pathway” taken. Sustainable development can reduce vulnerability to climate change by “enhancing adaptive capacity and increasing resilience”. Similarly, climate change can slow the pace of progress towards sustainable development through “increased exposure to adverse impact or ... through erosion of the capacity to adapt”.<sup>1</sup> Sustainable development, CCA and DRR agendas need to come together to maximize impact on the ground in reducing vulnerabilities and strengthening resilience.

Still, even with the effective application of CCA integrated into long-term development planning and programming, climate change related disasters are

very likely to increase and humanitarian action will be both necessary and appropriate. Humanitarian action can also provide the foundation for future CCA by creating the enabling environment for improved early warning, information management and community-based disaster preparedness. Ultimately, responding to disaster should be seen as a development action, the advocacy potential from the disaster’s profile itself offering opportunities to build longer-term agendas.

Within the framework of Disaster Risk Reduction (DRR) there have already been efforts to integrate the development and humanitarian perspectives through key policy commitments like the Hyogo Framework for Action (HFA). What is needed now is a scaling up of investment at the local level in the achievement of both development goals incorporating the outcomes of the HFA.

The *Stockholm Plan of Action for Integrating Disaster Risks and Climate Change Impacts in Poverty Reduction* (Oct 2007), with participation from governments, bilateral and multilateral agencies, civil society organisations, experts and researchers, outlines the following five recommendations for linking these related fields:

- I. Disaster risk reduction and climate change adaptation cannot be dealt with in isolation.
- II. Risks due to disasters and climate change must be known and measured.
- III. Disaster and climate change risk analysis must be integrated into national planning processes, including the poverty reduction strategy process, in each country.
- IV. Disaster risk reduction and climate change adaptation are not sectors but need to be factors in all sectors.
- V. Capacity building is required at local, national, regional and global levels.

<sup>1</sup> Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change – Summary for Policymakers, 2007

### 3. The Risks Facing Communities

Ultimately effective growth and development rely on the level of **safety** and **resilience** maintained by communities, where resilience is defined by ISDR as:

*“The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.”*

With the growing impacts of climate change existing threats to safety and resilience are being significantly exacerbated, tremendously increasing the vulnerability of those already at risk. Areas of particular concern include communities with vulnerable livelihoods, food and environmental insecurity, HIV/AIDS, gender inequalities, weak security and governance, lack of infrastructure and education, and lack of access to appropriate resources and capacities.

Experience has shown that safety and resilience can be addressed most effectively by building communities' capacities to reduce their vulnerabilities to hazards, recognizing that risk is ultimately driven by the combination of the hazard environment and vulnerabilities to those hazards. Without addressing the vulnerability side of the equation, community exposure to natural hazards cannot be reduced in a sustainable way that contributes to resilience. Communities must also be willing to ground their efforts in the broader risk context, otherwise distributional issues between communities may arise – for example when communities downstream may face additional risks as a result of the construction of dykes or a reservoir upstream to capture water to enhance the adaptive capacity of communities there. These are critical lessons for climate change adaptation – adaptation can only be successful in a proactive and resilience-building process which is strongly linked to an ongoing agenda of risk reduction embedded in sustainable development.

### 4. The Roles of Local Actors

Local actors are the key to achieving real impact on the ground. While international donors and agencies and national governments play important roles in establishing effective enabling environments and channelling resources and technical support, ultimately effective adaptation takes place through the dynamics of local governance, civil society engagement, and economic development building from the actions of local authorities, civil society organizations, and private sector businesses. Recognized by international law and national laws as “auxiliaries to the public authorities in the humanitarian field,” National Red Cross and Red Crescent Societies are also a critical resource at local level, drawing on an extensive volunteer base and long presence in communities.

The level at which impact is achieved will be very dependent on the existing capacity of those taking action and the level of information available about the expected changes in climate and their effect at the local level.<sup>2</sup>

Over the last few years some activity with CCA content has been developed, much of it necessarily case and location specific, much of it implemented by NGOs (with the compliance but not necessarily the full involvement of government) and much of it project-focused rather than being part of an

integrated strategy (be it national or local). There is little evidence of systematic integration of disaster risk management and climate change adaptation other than coordination and awareness-raising. More worryingly, analysts consider that at the local level, where poverty levels are high and there is a limited adaptive capacity, there is a need to focus on current climate vulnerability and immediate risk rather than on the long-term impact of climate change.<sup>3</sup>

National governments have a specific role in establishing the policy and regulatory environment to encourage adaptation by individuals, households and private sector businesses. They can strengthen the knowledge base of climate risk assessments; strengthen the early warning chain of climate change trends, seasonal forecasts and weather alerts, from satellites to national radio stations to local rattles and megaphones and cell phones; provide the policy and legal framework for climate risk reduction measures related to land use planning, health and other sectors and ensure that infrastructure investments take climate change into account. Thus good governance – at all levels, but especially at national level – will be critical to the establishment of development effective across the range of necessary sectors.

<sup>2</sup> World Resources Institute, *Weathering the Storm: Options for Framing Adaptation and Development*, 2007, page 4

Beyond this, effective donor coordination can play an important part in ensuring that all stakeholders are working toward the achievement of common goals and objectives leading to a reduction in vulnerabilities and the building of resilience and safety. This coordination will also ensure that duplication is minimised. For both CCA specific funding and mainstream ODA, there are obvious priorities – vulnerability reduction and capacity building activities at local level, fostering inclusive, accountable decision-making, support to managing information and the understanding and interpretation of climate information.<sup>4</sup>

However it is also important to recognise that international policy formulation and donor assistance represent only a small portion of overall development input at local level, even though they can play a critical role in supporting local stakeholders to initiate and scale up capacity building for adaptation action. In the coming years it will be crucial to develop adaptation capacities leading to concrete plans to be implemented when the expected additional global adaptation funding becomes available after 2012. In this process international and national actors engaged in the climate change convention must recognize the critical role of local actors in developing the adaption framework and channel resources to them. Communities themselves have significant experience and knowledge that

must be tapped through mutual learning and sharing approaches in which local populations, civil society organisations, governments, and other partners exchange their experiences and ideas on how to tackle present and future hazards and vulnerabilities.

This local capacity can and should also be supported in major disasters when the international community cooperates to provide humanitarian assistance. The need for such international cooperation will continue to grow as climate change increases and changes the profile of disaster risk in many countries. Yet few states have comprehensive laws and systems in place to manage such aid appropriately, so it is both speedy and effective in meeting humanitarian needs but also complementary to local relief efforts. Using established guidelines,<sup>5</sup> states should make themselves more ready to address these problems before disasters strike.

It is ultimately the communities which do not have the benefit of living in good governance settings, or where risk reduction efforts have not yet been prioritised, have failed in the past, or are likely to fail in the future that will bear the brunt of climate change impacts. No action taken at national, regional or international levels will be effective unless there is a concomitant reduction in the vulnerabilities of people and communities on the ground.

<sup>3</sup> See, for example, IPCC 30<sup>th</sup> Session, Scoping Paper – Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation, Antalya, Turkey, April 2009, and Tear fund, Adaptation and the Post 2012 Framework, London, 2007

<sup>4</sup> World Resources Institute, Weathering the Storm: Options for Framing Adaptation and Development, 2007, page 3

<sup>5</sup> In 2007, the State Parties to the Geneva Conventions adopted the “Guidelines for the domestic facilitation and regulation of international disaster relief and initial recovery assistance” at the 30<sup>th</sup> International Conference of the Red Cross and Red Crescent. In 2008, the UN General Assembly called on states to strengthen their domestic legal and institutional frameworks for international disaster relief, making use, as appropriate, of the Guidelines (UN GA Res. 63/139 para.8 (2008) & 63/141 para .6 (2008)).

## 5. Key Strategies on the integration of DRR and CCA for Local Climate Risk Reduction

Recognising that climate change is affecting vulnerable communities now and mostly, the following strategies should be reflected in the development and implementation of the national adaptation strategies and programmes.

**1. Prioritize adaptation efforts in communities where vulnerabilities are highest and where the need for safety and resilience is greatest.** While national (supported by regional and global) policies and strategies are essential, the results of the implementation of these policies and strategies at local level will be the ultimate test of CCA. It is at this level that lives and livelihoods can be protected, development promoted and safety and resilience built.

**2. Build expected climate change related trends into today's risk and vulnerability assessment based on current climate variability to craft effective short-, medium-, and long-term strategies to strengthen response capacities and preparedness, reduce risks, and promote effective adaptation.** Current climate variability and dealing with ongoing disaster impacts is always going to be an essential focus for highly vulnerable communities. However, wherever possible these immediate concerns need to be integrated into longer term strategies that address future risk and the drivers of vulnerability. This can be done through development actions aimed at reducing overall vulnerabilities through addressing, for example, livelihoods, environmental degradation or HIV/AIDS which, whether they incorporate specific CCA actions or not, are crucial in supporting households and communities to manage climate risks. The rising impact of disasters, and the corresponding increase in the need for international cooperation, also call for improved systems at the domestic level to facilitate and regulate international disaster relief efforts to ensure that they are rapid, effective and complementary to local capacities.

**3. Fully integrate adaptation into longer-term national and local sustainable development and poverty reduction strategies such as those related to poverty reduction.** Not only will the integration of CCA and associated DRR into development offer protection of overall development goals (such as the MDGs) but it will also provide the basis for building community safety and resilience.

**4. Prioritize the strengthening of existing capacities – among local authorities, civil society organizations, and**

the private sector – to lay the foundations for the robust management of climate risk and the rapid scaling up of adaptation through community-based risk reduction and effective local governance. Capacity building and capacity development are among the most urgent requirements for addressing climate risk, particularly at local level. Community capacity to understand climate risk issues, effectively use available information, develop the necessary institutions and networks, plan and build appropriate CCA actions and evaluate and monitor these to learn from experience is an essential prerequisite for effective adaptation. A strong foundation already exists in the Hyogo Framework for Action on Disaster Risk Reduction (HFA), a globally agreed framework for achieving DRR. Applying the HFA at community level can help to create the necessary environment for achieving many of the goals of CCA.

**5. Develop robust resource mobilisation mechanisms for adaptation that encourage the climate-proofing of development programmes, promote the integration into development planning of dedicated CCA measures, and ensure the flow of both financial and technical support to local actors.** It is imperative to develop dedicated funding mechanisms to support local action on CCA and regulatory structures that align the broad range of development activities taking place at national and local levels. Further, it is important to ensure that whatever resources are mobilised, they are all committed to one integrated agenda – the achievement of development goals and the building of community resilience, protected from climate and other disaster risks.

**6. Leverage the opportunities in disaster prevention and response, through improved early warning systems, contingency planning and integrated response, to promote effective community-based adaptation and risk reduction and to strengthen domestic systems for managing international disaster cooperation.** It is important to recognise the positive opportunities in disaster prevention and response to raise awareness of the longer-term needs in CCA and DRR and to strengthen the enabling environment for advocacy and capacity development.

# Appendix 1.

## New text proposals

As outlined in the preceding paper, local actors will play critical roles in implementing the adaptation and mitigation activities that are anticipated through the Copenhagen Agreement. Yet there is little in the way of specific commitments within the current draft of the negotiating text of the Ad Hoc Working Group on Long-term Cooperative Action Under the Convention to assure local actors that they will have access to the necessary resources to help them undertake their roles and to support the role of actors like the National Red Cross and Red Crescent Societies, as “auxiliaries to the public authorities in the humanitarian field.” Moreover, the existing text makes little reference to the humanitarian consequences to climate change. To address these issues, the following additional text is suggested to Convention negotiators for their consideration.

Suggested new paragraphs	Rationale/Comment
<strong>Shared vision section</strong>	
<p>“Effective climate risk management solutions will require engagement by all actors especially those at local level – including local authorities, civil society organisations, National Red Cross and Red Crescent Societies, and the private sector – and the establishment of effective mechanisms to provide financial, technical, and capacity building resources to local actors who will be most directly impacted by climate change impacts.”</p> <p><i>[Proposed location: new numbered paragraph after paragraph 7.]</i></p>	<p>This would highlight the need to enable a wide range of local actors to play necessary roles in both adaptation and mitigation.</p>
<p>“Concerted action is also needed to improve preparedness, early warning, and humanitarian response capacities for those communities likely to be hit hardest by the impacts of climate change in the coming years.”</p> <p><i>[Proposed location: new numbered paragraph after paragraph 7.]</i></p>	<p>This would explicitly recognize the need for increased preparedness for humanitarian response to climate change impacts.</p>
<strong>Adaptation section</strong>	
<p>“The adaptation {framework} {programme} should also provide technical, financial, and capacity-building support for the development and implementation of corresponding <b>local adaptation plans</b> to align the initiative of national and local governments, civil society organizations, and the private sector in addressing immediate humanitarian impacts and longer-term risks in the most vulnerable locations in each country.”</p> <p><i>[Proposed location: new numbered paragraph after paragraph 26.]</i></p>	<p>This would encourage Parties to outline their commitment of resources to local partners in their own countries.</p>
<strong>Finance, Technology, and Capacity-building section</strong>	
<p>“Within the implementation of specialized funds at national levels Parties {shall} {should} establish <b>local share targets</b> [levels to be agreed] of these funds to be directed to local actors – including local governments, civil society organizations, and the private sector – to support their work in undertaking and incentivizing effective adaptation. Parties {shall} {should} report progress toward these targets in their national communications.”</p> <p><i>[Proposed location: new numbered paragraph after paragraph 177.]</i></p>	<p>This would encourage Parties to outline their commitment to promote the flow of resources to support local decision-making on adaptation and mitigation.</p>

# Appendix 2.

## Suggested text amendments

There are also a number of opportunities to further promote the role of local actors in adaptation in the context of the current negotiating text of the Ad Hoc Working Group on Long-term Cooperative Action Under the Convention. The following suggestions expand on the basic references in sections 22. (a) (i), 22(d), 31. (a), and 45. (d) to consistently promote the role of local actors.

Paragraph	Rationale/Comment
<p><b>Shared vision section</b></p> <p>7. The urgent need to confront dangerous climate change requires political determination {and support at all levels} to continue building an inclusive, fair and effective climate regime, one that takes into account the need of developing countries' need for development space, and is based on a new and equitable global partnership that drives cooperative action to enable the full, effective and sustained implementation of the Convention {among the necessary range of local, national, and international stakeholders}.</p>	<p>This would highlight the role of all actors, especially local actors.</p>
<p><b>Adaptation section</b></p> <p>19. (b) Means of implementation, including finance, technology and capacity-building {that explicitly support the roles of diverse actors at all levels in promoting effective adaptation};</p> <p>23. (a) Catalyse actions in different sectors {at all levels}, promoting efficient and effective use of the financial resources for adaptation provided under the Convention;</p> <p>27. All Parties are encouraged to engage a wide range of stakeholders, including the private sector, {National Red Cross and Red Crescent Societies, non-governmental organizations and other} civil society actors, in supporting and implementing adaptation action in developing country Parties.</p> <p>(Ref: Res. 2, 30th International Conference of the Red Cross and Red Crescent (2007))</p> <p>30. (b) Preparation of national {and local} adaptation action plans; {(c) Local actors, including civil society organisations};</p> <p>39. Activities should include the preparation and implementation of national {and local} risk management plans, disaster risk reduction strategies and early warning {and response} systems.</p> <p>47. National {and local} coordinating bodies should be established to address all aspects of the means of implementation for adaptation, and to strengthen the institutional capacity of national focal points and all stakeholders.</p>	<p>These would strengthen attention to local actors and other stakeholders as critical implementers.</p>

Paragraph	Rationale/Comment
<b>22. (a) (i)</b> Subsidiarity, with adaptation responding to local needs, and decisions being taken {and resources being allocated} at the lowest appropriate level;	This would promote the flow of resources to support local decision-making.
<b>22. (d)</b> Be flexible, bottom-up, results-based and country-driven, involving all relevant stakeholders, with a view to enhancing ownership, at local, subnational, national and regional levels, of the implementation of adaptation actions, including ownership of the means of implementation provided {and access to appropriate levels of funding};	
<b>42.</b> Option 3 – include innovative financial instruments, for example venture capital funds {, community social funds} and climate insurance funds, integrated into the financial mechanism, for addressing the risks associated with climate change {and protecting public and private sector development investments from risks associated with climate change}.	
<b>22. (j)</b> Establish reporting mechanisms to help local actors track progress toward adaptation in their communities and districts.  <i>New lettered point after 22 (i).</i>	Enable the tracking of local progress in adaptation.
<b>52. (f)</b> Ensuring that effective outcomes {at all levels} are realized from that support.	
<b>24. (f)</b> Strengthen operational and legal frameworks for international disaster cooperation;  (Ref: UNGA Res. 63/139, para. 8 (2008))	This would ensure adequate domestic frameworks for regulating international cooperation
<b>19. (c)</b> Risk reduction, management and sharing {to address humanitarian impacts, loss and damage}, including {through} insurance <del>and addressing loss and damages</del> ;	These would ensure consistent focus on preventing humanitarian emergencies due to increasing climate change impacts.
<b>24. (a)</b> Integrate adaptation into development, disaster risk and poverty reduction{, and humanitarian response} plans, strategies, tools and policies at multiple levels and across sectors;	
<b>25. (b)</b> Strategies and measures to reduce, manage and share risk, including {preparedness and} early warning systems, insurance-related activities and activities addressing loss and damage from climate change impacts, including those arising from extreme weather events;	
<b>42.</b> Option 2 serve as a window to provide rapid financing to {prevent, prepare, and respond to} cope with the aftermath {impacts} of extreme climate events, including a compensation mechanism.	

Paragraph	Rationale/Comment
<p><b>Finance, Technology, and Capacity-building section</b></p> <p><b>166. (j)</b> Subsidiarity, with decisions being taken and resources being allocated at the lowest appropriate level;</p> <p><b>180. (f)</b> {Stimulate the formation and development of {local,} national and international innovation systems and markets for technologies for mitigation and adaptation, creating favourable investment and enabling environments, and engaging the private sector;}</p> <p><b>180. (i)</b> Recognize {and enable} the role that small and medium-sized enterprises could play in the success of adaptation and mitigation efforts and in economic development;</p> <p><b>184. (c)</b> Capacity-building, taking into account the various activities completed or under way on a {domestic,} bilateral or multilateral basis and mainstreamed within an enhanced framework for capacity-building for mitigation and adaptation (decision 2/CP.7);</p> <p><b>184. (d)</b> Knowledge, technical and other necessary expertise in existing institutions and organizations, including regional centres and networks {shall}{should} be developed, used, shared and sustained at regional {,} and national{, and local} levels.</p> <p><b>196.</b> Option 1.1 – engaging the private sector and encouraging cooperative partnership between {national and local} governments and industries, recognizing a wide variety of processes, mechanisms and organizations outside the UNFCCC and the critical role of private-sector investment, capacity and expertise.</p>	<p>These would promote the flow of resources to support local decision-making.</p>
<p><b>199. (a)</b> Creation of enabling environments at <del>the national</del> {all} level{s} for enhanced action on adaptation and mitigation, including the establishment of appropriate policy and legal and regulatory frameworks {and mechanisms for effectively sharing experience and ideas among communities};</p>	<p>This would strengthen attention to local actors and other stakeholders as critical implementers and knowledge holders.</p>

# Appendix 3.

## Glossary of terms

<b>adaptation</b>	Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (IPCC TAR, 2001a)
<b>capacity building / development</b>	The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions. (UN/ISDR, PreventionWeb)
<b>coping capacity</b>	The means by which people or organizations use available resources and abilities to face adverse consequences that could lead to a disaster. In general, this involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards. ( <i>UN/ISDR, On Better Terms: A Glance at Key Climate Change and Disaster Risk Reduction Concepts</i> )
<b>development</b>	Transformative process that promotes the economic, political, and social well being of people.
<b>disaster</b>	A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. (UN/ISDR, PreventionWeb)
<b>disaster risk management</b>	The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster. (UN/ISDR, PreventionWeb)
<b>disaster risk reduction</b>	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. (UN/ISDR, PreventionWeb)
<b>early warning</b>	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. (UN/ISDR, PreventionWeb)
<b>preparedness</b>	The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions. (UN/ISDR, PreventionWeb)
<b>resilience</b>	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. (UN/ISDR, PreventionWeb)
<b>sustainable development</b>	Development which meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission)
<b>vulnerability</b>	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. (UN/ISDR, PreventionWeb)