Integrating Disaster Risk Reduction and Climate Change Adaptation in the Philippines

Proceedings from the roundtable discussion
"A Sharing of Theory and Practice on DRR-CCA Work"
held on 13-14 April 2010, Quezon City, Philippines

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Oxfam is an international aid organization that works with others to end poverty and human suffering. In the Philippines, we work with poor people to sustain their livelihoods, and reduce their risks to natural and human-made disasters. We strive to enable poor people to have a voice in economic issues affecting them and we support poor women as they lead in transforming unequal social and economic relations.

Integrating Disaster Risk Reduction and Climate Change Adaptation in the Philippines

Women farmers tilling the slope of a hillside in the Philippines. Integrated DRR and CCA programming is vital in Philippine agriculture, the sector most affected by climate change impacts in the country. About 3 milllion women can be found working in the sector, subject to gender discrimination and exploitation made worse by their being the most vulnerable to climate change-triggered disasters. The first victims, they are also the first line of defense against climate change and therefore worthy soldiers to be mobilized in the work of disaster risk reduction and climate change adaptation. @ *Oxfam archives*

Climate change impacts such as those that come in the form of stronger and more frequent typhoons are increasing natural hazards in many areas of the Philippines already highly prone to multiple disasters because of their location on both the typhoon path and earthquake and volcanic belt. Given the increasing vulnerability of many communities, the need for disaster risk reduction and climate change adaptation has become more urgent. It will not only save lives but also protect assets and livelihoods and prevent more people from becoming poorer than they already are. DRR and CCA are two complementary approaches that can be integrated to achieve the ultimate aim of development work — poverty reduction.

FOREWORD

Last April 13-14, 2010, disaster risk reduction (DRR) and climate change adaptation (CCA) practitioners gathered together at a hotel venue in Quezon City, Philippines for the first ever Learning Event on the theory and practice of these two strands of development work in the country. Organized by Oxfam, the objectives of the event, dubbed "A Sharing of Theory and Practice on DRR and CCA Work", were threefold:

a) To arrive at a common understanding of CCA and DRR and how this converge or intersect in our work of building community resilience and sustainable livelihoods in the context particularly of intensifying disasters brought about by creeping climate change;

b) To establish an integrated database of CCA-DRR practices; and,

c) To identify good CCA-DRR practices that we can promote for emulation and replication at the local, national and international levels.

The event's penultimate objective of the event was to set the stage for a convergence in the work of DRR and CCA practitioners at the ground level. The most important result of the exercise was the participants' arrival at a common definition of DRR and CCA work that now provides a basis for integrated DRR-CCA programming. That such common definition has been finally arrived at should go a long way not only in unifying outlooks but more importantly, make possible the optimal use of resources in the conduct of two responses to disasters and climate change impacts with one ultimate objection: to reduce poverty among the poorest and most vulnerable segments of the population.

This paper is an attempt to bring together current thinking on and practice of DRR and CCA. It is hoped that this paper will serve as a discussion guide for parties wanting to participate in the discourse and advocacy for converged DRR and CCA programming in the country.

SUMMARY

Disaster risk reduction (DRR) and climate change adaptation (CCA) are two strategies that development workers in the country have been pursuing in response to the problems posed by disaster risks and climate change impacts. The two can be converged or integrated in programming but there are challenges to this, foremost among which is the fact that in the Philippines, DDR and CCA practitioners have been working in different institutional settings. DRR practitioners from civil society have been working mainly with the National Disaster Coordinating Council (NDCC) while CCA practitioners and advocates, with the Department of Environment and Natural Resources (DENR). These settings have not only made for the different mind-sets and perspectives but also prevented practitioners from conversing with one another.

A common definition

The 1st Learning Event on DRR and CCA Work organized by Oxfam in the Philippines on April 13-14, 2010 was an initial attempt to bridge the conceptual divide between the two strands of development work and build a community of practice among DRR and CCA practitioners. In that learning event, participants, comprising mainly of Oxfam's respective partners and allies in DRR and CCA work in both the government and civil society sectors, arrived at a common definition that recognizes DRR and CCA as complementary strategies that do not only address disasters and climate change impacts but also more strategically, the task of poverty reduction. The definition is as follows:

DRR-CCA is an additional strategy for reducing the vulnerability of communities (to disasters and climate change impacts) in order to achieve the outcome of poverty reduction.

Participants based this common definition on their agreement that:

a) DRR/CCA are approaches in addressing the problem of poverty
b) Both aim at reducing risks and vulnerabilities of poor people arising from climate change and disasters
c) Both are responsive to impacts on natural and human ecosystems
d) Both approaches aim at building resilience and adaptive capacities
e) Both contain the following elements or conform to the following principles:

- Gender equality and the empowerment of women and men
- Multi-sectoral participation
- Multi-disciplinary and cross-sectoral perspectives are taken into account
- Respect for and consideration of both indigenous and scientific knowledge and practices
- Transparent and accountable governance and financial mechanisms

Both employ the following strategies:

- Capacity-building of communities and institutional development
- Mobilization in time of calamities and disasters
- Identifying vulnerabilities that are climate-related
- DRR/CCA processes to be used to formulate community development plan
- Integrating climate forecasts in development initiatives
- Integrating CCA-DRR in fisheries development plan
- Integrating CCA-DRR in microfinance and micro-enterprises
- Establishing mechanisms for social protection and humanitarian protection targeting the most vulnerable

Models and criteria for emulation and replication

Another opportunity for convergence is the fact there are already existing models and criteria for integrated DRR-CCA programming. Since June 2009, Oxfam, with support from the Australian Agency for International Development (AusAid), has been implementing an 18-month long project (ending in December 2010) aimed at "improving disaster risk reduction knowledge management systems in the Philippines to create

a safer environment for men and women in vulnerable communities."

The project has 3 key result areas, the first 2 of which are: Key Result (KR) 1 : Knowledge Management - search for and documentation of good practices done by local communities (either NGOs/Pos or LGUs) with regards to DRR and CCA. Under this KR, project participants have come up with a selection criteria for good practices/models in DRR-CCA. Based on this criteria, the project has identified 5-7 initiatives of LGUs, NGOs and POs that are models of integrated or converged DRR- CCA programming that could be emulated and replicated by vulnerable communities throughout the country.

Key result area 2 is on Knowledge Sharing, whereby round table discussions with key stakeholders and communities are conducted to learn from their experiences and level-off on awareness and understanding on DRR-CCA. The third component is on Knowledge Application, whereby replication of the selected DRR-CCA good practices shall be applied by partners in two vulnerable provinces in Mindanao that have taken up training in the use of the Participatory Community-based Vulnerability Assessment tool. The identified good practices were selected based on a set of criteria that emulators could use as a guide for developing their own converged DRR-CCA programmes.

Towards a more favourable policy environment

The advent of a new and hopefully, more dynamic and responsive, administration in the Philippines also augurs well for a policy environment conducive to integrated DRR-CCA work. Given this, Oxfam together with its partners would like to put forward the following recommendations for advocacy action by CSOs with this new government and the incoming upper and lower houses of the Philippine Congress:

1. Actively engage the new administration in the formulation of its policy agenda to ensure that DRR and CCA concerns are mainstreamed in its development planning.

2. Actively lobby the new administration for the prioritization of DRR and CCA concerns in resource allocation. Develop allies and champions among LGU executives in high risk areas for this purpose.

3. Actively monitor/participate in the formulation of the IRR of the Disaster Risk Reduction and Management (DRRM) Law, focusing on provisions that make possible the operationalization and mainstreaming of integrated DRR-CCA interventions in national as well as local government planning and programming.

4. Actively lobby for the passage of a comprehensive national land and water use policy that will not only mandate shifting of economic and other human activities away from danger zones but ensure sustainable economic production based on the rational (as against the incoherent and chaotic) use of land and water resources for such production.

5. Conduct an IEC campaign aimed at raising the level of public awareness for disasters and climate change impacts and pressuring national and local government officials to pay more attention to addressing these urgent issues. The IEC campaign should also promote good practises in integrated DRR-CCA action as well as in the mainstreaming and institutionalization of DRR-CCA interventions in local land/water use and development planning.

"Climate change is altering the face of disaster risk, not only through increased weather-related risks and sea-level and temperature rise, but also through increases in societal vulnerabilities from stresses on water availability, agriculture and ecosystems. Disaster risk reduction and climate change mitigation and adaptation share a common space of concern: reducing the vulnerability of communities and achieving sustainable development."[1]

— UN International Strategy for Disaster Reduction

1 A COMMON SPACE OF CONCERN

In Albay province on the southeastern tip of the main Philippine island of Luzon, the local government unit (LGU) has established an outfit called APSEMO, short for the Albay Public Safety and Emergency Management Office, which is dedicated not only to getting people out of harm's way during times of natural disasters but also to helping them rebuild their lives in the aftermath and to be always prepared for the next emergency. APSEMO, which represents the institutionalization and mainstreaming in LGU planning of the function of disaster risk reduction, has proven vital (and has become a model for other LGUs) not only in minimizing loss of life but also in ensuring quick recovery for residents of a province often visited by strong typhoons and is host to Mt. Mayon, one of the country's most violent active volcanoes.[2]

In Bulacan province, also on Luzon, PAGASA (Philippine Atmospheric, Geophysical and Astronomical Services Administration) has partnered with the Department of Education in training and mobilizing students in the task of monitoring precipitation through the use of PAGASA-supplied rain gauges in a project called SHINE (School-based Hydro-meteorological Information Network). The students (members of science clubs in nine Bulacan public high schools) report or feed the information collected to a flood warning system that PAGASA has put in place in upland, riverine and lowland communities at risk of inundation especially during typhoons when excess water is released from the Angat Reservoir, a huge multi-purpose dam located in a mountainous section of the province. The SHINE project, started in 2008, was vital in facilitating quick decision-making for evacuation by communities at risk of flooding at the height of Typhoon Ketsana (local name: Ondoy) in September 2009.[33] SHINE is one of 5-7 initiatives selected as good practice under an 18-month joint Oxfam-AusAid documentation project that begun in June 2009.

On Samar island in Eastern Visayas (the central part of the country sometimes

referred to as "an archipelago within an archipelago"), an NGO called CERD (Center for Empowerment and Resource Development) has been organizing and training fishing communities in the proper management of their coastal and marine resources in response to problems such as fish catch depletion, which many of them are beginning to recognize (although not yet to label as such) as an effect of warming waters due to climate change. They are also being taught to conserve and/or rehabilitate mangroves as strategy not only for increasing fish populations but also as a protective measure against storm surges and sea-level rise.

NGOs are also active in organizing and training small farmers, indigenous folk and women in Mindanao to engage in biodiversity conservation and sustainable agricultural practices to safeguard lives and livelihoods particularly in riverine, estuarine and upland areas at high risk of landslides and flooding due to a combination of factors such geologic faults, soil erosion resulting from logging and slash-and-burn farming and logging, and run-off during heavy rains and strong typhoons. One NGO called PBPF (Paglilingkod Batas Pangkapatiran Foundation, Inc.) specializes in combining indigenous knowledge with modern scientific and technical knowledge in designing and implementing projects that sustain livelihoods while mitigating disaster risks and adapting to climate change impacts.[4]

Intensifying climate risks and impacts

Located on both the typhoon belt and the so-called Pacific ring of fire (an area given to geologic fault-lines, earthquakes, and intense volcanic activity), the Philippines is host to multiple natural hazards that have made it among the most disaster-prone country in the world. With the advent of climate change, disaster risks arising from such hazards in the country have not only increased; they have also worsened poverty and conflict particularly in areas where climate change is further depleting resources, already scarce to begin with, and intensifying competition among diverse groups for access to those same resources.

Consider:

In 2006, two powerful typhoons - Milenyo (international name: Xangsane) and Reming (international name: Durian) - struck Philippine shores. Hardest hit by both was the Bicol region, one of the country's poorest regions and incidentally, one of the last remaining hotbeds of communist insurgency in the country. Bicol encompasses the province of Albay, which, as mentioned earlier, is host to Mayon, one of the country's most violently active volcanoes. Reming, in particular, brought 466 millimeters of rainfall, the highest in 40 years. This triggered rock, mud and lahar flows on the slopes of Mayon, causing rivers at its foot to swell, drown and/or bury several communities under tons of volcanic matter and other debris.[5]

Deceptively scenic and peaceful Mayon Volcano in Albay province, Philippines @ Oxfam archives

Road damaged by mudflow from Mayon volcano at the height of Typhoon Durian (Reming); note women doing laundry on what is left of a river in Albay province. @Oxfam archives

Three years later, in September 2009 (almost to the month as Milenyo), another typhoon, Ondoy (international name: Ketsana), struck. Much weaker, it was no less destructive as it brought a month's worth of rainfall in a record 24-hours' time particularly on Metro Manila where waterways clogged with garbage overflowed with massive run-off coming down from the surrounding denuded mountain areas. Barely a month later, yet another typhoon, Pepeng (international name: Parma) hit Northern Luzon, bringing excess water that forced the opening of several dams in the area. The release of water from said dams caused severe flooding and landslides killing scores and leaving thousands more homeless.

A woman negotiating a neighbourhood alley in Rizal province that remained flooded several weeks after Typhoon Ketsana (Ondoy) poured a month's worth of rain in 24 hours' time on September 26, 2009. @ Oxfam archives

Impact of typhoons

Ondoy and Pepeng left almost a thousand deaths with 84 still missing. The Cordillera Administrative Region (CAR) (350, 34 missing) recorded the highest death incidence, mainly due to landslides, followed by NCR (241) and Region IV-A (161, 20 missing). The combined cost of damages brought about by the two tropical cyclones reached P38 billion of which a little over P11 billion came from Ondoy and P27 billion from Pepeng. Damage to agriculture, i.e., agricultural crops, livestocks, fisheries and agricultural facilities, was estimated at P27.2 billion. With P23.6 billion damages in Agriculture and Fisheries as reported in the NDCC Situation Report as of November 5, 2009, Gross Domestic Product (GDP) growth rate in nominal terms was to have been reduced by 0.2 percentage point in the 3rd quarter of 2009 and 0.6 percentage point in the 4th quarter of 2009.[1]

Impact of El Nino

After last year's wet disasters, the country went into the throes of drought courtesy of the El Nino phenomenon, which, according to the National Economic and Development Authority (NEDA), has already caused some P9.58 trillion in total agricultural losses at this writing. The amount, the agency said, represents crop damage arising from dry-spell conditions affecting the production of rice, corn, fruits, flowers, high-value commercial crops, other crops and livestock in the 12 regions of the country as of March 2010. Total agricultural land affected is 753,606.61 hectares with an equivalent total production loss of 685,485.36 metric tons. In value terms, the loss translates to P9,577,980,786, the agency added.[2]

The amount, NEDA said, also represents the impact of El Nino on energy output particularly in Mindanao where low water levels prevented hydroelectric plants from producing enough power to run the island's industries on a 24/7 basis.

NEDA has been quick to point out that the impact of El Nino on the country's economic performance, as measured in terms of GDP growth, is minimal, at minus 0.57 percentage point. This is because, NEDA said, the impact of El Niño on GDP "is limited by the small share of agriculture" as well as the "small share of Mindanao" in the GDP. Both agriculture and Mindanao account for only 18% each of total GDP, the agency added.[3]

But P9.58 trillion in total agricultural losses due to El Nino is nothing to sneeze about or dismiss as "minimal" especially if appreciated from the point of fact that such an amount represents income lost for 35% of the country's labor force that depend on the "production of rice, corn, fruits, flowers, high-value commercial crops, other crops and livestock" for their livelihood.

NEDA's statement indicates an official attitude to the effect that because impact is minimal, urgent action, much less, vital resources and investments need not be expended. It is this same official attitude that has kept agriculture and Mindanao low on the list of government priorities and in a state of underdevelopment and under-productivity for decades on end now. It is this same attitude that Philippine officialdom (particularly the country's economic managers and policy-makers on agricultural industry development) must be disabused of if we are to protect the lives and livelihoods of the poor majority of Filipinos from the ravages of environmental disasters that are increasing because of climate change.

Ravaged farms and homes in the wake of Typhoon Frank that struck the province of Aklan in the Western Visayas region in June 2008. @ Oxfam archives

Where DRR and CCA are needed

DRR and CCA are needed in areas of the country that are plagued or are subject to the following combination of conditions:

a) Exposure to climate and weather-related hazards given their location along the path of typhoons, the monsoons and ENSO (El Nino Southern Oscillation)

b) Location along the earthquake or volcano belt and/ or location along a geologic fault-line

c) Location in an area of intense land use change and forestry resulting in environmental degradation such as soil erosion that leads to landslides and flooding particularly during strong typhoons

The Manila Observatory (MO) has also identified specific provinces as being at high risk to disasters arising from various climate and weather-related hazards. [1]

Areas most at risk to temperature increase are Mindanao and Central Visayas. The top 20 provinces at risk to projected temperature increase are:

> Sulu, Basilan, Lanao del Sur, Maguindanao, Lanao del Norte, Davao del Sur, Zamboanga del Sur, Tawi-tawi, Misamis Occidental Camiguin, Siquijor, Misamis Oriental, Cebu, Agusan del Norte, Zamboanga del Norte, Albay, Sarangani, Negros Oriental, Negros Occidental and Ifugao

In terms of risk to projected rainfall change (incorporating both rainfall decrease during the dry season and rainfall increase during the wet season), areas most at risk are Central, South and Southeast Luzon and Eastern Visayas. The top 20 provinces at risk to projected rainfall change are:

> Albay, Pampanga, Ifugao, Rizal, Cavite, Sorsogon, Laguna, Biliran Batangas, Pangasinan, Masbate, Metro Manila, Tarlac Nueva Ecija, Northern Samar, Aklan, Capiz, La Union, Western Samar and Romblon

Northern Luzon, Southeastern Luzon and Eastern Visayas are the areas highly at risk to the occurrence of tropical depressions, tropical storms, typhoons and super typhoons. The top 20 provinces at risk to typhoons are:

> Cagayan, Albay, Ifugao, Sorsogon, Kalinga, Ilocos Sur, Ilocos Norte, Camarines Norte, Mountain Province, Camarines Sur, Northern Samar, Catanduanes, Apayao, Pampanga, La Union, Nueva Ecija, Pangasinan, Masbate, Tarlac and Western Samar

Areas highly at risk to El Niño-induced drought are Central and West Mindanao. The top 20 provinces at risk to drought are:

> Sulu, Basilan, Maguindanao, Lanao Del Sur, Lanao Del Norte, Davao Del Sur, Misamis Occidental, Sarangani, Zamboanga Del Sur, South Cotabato, ZaMboanga Del Norte, North Cotabato, Sultan Kudarat, Siquijor, Tawi-tawi, Negros Oriental, Camiguin, Davao del Norte, Misamis Oriental and Bukidnon.

In terms of combined climate- and weather-related hazards, the top 20 provinces at risk are:

> Albay, Pampanga, Ifugao, Sorsogon, Biliran, Rizal, Northern Samar, Cavite, Masbate, Laguna, Batangas, Sulu, Western Samar, Nueva Ecija, Tarlac, Pangasinan, Basilan, Metro Manila, Camarines Sur and La Union

2 DUAL APPROACHES

LGUs and NGOs are currently helping communities at high risk of disasters and climate change impacts using basically two approaches: a) disaster risk reduction (DRR), and b) climate change adaptation (CCA).[2]

Disaster risk reduction (DRR)

Disaster risk reduction or DRR is 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. Within this larger framework is the concept of disaster risk management or DRM, which is the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. DRM comprises all forms of activities including structural and non-structural measures to avoid or to limit adverse effects of hazards.

Essentially, DRR is about reducing vulnerabilities and disaster risks while DRM refers to processes that increase the capacities of society and communities to lessen the impacts of natural hazards and disasters.

DRR traces its roots to the era of the 70s and 80s when the work only meant disaster preparedness and responses. From this essentially reactive phase, disaster-related work evolved into more pro-active disaster management particularly during the 90s with the observance at that time of the International Decade for Natural Disaster Reduction and the passage by the United Nations of such conventions as the Yokohama Strategy and Plan of Action for a Safer World (1994) and the United Nations International Strategy on Disaster Reduction (UNISDR). Both conventions stressed still on preparedness. This changed to "knowing the risks" with the passage in 2005 of the Hyogo Framework of Action (HFA), a 10-year program with a five-point priority action plan that is about: a) ensuring that national and local policies have risk reduction measures, b) identifying and assessing disaster risks, c) building understanding and awareness, d) reducing vulnerabilities and, e) implementing emergency preparedness and response.

Key concepts in DRR work

1. Hazard is a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

   Hazards can be categorized into primary and secondary types. A primary hazard is one that can directly and immediately result in: loss, consequence, adverse outcome, damage, fatality, system loss, degradation, loss of function, injury, etc. The primary hazard is also referred

to as the: catastrophe, catastrophic event, critical event, marginal event, and negligible event.

Secondary hazards are those that are initiated or that follow a primary hazard. Also known as secondary disasters, secondary hazards include a fire or tsunami caused by an earthquake. Secondary disasters often cause far more damage and problems than a primary disaster. They are also called collateral disasters.

Based on origin, hazards can be:

- Hydro-meteorological, which means the hazard is caused by the occurrence, motion, and changes in the state of atmospheric water, especially precipitation or rainfall. Hydro-meteorological hazards include tropical cyclones and windstorms, which are primary disasters that cause secondary ones like storm surges, floods, debris and mudflows. Droughts are also primary hydro-meteorological hazards or disasters that cause secondary ones such as desertification.

- Geological, which means the hazard is caused by movements in the structure of the earth. Geological hazards include earthquakes and volcanic activity (ashfall, magma flow), which are primary ones that cause secondary hazards like landslides and liquefaction (for earthquakes) and lahar flows (for volcanic activity).

- Biological, which means the hazard is an organism (fungi, plants, animals) or a derivative thereof that poses a threat to the health of other living organisms, primarily humans. This can include medical waste or samples of a microorganism, virus or toxin (from a biological source) that can impact human health. It can also include substances harmful to animals. Plant or animal contagion and extensive infestation are primary hazards that can lead to the outbreak of epidemic diseases affecting humans.

2. Vulnerability refers to the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

3. Capacity is the combination of all the strengths, attributes and resources available within a community, society or organisation that can be used to achieve agreed goals.

4. Risk - the dictionary meaning of risk makes reference to the possibility of loss or injury arising from someone or something that creates or suggests a hazard. In DRR work, risk is defined as the probability of harmful consequences and expected losses resulting from interactions between natural or human-induced hazards and vulnerable conditions, which are inherent or can be created or exist within social systems. In measuring risk, therefore, it is important to factor in social contexts and the perception of people.

Risk is measured using the following formula:

Risk = hazard + vulnerability
capacity

5. Resilience is the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. It is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

A community is considered to be disaster-resilient if it has the:

- Capacity to absorb stress or destructive forces through resistance or adaptation
- Capacity to manage or maintain certain basic functions and structures during disastrous events
- Capacity to recover or "bounce back" after an event

The "disaster-resilient community", however, is an ideal. No community can ever be completely safe from natural and human-made disasters. The best that can be done is for a community to be assisted in developing and strengthening its self-reliant capacities for resilience against disasters.

There are different levels of community resilience to disasters:

- **Level 1** is when and where there is little awareness of the issue/s or motivation to address them; actions are limited to crisis response.

- **Level 2** is when and where there is awareness of the issue/s and willingness to address them. Capacity to act (knowledge & skills; human, material and other resources), however, remains limited and interventions tend to be

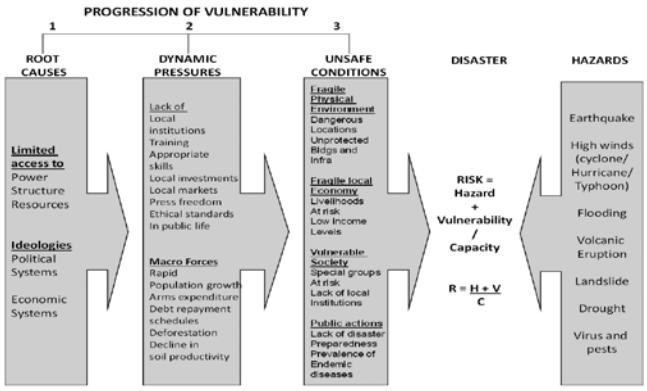
one-off, piecemeal and short-term.

- **Level 3** is when and where development and implementation solutions are in place, capacity to act is improved and substantial, and interventions are more numerous and long-term.
- **Level 4** is when and where interventions are extensive, covering all the main aspects of the problem and linked together within a coherent long-term strategy.
- **Level 5** is when and where a "culture of safety" already exists among all stakeholders and DRR is embedded in all relevant policy, planning, practice, attitudes and behaviour.

Concept of the "progression of vulnerability and safety."

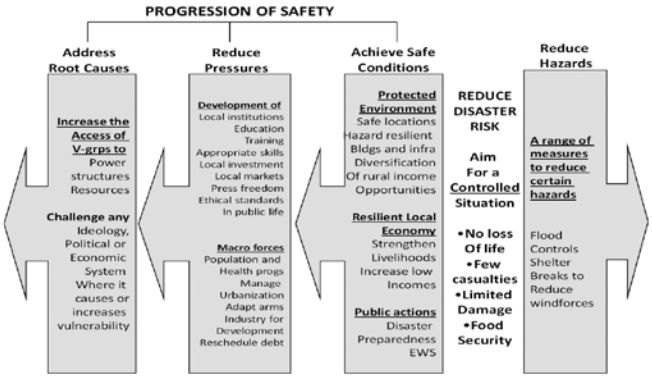
Progression of vulnerability refers to the existence of socio-economic, political, cultural and environmental factors (e.g., lack of access to resources, rapid population growth, deforestation, fragile physical environment, lack of disaster preparedness) that increases the possibility of people experiencing disaster in areas where natural hazards are present.

To illustrate:



Progression of safety refers to the reduction of disaster risks through actions that address and/or resolve the causative factors (e.g., increasing access to resources, controlling population growth, arresting deforestation, building flood control systems, and training people in disaster preparedness).

To illustrate:



Climate change adaptation

To cope with climate change, the United Nations basically prescribes two courses of action – a) mitigation, to reduce use of and dependence on fossil-based fuels of agricultural, industrial, commercial and residential activity that emit greenhouse gases (GHG) responsible for global warming, and b) adaptation, to engage in action to address, respond or adjust to climate change impacts that global warming is already generating.

Under the UN Framework Convention on Climate Change (UNFCCC), Annex 1 countries, representing the most advanced and wealthiest economies of the world, bear the greater burden of the work of mitigation. This is based on the principle of historical responsibility, which posits that Annex 1 countries are the ones mainly responsible for climate change on account of the highly pollutive and environmentally destructive activities that they have been engaging in since the Industrial Revolution to become the economic powers that they are now. Non-Annex 1 countries, basically countries of the developing world, small island states and least developed countries particularly of Africa, are not expected to engage in mitigation action, at least not as much as Annex 1 countries. This is based on the consideration that 1) they have smaller carbon footprints, i.e., their production and consumption levels and patterns do not produce as much GHG, and are therefore less responsible for climate change; and 2) they have less resources and lesser capacities to address climate change impacts that are not of their making. Non-Annex 1 countries do have to still engage in mitigation action based on the principle of common or shared responsibility (all countries, whether developed or developing, rich or poor, engage in activities that produce GHG emissions). But responsibility is differentiated by history and capacity and based on this principle, non-Annex 1 countries are expected to just engage in NAMAS (nationally appropriate mitigation actions) as their contribution to global mitigation work, and in adaptation action, to cope with climate change impacts they are already experiencing.

The Bali Action Plan, a UNFCCC derivative document, identifies adaptation as one of the key building blocks required for a strengthened future response to climate change. It has a section on adaptation that calls for:

- International cooperation to support urgent implementation of adaptation actions, including through vulnerability assessments, prioritization of actions, financial needs assessments, capacity-building and response strategies, integration of adaptation actions into sectoral and national planning
- Risk management and risk reduction strategies
- Disaster risk reduction strategies and means to address loss and damage associated with climate change impacts in developing countries
- Economic diversification to build resilience [1]

Rationale for adaptation

The need to reduce GHG and by how much and by whom is still being debated by countries. In the meantime, climate change impacts are already happening with increasing strength and frequency and the need to take steps to cope with or adapt to such impacts is no longer debatable particularly for poor developing countries like the Philippines adversely affected the most.

Aside from the urgency, climate change adaptation has also become critical in the following contexts:

- Context of sustainable livelihoods and sustainable development - climate change impacts the lives and livelihoods of poor and vulnerable groups, and can dramatically set back poverty reduction and sustainable development goals in developing countries;
- Context of gender equality and empowerment - women are more vulnerable to climate change because of existing conditions of inequality and disempowerment; adaptation strategies should be able to address these issues as well.
- Context of the responsibilities of states in the Hyogo Framework of Action, particularly in the "integration of risk reduction associated with existing climate variability and future climate change into strategies for the reduction of disaster risk and adaptation to climate change…"

Another reason for CCA's growing critical importance is the fact that local climates are rapidly moving beyond the normal range of variation that communities have been coping with for centuries. Firstly, climate change is causing variations in rainfall, seasonality and temperature, which, in turn, are already increasing poverty in farming and fishing communities worldwide. Secondly, it is causing changes in the frequency and severity of weather-related hazards, with worst flooding and/or more droughts in some places. "Development as usual" is not enough to cope with climate change, and may in some cases increase future vulnerability.

Key concepts in CCA

1. Adaptive capacity: The potential of individuals, communities, and societies to adjust in order to minimise negative impacts and maximise any benefits from changes in the climate.

2. Climate change: A change in climate that persists for decades or longer, arising from human activity that alters the composition of the atmosphere (i.e., global warming due to GHG).

3. Climate variability: Refers to natural variations in the climate that are not caused by GHG (e.g., it rains more in some years and less in others).

4. Climate change adaptation: Adjustments women and men make in response to, or in anticipation of, a changing climate. This includes changes to the things they do, the way they do them.

5. Vulnerability: The characteristics and circumstances of a community, system or asset that makes it susceptible to the damaging effects of climate change and other hazards.

6. Mitigation: Measures to reduce greenhouse gas emissions (note that the term 'mitigation' is used differently by Disaster Risk Reduction practitioners, who use it to mean reducing the impact of disasters).

What is effective adaptation and what it is not

Effective CCA manages and reduces risks associated with changes in the climate in a similar way that disaster risk reduction measures reduce risk for present climate extremes. It involves planning for the long term future while simultaneously helping communities cope with present circumstances. It hinges not on discerning appropriate responses to climate change per se, but rather on addressing

vulnerability through 'climate-aware development'- including issues of governance. And, it is flexible enough to cope with uncertainty, and with meeting different needs that might rapidly change with time.

CCA is not just about 'good programming'. For example, building a flood shelter in a flood-prone community is intended to provide a safe place, but does it need to be raised further to take into account predictable changes in floods so that it will be useable for the next 10 or 20 years?

It is also not a stand-alone intervention. Adaptation must be integrated into development programming (e.g., livelihoods, disaster risk reduction, natural resource management and governance programmes).

It is not about re-labelling existing work. If climate change impacts have not been analysed, how can we be sure that programming is supporting communities to adapt to climate change, or not making them more vulnerable to future climate change impacts?

Lastly, CCA is not a 'one-size-fits'-all approach.

3 CONVERGING DRR & CCA

Rationale and bases

Convergence of DRR and CCA lies in the need to address the increasing number or intensity of climate-related disasters, and the need to address underlying causes of vulnerability; the call for adaptation action (i.e., in the UNFCCC and the Bali Action Plan) necessitates consideration of DRR strategies, risk management and risk transfer mechanisms such as climate risk insurance.

There are bases for making possible the convergence of these two approaches or strategies. Foremost among these are what the United Nations Development Programme (UNDP) considers as the large substantive overlaps that exist between DRR and CCA.

A major portion of the impacts of climate change will materialize through variability and extremes. Thus, strategies to address the vulnerability to natural hazards are a key component of adaptation to climate change. On the other hand, changing risk patterns directly affect disaster preparedness and prediction efforts.[2]

Furthermore, the UNDP says, changes in the average climate may also affect disaster risk, either through changes in hazards (such as forest fires becoming more likely if the average conditions are getting dryer) or changes in vulnerability (such as when reduced agricultural productivity leaves communities poorer with decreased coping capacities when disaster occur).

For Oxfam, the very situation itself of increasing hazards due to intensifying climate change impacts constitute the strongest basis for DRR-CCA convergence. And the evidence supporting this can be found in the very sectors in which Oxfam is focusing its work in developing countries like the Philippines: agriculture, fisheries, forestry.

As scientific studies have established, climate change is mainly felt through temperature, precipitation and sea level variations, all of which have interrelated effects on said sectors, particularly on industries such as farming, fishing and hunting upon which majority of the poor rely for jobs and livelihood. In this context, DRR-CCA convergence can and is already happening because:

1. Farmers, fisher folk and upland dwellers are at the frontlines of climate change impacts, know how these are affecting their lives and livelihood, and are adapting accordingly. Espaldon (2008)[3] tracked farming practices in the Philippines and found that several communities, with the support of LGUs and NGOs, are already implementing approaches, including sustainable agro-ecological practices, that blend indigenous and scientific knowledge in growing crops and animals amid El Nino conditions, for instance. The Department of Agriculture has also documented indigenous knowledge handed down through generations that local farmers employ to forecast weather.[4]

   Examples of such knowledge are observations of natural phenomena to determine:

   - Early onset of rain - bamboo shoots come out of the ground; moths, fireflies, ants and birds go out
   - Delayed onset of rain - bamboo shoots do not bend
   - Heavy rains, typhoons and floods - dark clouds with strong winds; ducks fly and roost on the roof; earthworms come out of the ground.
   - Dry spell or drought - flowering of "talahib" (cogon grass) and bamboo
   - Good season (early onset of rain) - fruit trees have many fruits; fruit trees like mango have many flowers

2. Agriculture, fisheries and forestry, while the sectors most impacted upon by climate change, hold a great potential for climate change adaptation that does not only minimize disaster risks but contributes as well to climate change mitigation itself. This, through the adoption of agro-ecological practices that enable vulnerable farmers to build resilient farms and improve their livelihoods, achieving multiple benefits, including a) improved food security; b) adaptation to a changing climate; and c) mitigation of climate change. Oxfam believes that this mitigation potential is significant. It is estimated that agriculture could 'fix' gaseous carbon – and hence reduce net GHG – at a rate of 2–3bn megatonnes of carbon per year for the next 50 years. Measures for doing this would include restoring degraded soils and planting trees. Vulnerable farmers may often live in poverty, but they could be powerful partners in the struggle against climate change.

3. Agro-ecological practices are turning out to be effective instruments for building rural livelihoods that are not only sustainable but also resilient to and contribute to disaster risk reduction. A prime example of such a practice is rainforest farming, which can aid in arresting denudation or promoting reforestation in watershed areas (an imperative after the country's experience with Typhoon Ondoy that poured an unprecedented amount of rainfall that the denuded watershed areas surrounding Metro Manila was not able to hold) while protecting upland farms from erosion and landslides and even providing extra income to farmers from the programmed harvest and selling of mature hardwood species. Oxfam has initiated projects with partners that build disaster resiliency while assuring vulnerable communities of food and income security.

Challenges to convergence

There are challenges to convergence, however. Foremost among such are substantive differences that exist between the two approaches.

Despite overlaps or similarities, climate change adaptation and disaster risk reduction are not one and the same, according to the UNDP. Geophysical hazards are not addressed by climate change adaptation, and DRR only cares about trends in the average climate when they have a direct implication for disaster risk. Furthermore, the two practice areas have evolved from different institutional contexts, including different frameworks at the international level (the Hyogo Framework and the UNFCCC, respectively).

There are also policy issues and gaps in policy and practice that constitute challenges to integrated or convergent DRR-CCA programming on a national scale or even just a regional/local scale. Foremost among these issues are:

1. Lack of a national framework to guide or inform policy formulation for DRR and CCA as separate strategies, much less, as integrated approaches; also, a national framework to ensure policy coherence among agencies

   For one, a new "Act Strengthening the Philippine

Disaster Risk Reduction and Management System", otherwise known as the Disaster Risk Reduction and Management (DRRM) bill, has lapsed into law only at this writing. It will take time – from three to six months — for implementing rules and regulations (IRR) to be drafted and a much longer time than that to implement it at ground level, not to mention, the longer and greater amount of time and energy needed to educate newly elected local executives on the whys and wherefores of DRR and to reorient reelected ones away from the old disaster management law (operationalized by a 31 year old martial law era decree) that fostered a reactive mode and attitude to disaster response.

For another, while a Climate Change Act has passed into law and a Climate Change Commission is now in place, it has yet to be seen if both law and commission will be able to ensure a) mainstreaming of climate change mitigation and adaptation into national development planning (especially by way of the Medium Term Philippine Development Plan; and b) policy coherence within, between and among national government agencies that historically possess mandates and pursue activities that are at cross-purposes with one and the other (environment protection in DENR, which is also the agency that permits mining in the country).

An issue related to the aforementioned issue on policy coherence is the absence of a national land and water use policy that could provide the basis for economic production that is not only safe but also sustainable.

There is also need for a governance mechanism to ensure that DRR and CCA funds, whether coming from abroad or from domestic sources, will go to the areas that need most such funds to cope with increasing disasters resulting from intensifying climate change.

2. Lack of support for sustainable agriculture; lack of promotion of agro-ecological practices

While the potential is huge for win-win-win outcomes, farmer adoption of agro-ecological practices has long been constrained by policy frameworks that emphasize external input-based strategies and largely neglect sustainable agriculture. Oxfam partner R1 (Rice Watch and Action Network) successfully lobbied the 14th Philippine Congress for the provision of funds for organic agriculture but the funds were never released as they were impounded by the Arroyo administration invoking executive privilege. The 2004-2010 Medium-Term Philippine Agricultural Development Plan (MTPADP) largely supported and promoted large plantation farming heavily reliant on chemical inputs in the cultivation of high value industrial crops for export. To date, knowledge and practice of sustainable agriculture remains limited to a) farming communities where such is either already a long-standing tradition or where poverty has prevented farmers from buying expensive chemical inputs, thereby forcing them to go organic in crop production; b) NGO advocates of sustainable agriculture and fisheries as well as DRR and CCA practitioners.

3. Lack of funds and logistics to implement DRR and CCA as separate, let alone, complementary or integrated/converged strategies

In the Philippines, local governments are mandated to allocate 5% of their state income to the National Calamity Fund. Under the old law, the fund could only be used post-disaster. The new DRRM law allows the utilization of the fund even without the declaration of a state of calamity for preparedness activities. It also makes possible the use of the National Calamity Fund without the declaration of the state of emergency and to also focus on preparedness and mitigation work. It remains to be seen whether this law will be followed by local executives particularly those who have low awareness and appreciation of the need and value of pro-active disaster preparedness and would want to use their calamity funds for other purposes that do not necessarily address the problem at hand, e.g., building inappropriate infrastructure such as dikes and riparian walls where these are not need.

It also remains to be seen whether the incoming administration and its presumptive and would-be allies in Congress will give top priority consideration to climate change and climate change adaptation in policy-making and more importantly, in the allocation and disbursement of funds for DRR and CCA activities especially in high risk areas of the country.

In terms of policy and practice, the following are gaps identified by DRR and CCA practitioners:

- Lack of strict implementation of local ordinances relating to DRR and CCA
- Continuing land conversion (related to land use) resulting not only in continuing GHG emission that, in turn, contribute not only to climate change but also to food and livelihoods insecurity
- Politics impeding sustainability of projects and programs
- Low capacities/capabilities of stakeholders in DRR, CCA and/or DRR-CCA

- Incoherent regulatory systems such as the existence of different tenurial instruments existing or being followed in one place

These policy issues and gaps in policy and practice need to be addressed if DRR and CCA work is to be pursued in an integrated manner at the local and national levels.

Opportunities for convergence

For a long time, DRR and CCA practitioners in the Philippines have been implementing similar but separate approaches to responding to increasing hazards brought about by intensifying climate change. This was on account of basically two factors:

1. Distinct differences in perspective. Some practitioners emphasize DRR as the overarching concept, suggesting that CCA should simply take the lead of DRR as the appropriate approach to reducing risk. Others give more importance to the new and additional dimensions that CCA brings to DRR, such as explicit attention to changing hazards; a more explicit focus on a pro-active approach; more attention for temporal and spatial patterns of risk, including climate forecasting and longer-term scenarios; more opportunities to address slow-onset disasters as well as gradual changes; and finally, an opportunity to attract more resources and have a bigger influence on development. In addition, an important underlying reason to explicitly address CCA in reducing disaster risk is that climate change is not just affecting the risk of extremes, but also the underlying vulnerability and resilience, through smaller-scale, less spectacular and more subtle changes that affect people's livelihoods and resilience.

2. Different institutional settings = different mind-sets and perspectives. In the Philippines, DRR practitioners from civil society worked mainly with the National Disaster Coordinating Council (NDCC) while CCA practitioners and advocates worked mainly with the Department of Environment and Natural Resources (DENR). These settings not only made for the different mind-sets and perspectives but also prevented practitioners from conversing with one another.

The Learning Event on DRR and CCA Work organized by Oxfam in the Philippines on April 13-14, 2010 was an initial attempt to bridge the conceptual divide between the two strands of development work and build a community of practice among DRR and CCA practitioners. In that event, participants, comprising mainly of Oxfam's respective partners and allies in DRR and CCA work in both the government and civil society sectors, arrived at a common definition that recognizes DRR and CCA as complementary strategies that do not only address disasters and climate change impacts but also more strategically, approaches or strategies for poverty reduction. The definition is as follow:

> DRR-CCA is an additional strategy for reducing the vulnerability of communities (to disasters and climate change impacts) in order to achieve the outcome of poverty reduction.

Participants based this common definition on their agreement that:

- DRR/CCA are approaches in addressing the problem of poverty
- Both aim at reducing risks and vulnerabilities of poor people arising from climate change and disasters
- Both are responsive to impacts on natural and human ecosystems
- Both approaches aim at building resilience and adaptive capacities
- Both contain the following elements or conform to the following principles:
    - Gender equality and the empowerment of women and men
    - Multi-sectoral participation
    - Multidisciplinary and cross-sectoral perspectives are taken into account
    - Respect for and consideration of both indigenous and scientific knowledge and practices
    - Transparent and accountable governance and financial mechanisms

Both employ the following strategies:

- Capacity-building of communities and institutional development
- Mobilization in time of calamities and disasters
- Identifying vulnerabilities that are climate-related
- DRR/CCA processes to be used to formulate community development plan
- Integrating climate forecasts in development initiatives
- Integrating CCA-DRR in fisheries development plan
- Integrating CCA-DRR in microfinance and micro-enterprises
- Establishing mechanisms for social protection and humanitarian protection targeting the most vulnerable

Existing models and criteria for integrated programming

Since June 2009, Oxfam, with support from the Australian

Agency for International Development (AusAid), has been implementing an 18-month long project (ending in December 2010) aimed at "improving disaster risk reduction knowledge management systems in the Philippines to create a safer environment for men and women in vulnerable communities." The project has 3 key result areas:

Key Result (KR) 1 : Knowledge Management - search for and documentation of good practices done by local communities (either NGOs/Pos or LGUs) with regards to DRR and CCA. Under this KR, project participants have come up with a selection criteria for good practices/models in DRR-CCA. Based on this criteria, the project has identified 5-7 initiatives of LGUs, NGOs and POs that are models of integrated or converged DRR- CCA programming that could be emulated and replicated by vulnerable communities throughout the country.

KR 2: Knowledge Sharing, whereby round table discussions with key stakeholders and communities are conducted to learn from their experiences and level-off on awareness and understanding on DRR-CCA.

KR 3 : Knowledge Application, whereby replication of the selected DRR-CCA good practices shall be applied by partners in two vulnerable provinces in Mindanao that have taken up training in the use of the Participatory Community-based Vulnerability Assessment tool.

The identified good practices were selected based on the following criteria, which could be used by emulators as a guide for developing their own converged DRR-CCA programmes.

1. General criteria

- Multi-stakeholder participation (including commitment and accountability of stakeholders).
- Community ownership.
- Gender sensitivity.
- Culturally appropriate.
- Demonstrates bottom-up and/or top down approaches.
- Demonstrates transparency in procedures and processes.
- Tangible results.
- Contains elements of education and capacity building or most vulnerable.
- Can be a model for replication.
- Cost effective.
- Exit strategy and sustainability mechanisms.

2. DRR and CCA criteria

- Harmonises local, indigenous and scientific knowledge about climate change and disasters.
- Project demonstrates analysis of climate change and disaster risk, vulnerability, and capacity.
    - Climate change and/or disasters are included in the analysis of factors driving poverty and suffering.
    - Gendered vulnerability is analysed.
- Project links with others to achieve political commitment and action.
    - Work takes place with allies and partners at multiple levels (for example; community, district, national, international) and across function (programming and campaigning) to ensure pro-poor, gender sensitive national policy and practice supports communities' own efforts to adapt to climate change and/or manage disaster risk.
    - Project influences the funding policies of major donors, so that funding for adaptation and risk reduction is adequate, reliable and easily accessed by those who need it most.
- Project grows organisational capacity to understand and address climate change and or/disaster risk reduction.
    - Makes sufficient human and financial resources available for developing organisational capacity for adaptation and risk reduction, including access toappropriate training and other forms of capacity development.
    - Organisational structures and ways of working are conducive to a multi-disciplinary, cross-aim approach to tackling adaptation and risk reduction.

3. CCA specific criteria:

- Climate change adaptation incorporated into programme design, implementation and evaluation.
    - Communities are empowered to understand climate change, identify solutions and hold decision-makers to account.
    - Programming contains elements that support communities to adapt to identified current and predictable impacts of climate change. These are centered on reducing the vulnerability of women and men's livelihoods, vulnerability to disasters, and protecting ecosystems so

that they are resilient to the stresses from climate change.
    - Programmes include explicit responses to the identified vulnerabilities, needs and capacities of women, those affected by HIV and AIDS, and indigenous communities.
    - The capacity of national institutions and systems is strengthened to develop and implement assess measures to tackle climate change, focusing on the most vulnerable.
    - Climate change adaptation and disaster risk reduction indicators are established, in consultation with partners and communities, to measure, monitor and communicate impact.

- Adaptation and risk reduction (ARR) indicators developed to measure, monitor and communicate impact.
- Involves planning for the long-term future while simultaneously helping communities cope with present circumstances, by reducing vulnerability and increasing resilience.

4. DRR specific:

- Project documents how it has contributed to ensuring disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
- Project identifies, assesses and monitors disaster risks and enhances early warning.
- Project uses knowledge, innovation and education to build a culture of safety and resilience at all levels
- Project reduces the underlying risk factors.
- Project strengthens disaster preparedness for effective response at all levels.

5. Gender specific:

- Project promotes women's needs and perspectives through more active roles for women and women's organisations in discussions and decisions about climate change, and encouraging a more balanced representation of women and men in decision-making
- Project uses the knowledge and specialised skills of women in adaptation and risk reduction strategies
- Project provides details on how climate change and disasters affect women's different roles.

4 CONCLUSIONS & RECOMMENDATIONS

Climate change impacts such as those that come in the form of stronger and more frequent typhoons are increasing natural hazards in many areas of the Philippines already highly prone to multiple disasters because of their location on both the typhoon path and earthquake and volcanic belt. Given the increasing vulnerability of many communities, the need for disaster risk reduction and climate change adaptation has become more urgent not only to save lives but also to protect assets and livelihoods and prevent more people from becoming poorer than they already are. DRR and CCA are two complementary approaches that can be integrated to achieve the ultimate aim of development work, which is poverty reduction. There are, however, challenges to integrated DRR-CCA programming in the country, chief among which are the lack of policy coherence and lack of awareness and appreciation among policymakers and executives at the local and national levels of the links between intensifying disasters and creeping climate change. But there are also opportunities, chief among which is the existence of a community of DRR and CCA practitioners that have agreed on a common definition of integrated DRR-CCA action and more importantly, have the experience and the evidence that such integration

can be done given the right policy environment. There is also a new administration that brings with it opportunities for advocating such policy environment with Malacanang and with both houses of Congress. Given this, the following recommendations for advocacy action by CSOs are submitted:

1. Actively engage the new administration in the formulation of its policy agenda to ensure that DRR and CCA concerns are mainstreamed in its development planning.

2. Actively lobby the new administration for the prioritization of DRR and CCA concerns in resource allocation. Develop allies and champions among LGU executives in high risk areas for this purpose.

3. Actively monitor/participate in the formulation of the IRR of the DRRM Law, focusing on provisions that make possible the operationalization and mainstreaming of integrated DRR-CCA interventions in national as well as local government planning and programming.

4. Actively lobby for the passage of a comprehensive national land and water use policy that will not only mandate shifting of economic and other human activities away from danger zones but ensure sustainable economic production based on the rational (as against the incoherent and chaotic) use of land and water resources for such production.

5. Conduct an IEC campaign aimed at raising the level of public awareness for disasters and climate change impacts and pressuring national and local government officials to pay more attention to addressing these urgent issues. The IEC campaign should also promote good practises in integrated DRR-CCA action as well as in the mainstreaming and institutionalization of DRR-CCA interventions in local land/water use and development planning.

NOTES

[1] UNISDR flyer, PDF available at www.unisdr.org/.../risk.../climate-change/.../disaster-risk-and-cc-flyer.pdf; retrieved 24 June 2010

[2] Building Resilient Communities: Good Practice in Disaster Risk Management in the Philippines, Oxfam primer, Quezon City: 2008

[3] SHINE is one of 5-7 initiatives selected as good practice under an 18-month joint Oxfam-AusAid documentation project that begun in June 2009.

[4] The information about CERD's work among Samar fisherfolk was provided by CERD officer Mayette Rodriguez while the information about PBPF's work was provided by its executive director Melvin Lamanilao. CERD and PBPF are Oxfam partner NGOs.

[5] Provincial profile published online by Microdis, available at http://www.microdis-eu.be/content/albay-philippines; retrieved 26 May 2010

[6] The Devastation of Ondoy and Pepeng!, article by Dr. Romulo A. Virola, Secretary-General, National Statistical Coordination Board (NSCB), available at http://www.nscb.gov.ph/headlines/StatsSpeak/2009/110909_rav_mrsr_typhoons.asp; retrieved 27 May 2010

[7] The Devastation of Ondoy and Pepeng!, article by Dr. Romulo A. Virola, Secretary-General, National Statistical Coordination Board (NSCB), available at http://www.nscb.gov.ph/headlines/StatsSpeak/2009/110909_rav_mrsr_typhoons.asp; retrieved 27 May 2010

[8] NEDA says El Nino impact on GDP seen at -0.57%, online Business Mirror article by Mia Gonzalez available at http://businessmirror.com.ph/index.php?option=com_content&view=article&id=23795:neda-says-el-nino-impact-on-gdp-seen-to-be-057&catid=45:regions&Itemid=71; retrieved 26 May 2010

[9] "Financing Adaptation in the Philippines: What is Needed and Where," Oxfam briefing paper, Philippines: 2009

[10] Conceptual inputs on DRR and CCA are adaptations from a 2009 powerpoint presentation of Charlotte Sterrett, Oxfam global adviser on climate change adaptation, entitled "Concepts of Climate Change Adaptation (CCA) & Disaster Risk Reduction (DRR)". Additional inputs are from presentations conducted by Donna Lagdameo and Marie Nunez, Oxfam DRR and climate change campaign officers, respectively, during the 1st Learning Event on DRR and CCA held in Quezon City, Philippines last April 13-14, 2010.

[11] Ibid., Financing Adaptation in the Philippines (Oxfam 2009)

[12] UNDP inputs obtained from document capturing an e-discussion on "exploring an integrated approach to disaster risk reduction and climate change adaptation for development programming: opportunities and challenges" downloaded from www.undp.org page on crisis prevention and recovery

[13] "Knowledge Systems in Upland Farming Practices in the Philippines and Implications for Climate Change Adaptation," paper presented by Maria Victoria O. Espaldon at the International Conference on Climate Change Adaptation in Southeast Asia, Bali, Indonesia. February 23-27,2008

[14] Reported by a National Irrigation Administration officer during a sharing session on climate change and rice production organized by Oxfam partner R1 in 2009

Integrating Disaster Risk Reduction and Climate Change Adaptation in the Philippines

Proceedings from the roundtable discussion, "A Sharing of Theory and Practice on DRR-CCA Work", held on 13-14 April 2010, Quezon City, Philippines

Climate change impacts such as those that come in the form of stronger and more frequent typhoons are increasing natural hazards in many areas of the Philippines already highly prone to multiple disasters because of their location on both the typhoon path and earthquake and volcanic belt. Given the increasing vulnerability of many communities, the need for disaster risk reduction and climate change adaptation has become more urgent. It will not only save lives but also protect assets and livelihoods and prevent more people from becoming poorer than they already are. DRR and CCA are two complementary approaches that can be integrated to achieve the ultimate aim of development work – poverty reduction.

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