

## CONTEXT ANALYSIS REPORT THE PHILIPPINES

### Programme: Climate-Proof Disaster Risk Reduction

#### Involvement of Southern partners

*During a week long programme development workshop, Southern partners actively participated in the development of the programme. During the workshop, the “Pressure and Release” model was presented and adapted on the basis of inputs on disaster risk reduction (DRR), climate change adaptation (CCA) - both in the Philippines and globally - and insights in ecosystem management and restoration (EMR). The model was then used to complete the problem analysis of the three programme locations. Following this, Southern partners carried out a target group analysis, a SWOT of Philippine civil society, designed the tailor made programme and carried out the programme SWOT. These products were validated and sharpened during an external stakeholder meeting, which was led by the partners. One of the partners took the lead in coordinating inputs and drafting the context analysis. To complete the final version, another partner took the lead in fine-tuning the information presented below. In all, this was a very rewarding and partner-led initiative, as confirmed by one of them who commented: “Thank you for your inputs. I am learning a lot from this process.” Indeed, the capacity of the partners was strengthened through the participatory nature of the planning process, as well as through the workshops with the technical experts. One of the partners was so enthusiastic about the added value of combining the three different approaches of DRR, CCA and EMR that they will design such a programme in another region with their own funding.*

### I. INTRODUCTION

The Philippines, an archipelagic nation with an estimated population of 97 million, is a parliamentary democracy. In the constitution a provision is made for the autonomous regions in the Muslim areas of Mindanao and in the Cordillera region of northern Luzon, where many aboriginal tribes live.<sup>i</sup> The Philippines ranks 105 (out of 180) on the Human Development Index.<sup>ii</sup> There are wide geographic disparities in poverty distribution across and within the different regions and between rural and urban areas, with the highest incidences of poverty found in Mindanao and in the Cordilleras.<sup>iii</sup> Agriculture (34%), industry (15%), and services (51%) employ respectively 34%, 15% and 51% of the labour force. The agricultural sector's share of GDP is 13.8% and that of the informal sector 43%. Around 24.6 million people are active in the informal sector. In Mindanao, civil conflict is linked in part to access to natural resources. Some investments (both public and private) in resource-intensive mining, fishing, energy and forest industries have degraded and diminished available resources, displaced segments of the population, disrupted the social fabric of indigenous communities and exacerbated tensions.<sup>iv</sup>

During El Niño events, the Philippines experiences abnormally dry conditions except during the wet period July-September. This may lead to declines in agricultural production, extreme heat, water shortages, increased occurrence of cholera, dengue, malaria and typhoid fever during El Niño. During La Niña events the situation is the inverse and floods increase. El Niño and La Niña events influence the number of tropical cyclones in a given year.<sup>v</sup> The climate data for the past 50 years already shows trends of rising temperatures by about 0.011°C annually, changes in the rainfall pattern and increasing number of extreme climate events. It is projected that the mean annual temperature will have risen by about 0.9°C to 1.4°C by 2020 and 1.7°C to 2.4°C by 2050.<sup>vi</sup> This will have a significant impact on the intensity and frequency of droughts, cyclones and rainfall. The latter may increase in certain parts of the country. Over the period 1990-2009 around 85 million people have been affected by various disasters.<sup>vii</sup> Cyclones, tsunamis and coastal storms periodically affect most of the coastal regions, causing flooding and inundation in low-lying areas. The country's rich and diverse natural resources are rapidly being depleted due to a variety of factors such as high population pressure, advancing industrialisation and the proliferation of logging and mining. Legal and regulatory regimes are marked by lack of clearly defined mandates between the national and local authorities. Small scale mining and the use of metallic mercury have negative impacts on both the environment and the health of the local population.<sup>viii</sup> Though the government does support the worst affected people after major disasters, most people that are affected by more frequent medium and low scale disasters are left on their own to cope and recover from their losses.

The environmental outlook is bleak.<sup>ix</sup> Around 98% of all Philippine coral reefs are at risk from human activities and 70% are at high risk. Exacerbating the condition is the conversion of more than 70% of mangrove forest to aquaculture, logged or reclaimed for other uses. In general, the coastal and marine ecosystems of the country are in a decline,<sup>x</sup> wherein the coral reefs that support the livelihoods of millions of people in coastal areas and supply seafood, building materials, sources for medicinal products, and draw in much needed tourism revenue is threatened. Reefs and mangroves protect shorelines and communities from storms and erosion. Due to massive illegal deforestation, only eight per cent of the original primary forest remains, which exacerbates poverty in communities living near protected areas and natural reserves.<sup>xi</sup> The Philippines is expected to experience a decline in rice productivity by as much as 40 to 75 percent by the end of the century, owing to dramatically changing climatic patterns.

With 17,000 kilometres of coastline the Philippines are increasingly exposed to high risk tidal surges. The country is the 12<sup>th</sup> most disaster prone country in the world (out of 200 analysed) with respect to tropical cyclone, flood, earthquake and landslide risk.<sup>xii</sup> The projected increase in the risk of floods, the intensity of tropical cyclones and drought due to climate change is likely to impact health negatively. After flood events, diarrhoeal diseases and

vector-borne diseases are more common due to mixing of human waste and drinking water.<sup>xiii</sup> Stagnant pools of water provide extra breeding grounds for disease carrying mosquitoes. Intense cyclones can cause death and injury. In times of drought, water quality can decrease, causing diarrhoea. Lack of access to adequate amounts of water for personal hygiene can cause diarrhoeal disease, intestinal worms and trachoma.<sup>xiv</sup> People are more likely to store water around the home during dry periods which can provide breeding grounds for mosquitoes carrying dengue. There are 17,500 deaths annually in the Philippines due to diarrhoeal diseases which is equivalent to 21 deaths per 100 000 people.<sup>xv</sup> Incomplete water and sanitation infrastructure coverage and poor knowledge of hygiene increase the risk of diarrhoeal disease. These factors make populations vulnerable to extreme events. The coverage of water infrastructure in the Philippines is relatively good with 91% of people having access to an improved drinking-water source. Sanitation coverage is lower with 76% having access to improved sanitation.<sup>xvi</sup>

## II. TARGET GROUP ANALYSIS

The Partners for Resilience will target the poorest communities that are vulnerable to natural hazards exacerbated by climate change and natural resource degradation. In the rural areas, the groups most at risk are indigenous people, fisher folks and poor rural farmers who depend on ecosystem services and have climate and natural resources dependent livelihoods. They live in Cordillera Administrative Region (CAR) (Benguet) and CARAGA Region (Agusan del Sur, Agusan del Norte, Surigao del Sur, Surigao del Norte), situated in the Eastern province of Mindanao.

In the urban setting, those living in slum areas, near the river banks and floodways will be targeted. Women, elderly, people with disability and children are most at risk. They live in National Capital Region (NCR) (Caloocan City, Malabon, Navotas, Valenzuela, Quezon City, Marikina, Pasig, Pateros, Taguig and Muntinlupa City), which comprises Manila, among other large cities. Rapid urbanisation has put people living below the poverty line both at great climatic and disaster risk, as the slums are particularly hazard prone.

*Civil society organisations, local and regional government are also target groups; they are described below under “Contextual analysis” and “Multi-actor analysis”.*

## III. PROBLEM ANALYSIS

### Micro

The coasts, rivers, lakes, mountain ranges and marshlands of CARAGA and Cordillera are regularly exposed to typhoons, floods (including incursion of sea water), droughts and landslides. Occasional earthquakes are another hazard. The communities' vulnerability is exacerbated by climate change and ecosystem degradation, which, in turn, increases their disaster risk. All this greatly affects their livelihoods, mainly agriculture and fishing. Logging and mining (gold, silver, copper) in the area has further compounded the situation. The population is pushed into the mountains where access to social services is even poorer. Mining is contaminating surface water with metallic mercury thus contributing to ecosystem degradation and poor drinking water quality.

The urban poor who live in the NCR are susceptible to multiple hazards, including floods, cyclones, and fires. The Metro Manila Earthquake Impact Reduction Study revealed that if a 7.2 magnitude earthquake would hit the metropolis, 60,000 deaths are likely to occur plus an additional 30,000 due to secondary hazards, such as fire. Pollution from human excreta and domestic garbage creates health problems in these communities due to poor hygiene practices and overcrowding, which facilitates the spread of communicable diseases. These factors increase disaster risks and aggravate damage to the environment and ecosystems. Livelihood opportunities for the urban poor are limited. Many of the urban poor earn a meagre living in the informal services sector. Underemployment and unemployment are high in these slum areas.<sup>xvii</sup> The slums are inhabited by heterogeneous populations with weak social cohesion. This hampers public action and increases their vulnerability.

### Meso

The large indigenous populations of CARAGA and Cordillero have traditionally been discriminated against and marginalised. Their position vis-à-vis authorities is weak and they have difficulty securing land and land tenure, which in turn holds back investment in infrastructure and modern farming techniques. The selective enforcement of the Indigenous Peoples Act has not helped to strengthen the position of the indigenous population, thus undermining their resilience. The allocation of the internal revenue allotment (IRA) is highly dependent on the classification of the province and or municipalities. As a result, rural communities such as CARAGA and Cordillero are at a disadvantage and investment in basic social services and infrastructure are lagging.<sup>xviii</sup>



Urbanisation in NCR continues at a rapid pace. Some 262,000 informal settlements are situated in what may be considered high risk or danger areas: riverbanks, railroad tracks, shorelines, dumpsites, low-lying areas susceptible to flooding, under bridges, relocation sites lacking amenities and tenurial security, and areas under threat of eviction.<sup>xix</sup> Poor housing, lack of basic services, and enormous pressures on urban carrying capacities, particularly solid waste management, and air and water pollution all need urgent attention. In addition, the absence of a DRR responsive urban development strategy to guide planners, policy makers and other stakeholders increases vulnerabilities.

#### Macro

The Mining Act of 1995 allows these environmentally damaging mining methods, and leaves room for corruption to thrive, while local mine workers are not allowed to unionise. There is poor and selective enforcement of environmental laws which contradicts their purpose, promotes double standards and favours large economic interests. There is hardly any knowledge on how indigenous people perceive disaster and its risks; what in their view the best solutions would be; or how they perceive “modern” solutions.

### IV. CONTEXTUAL ANALYSIS

Poor people in the Philippines have limited access to decision making processes, services and resources. Access to and control over land and water often remain bottlenecks that need to be resolved for poor people to improve their livelihoods and strengthen their resilience. The quality of social services such as health care is particularly poor in disadvantaged and isolated areas. Unequal power relations between men and women persist, leading not only to violence against women, but also to their inability to pursue meaningful employment.<sup>xx</sup>

Economic growth the Philippines has remained moderate and its benefits have gone disproportionately to the richer strata of society, thus increasing income disparities. The increasing economic marginalisation of the poorest groups and minorities has weakened their leverage in society. The quality and distribution of economic and financial infrastructure lags far behind in disadvantaged areas, where it is precisely most needed.<sup>xxi</sup>

The National Disaster Coordinating Council (NDCC) is the highest policy-making body for emergency management in the Philippines, with the Office of Civil Defence (OCD) as its operating arm. In case of disaster, primary responsibility rests with these government agencies, provincial governors, mayors and district chairmen. Disaster response has become somewhat dependent on the interests of the elected officials (governors, mayors or district chairmen). The local Disaster Coordinating Councils (DCCs) work in a reactive manner and have limited knowledge about disaster preparedness, prevention and mitigation.

The Philippine Government is a signatory to the Hyogo Framework for Action (HFA) and adopted its Strategic National Action Plan (SNAP) which is a roadmap for the next 10 years in pursuit of HFA. It contains 18 priority programmes based on 150 strategic actions. SNAP aims to: 1) build the resilience of communities; 2) reduce disaster induced losses in lives and social, economic and environmental assets of communities; and 3) strengthen cooperation and coordination mechanisms. The new Disaster Risk Management bill is soon to be signed into law, which will shift the paradigm from a reactive to a preventive approach. A Climate Change Act was passed in 2009 and the Philippine Adaptation Strategy on Climate Change 2012-2022 was adopted. Few actions have been taken to reduce disaster risks due to environmental degradation.

Civil society has made great strides over the last two decades. A recent study indicates that NGOs and other civic groups have increased their effectiveness through networking and coalition building, campaigning for policy reform, adopting good practice standards, and advancing “sustainable development” as a unifying vision for all organisations. For example, the Strategic National Action Plan for DRR was made possible because of the participation of wide array of CSOs. CSOs have a strong presence at the local level. Civil society owes its strength to a large degree to the support it has received from successive governments since the mid-1980s.

The Partners for Resilience will work via the following CSOs that have been selected on the basis of their vision and mission in relation to the target group as well as their competencies, experience and track record:

- **The Philippine Red Cross (PRC)** has an auxiliary role to the Government and holds seats in the Disaster Coordinating Council at national, provincial and municipal level;
- **Assistance and Cooperation for Resilience and Development (ACCORD)** has extensive experience in community based DRR. The organisation maintains a roster of consultants with expertise in DRR and CCA related fields. Availability of tools, training manuals and other instructional materials, and links with other DRR actors complement the organisation’s experience and competencies. It is very well placed to provide technical assistance and help build local partners’ capacities in quality programming;
- **Agri-Aqua Development Coalition-Mindanao (AADC)** brings together farmers, fisher folk, indigenous peoples, and peasant women from across Mindanao and organises them into municipal-level coalitions. Its focus is on local governance and economic empowerment;
- **Assisi Development Foundation (ADF)** takes part in programmes for sustainable agricultural technology, livelihoods, and relief and rehabilitation of communities affected by armed conflict in Mindanao;

- **Corporate Network for Disaster Response (CNDR)** is a network of business groups, whose objective is to institutionalise disaster management efforts of the business community. It has programmes in membership servicing, emergency response, community-based disaster risk management and resettlement assistance.
- **Catholic Bishops Conference of the Philippines – National Secretariat for Social Action (CBCP – NASSA)** has valuable experience in integrated ecosystem management, including sustainable agriculture and rural development;
- **International Institute of Rural Reconstruction (IIRR)** takes an integrated and community-based approach to DRR which includes strengthening of livelihoods and health systems;
- **Peace and Equity Foundation (PEF)** specialises in poverty reduction and community managed DRR; it has a focus on natural hazards such as floods, landslides and tidal surges.

On the basis of the SWOT analysis of Philippino civil society, the following strategies for strengthening civil society were formulated for inclusion in the country programme:

	Strengths	Weaknesses
Opportunities	<p>Increase capacities of CSOs to tap funding opportunities</p> <p>CSOs to maximise their membership in alliances and networks to increase their capacities through sharing experiences and expertise</p> <p>Advocate for CSOs either through individual organisations or networks/alliances to integrate DRR, CCA and EMR in their development programs</p> <p>CSOs to push for increased representation and involvement in the government led committees and commissions at the local and national level</p> <p>Enhance the dissemination of CSOs' expertise and best practices not only locally but globally</p>	<p>Conduct inventory of expertise and needs of CSOs</p> <p>Implement projects that will promote mentoring among CSOs</p> <p>Apply for projects that support capacity building of CSOs</p> <p>For alliances and networks to come up with salary survey and based on this propose salary standards among CSOs</p> <p>Invest in trainings of development workers coming from local communities</p> <p>CSOs to get involved/ increase their involvement in projects at the global level as avenues for capacity building</p> <p>Complementarity in the strengthening of DRR/CCA/EMR innovations, models and tools</p>
Threats	<p>Enhance the dissemination of CSOs expertise and best practices not only locally but globally</p>	<p>CSOs to invest in increasing their capacities on global issues like Climate Change Adaptation and Ecosystems based approaches</p>

## V. MULTI-ACTOR ANALYSIS

As the Partners for Resilience brings together four members from different backgrounds, and all working with their own networks, it has extensive relations with most of the key actors in DRR/CCA/EMR in the Philippines and beyond.

### Government

1. The Partners for Resilience and the Netherlands Embassy share the same views in respect of the vulnerability to disaster and climate risks. The Netherlands Embassy will support the Partners for Resilience by means of policy dialogue and advocacy;
2. The Philippine Red Cross 'Society is in a unique position because it has an auxiliary role to the Government and holds seats in the Disaster Coordinating Council, at national provincial and municipal level;
3. Southern partners in the Philippines work closely with government line agencies on DRR and CCA: Office of the Civil Defense-National Disaster Coordinating Council (OCD-NDCC), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Philippine Institute of Volcanology and Seismology (Philvolcs), National Economic and Development Authority (NEDA), the Bureau of Mines and Geosciences of the Department of Environment and Natural Resources, Department of Education, Department of the Interior and Local Government and the Department of Energy;
4. Cordaid activities with the Partners for Resilience will be complementary to its community-managed Disaster Risk Reduction (DRR) work in the same target areas.

### Donors

The European Commission, Japan International Cooperation Agency, MISEREOR International, United Nations Development Program, UNICEF, United States Institute of Peace, Heifer International, Hope International and Asian Development Bank support DRR/CCA and EMR through the same partners that the Partners for Resilience are working with. Plan International, Christian Aid, Oxfam-GB, World Bank and AusAid have indicated they will complement the work of the Partners for Resilience.



(Inter)National platforms and networks

1. Some of the Southern partners and implementing partners like IIRR, ACCORD and CNDR are engaged in Disaster Risk Reduction Network Philippines and the Civil Society Organisation-Working Group on Climate Change and Development (now called Pilipinas Aksyon Klima) to support policy platforms and strategies for disaster risk reduction and climate change adaptation;
2. The Philippine National Red Cross is member of the Disaster Coordinating Council, from the national level down to the provincial and municipal levels;
3. The Agri-Aqua Development Coalition (AADC) has a strong link with the largest NGO network in the Philippines, the Caucus of Development NGO Network (CODE NGO). The CODE-NGO can support the programme's advocacy work on DRR/CCA and EMR. It can assist in the integration of DRR and CCA in the government's Medium Term Philippine Development Plan (MTPDP). AADC is involved in the Joint Oxfam Mindanao Program on sustainable livelihood in the CARAGA Region;
4. The Cordillera Disaster Response and Development Services (CorDisRDS) will specifically complement programme activities with the Center for Development Programs in the Cordillera (CDPC), a consortium of NGOs and people's organisations in the Cordillera region. CorDisRDS is a member of the Citizens' Disaster Response Network, a network of disaster response NGOs;
5. Initiatives and organisations that the Partners for Resilience will align with and develop close relations with for learning, policy and strategy development include but are not limited to:
  - "Strengthening Climate Resilience" which is a consortium led by the Institute of Development Studies and which includes Plan International and Christian Aid. SCR is a DfID-funded programme that aims to enhance capacity of governments and civil society to build the resilience of communities;
  - Knowledge and research institutes like the Manila Observatory, University of the Philippines-National Institute of Geological Sciences, Southeast Asian Regional Center for Graduate Study on Research in Agriculture (SEARCA), Academy for Educational Development and Ateneo School of Government (ASOC) and the International Rice Research Institute (IRRI)
  - Philippine Climate Change Commission.

The specific niche of the alliance is the interconnected approach to DRR, CCA and EMR in relation to the interventions of other actors who deal with these subjects more sectorally.

**VI. TAILOR-MADE PROGRAMME**

The programme aims to reduce the impact of hazards as described in the context analysis of at risk communities in CARAGA, Cordillera and NCR. The key issues that need to be addressed are: 1) insufficient protection of communities against disaster risk; 2) DRR and CCA are currently not benefiting from an interplay between indigenous and scientific knowledge; 3) livelihood activities are mostly undertaken without measures being taken against natural hazards and climate change, and without taking into account their possible role in the increase of risks; 4) most civil society organisations do not take an integrated approach to DRR, CCA and EMR in their programmes; and 5) local and national institutions and authorities assign low priority to DRR, CCA and EMR.

To strengthen the resilience of communities in the face of hazards and climate change the programme will initiate three approaches: 1) principles and techniques for DRR, CCA and EMR will be introduced at various levels in communities; 2) civil society organisations will be supported in mainstreaming DRR, CCA and EMR in their development programmes; 3) government institutions at all levels will be engaged in policy dialogue to create concrete support for DRR, CCA and EMR.

The members of Partners for Resilience and their local partners in the Philippines have extensive networks and have thorough experience in strengthening resilience of communities, including disaster risk reduction and sustainable natural resource management. The profiles and environments of the communities being targeted are very similar to those of the communities in which the Partners for Resilience have been working so far. It is therefore reasonable to assume that the intended results of the programme can be obtained.

These activities will benefit from the global support component which provides best practice on DRR/CCA/EMR to the community resilience activities, specifically from other countries in Asia/Pacific; engaging with new initiatives like the Regional Adaptation Knowledge Platform of UNEP; links to global networks of civil society organisations and knowledge centres that will provide tools and partnerships to the Partners for Resilience; and global policy inputs that will support their engagement with national policy makers, planners and implementing agencies. This specifically includes: the UN Framework Convention on Climate Change process; the World Bank, which is implementing a Special Climate Change Fund project to integrate climate and disaster risk management into agriculture and irrigation investments; a programme of the Global Facility for DRR supporting the Red Cross in CCA; Asian Development Bank; and UNDP and others.

The following important opportunities will be grasped to ensure the success of the programme: 1) passage of the Climate Change Act 2009 and the active participation of the CSOs in the formulation of the Implementing Rules and Regulation; 2) a Disaster Risk Management Bill, in the formulation of which CSOs have actively participated, is expected to be signed by the President soon; 3) growing interest among international donors in DRR and CCA programmes; 4) increasing awareness of local government of the importance of DRR and CCA; and 5) increasing

policy support from central authorities as witnessed by Guidelines on Mainstreaming DRR in Subnational Development and Land Use/Physical Planning from the National Economic and Development Authority, the Strategic National Action Plan (SNAP) from the National Disaster Coordinating Council, and the Philippine Adaptation Strategy on Climate Change 2012-2022.

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<sup>i</sup> <http://www.state.gov/r/pa/ei/bgn/2794.htm#profile>

<sup>ii</sup> UNDP, Human Development Report, released October 5, 2009

<sup>iii</sup> European Commission country strategic Plan 2007-2013

<sup>iv</sup> [http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf)

<sup>v</sup> Kubota, H. and J.C.L Chan. Interdecadal variability of tropical cyclone landfall in the Philippines from 1902 to 2005. *Geophysical Research Letters* (2009) Vol. 36. P L12802

<sup>vi</sup> **Executive Summary**, The Philippine Adaptation Strategy on Climate Change

<sup>vii</sup> Step 2 Report of the Preparedness for Climate Change Program. Philippine Red Cross. This report used the following sources:

1. Hulme, M. and Sheard, N. (1999) Climate Change Scenarios for the Philippines Climatic Research Unit, Norwich, UK
2. Leoncio A. Amadore, Ph.D. 'Crisis or Opportunity: Climate change impacts and the Philippines Greenpeace (2005)
3. PAGASA – Climatology and Agrometeorology Website [www.pagasa.dost.gov.ph](http://www.pagasa.dost.gov.ph)

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<sup>viii</sup> The EC Philippines Strategy Paper: 2007-2010:

[http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf) [http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf)

<sup>ix</sup> The EC Philippines Strategy Paper: 2007-2010:

[http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf) [http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf)

<sup>x</sup> 2005 Philippine Report of the Biodiversity Indicators for National use.

<sup>xi</sup> The EC Philippines Strategy Paper: 2007-2010:

[http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf) [http://ec.europa.eu/external\\_relations/philippines/csp/07\\_13\\_en.pdf](http://ec.europa.eu/external_relations/philippines/csp/07_13_en.pdf)

<sup>xii</sup> UNISDR

<sup>xiii</sup> Ahern M, Kovats RS, Wilkinson P, Few R, Matthies F. Global health impacts of floods: epidemiologic evidence. *Epidemiol Rev.* 2005;27:36-46.

<sup>xiv</sup> Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich and A. Woodward, 2007: Human health. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 391-431.

<sup>xv</sup> WHO 2004 Global Burden of Disease.

<sup>xvi</sup> WHO health statistics 2010

<sup>xvii</sup> [http://www.undp.org.ph/cca/Section\\_2\\_Defining\\_the\\_Development\\_Challenge.pdf](http://www.undp.org.ph/cca/Section_2_Defining_the_Development_Challenge.pdf) . Page 15. Accessed on 13 May 2010.

<sup>xviii</sup> <http://www.bworld.com.ph/Research/populareconomics.php?id=0101>

<sup>xix</sup> [http://www.undp.org.ph/cca/Section\\_2\\_Defining\\_the\\_Development\\_Challenge.pdf](http://www.undp.org.ph/cca/Section_2_Defining_the_Development_Challenge.pdf) . Page 14-15. Accessed on 13 May 2010.

<sup>xx</sup> [http://www.undp.org.ph/cca/Section\\_2\\_Defining\\_the\\_Development\\_Challenge.pdf](http://www.undp.org.ph/cca/Section_2_Defining_the_Development_Challenge.pdf) . Accessed on 13 May 2010.

<sup>xxi</sup> [http://www.undp.org.ph/cca/Section\\_2\\_Defining\\_the\\_Development\\_Challenge.pdf](http://www.undp.org.ph/cca/Section_2_Defining_the_Development_Challenge.pdf) . Accessed on 13 May 2010.