Working Paper

Mainstreaming Climate Change in the Philippines

Rodel D. Lasco, Florencia B. Pulhin, Patricia Ann Jaranilla-Sanchez, Kristin Garcia, and Roberta Gerpacio

Southeast Asia

World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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Abstract

The Philippines, as an archipelagic and developing country, is very vulnerable to climate change. Current efforts to address the impacts of climate change exist but may be insufficient. We tried to assess how far climate change has been mainstreamed into key development plans and programs such as the Medium Term Development Plan. Interviews with key informants were also conducted. Results show that climate change has not been mainstreamed in the Philippines. All the major development plans and policies reviewed did not contain any reference to climate change adaptation. The results of interviews with key stakeholders show similar trend. The reasons that hinder climate change mainstreaming are: 1.) national priorities are biased towards more pressing concerns and 2.) pervasive lack of awareness on the impacts of climate change to sustainable development. However, there are massive investments on infrastructure projects designed to adapt to climate-related hazards. These projects could provide an entry point in integrating climate change adaptation into national programs and policies.

Keywords

climate change, adaptation, mainstreaming, development, Philippines

Acknowledgements

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Contents

Introduction

Throughout history, humans have been vulnerable to climate-related hazards. Climate variability and extremes wreck havoc to both natural and social systems. Indeed, recent data suggests that human society is now more vulnerable to climatic risks than ever before. The IPCC (2001) estimated that the average annual global losses due to extreme weather events were US $40 billion annually in the 1990s (an almost four-fold increase relative to the 1980s). This rise was attributed partly to an increase in frequency and severity of storms, and partly due to increased infrastructure and other reasons. More ominously, there seems to be an exponential rise in economic losses due to climate-related disasters (Burton, 2004).

To make matters worse, the world's climate may be changing. In the last 200 years, man has made enormous progress in harnessing natural resources to support an ever-increasing level of consumption. The use of fossil fuels has largely driven this quest for industrial development. A deadly by-product of this development path is the rise in the concentration of greenhouse gases (GHGs) which could lead to a change in the world's climate. The Intergovernmental Panel for Climate Change Fourth Assessment Report (IPCC Working Group I, 2007) concludes that there is stronger evidence that human activities are already affecting the world's climate.

The Philippines is highly vulnerable to current climate risks as well as future climate change. An average of 20 tropical cyclones enter the Philippine area of responsibility although around 8 or 9 will cross any part of the country (**Figure 1a and Figure 1b**). These result to a great loss of lives and damage every year. For example, in September 2006, tropical storm "Milenyo" (international codename: Xangsane) caused the death of 184 people, injured 536 people, and 47 people went missing. It damaged a total of about 500,000 houses with total damages to properties reaching US$ 134 million. Agricultural damage reached US$ 83 million (NDCC, 2006).

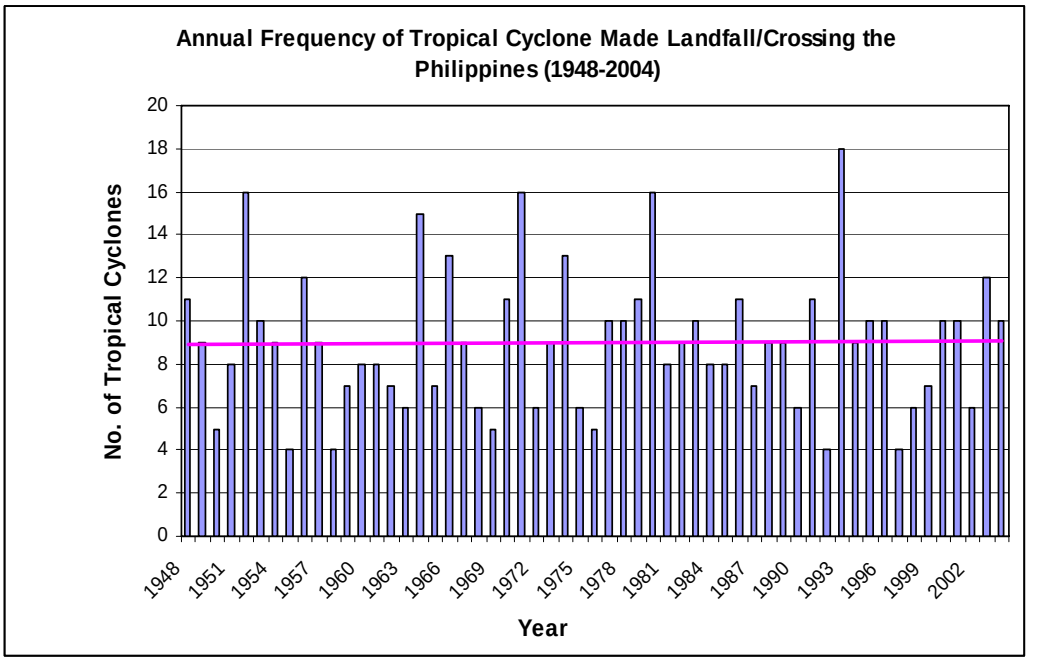

Figure 1a. Annual frequency of tropical cyclone made landfall/crossing the Philippines, 1948-2004. (Source: http://www.pagasa.dost.gov.ph/cab/cab.htm)

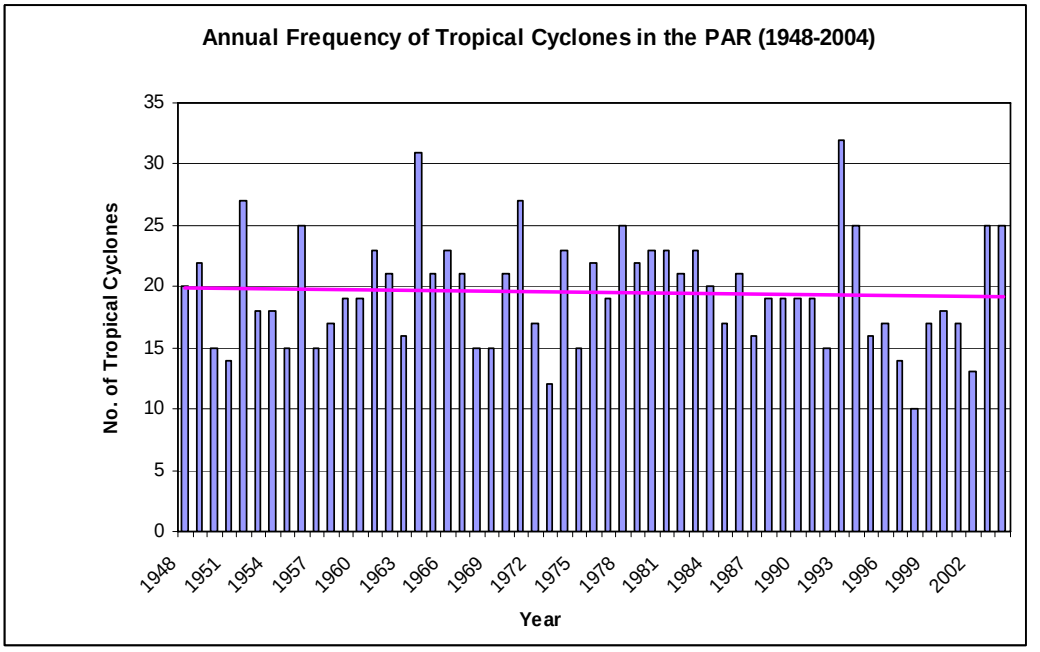

Figure 1b. Annual frequency of tropical cyclones in the Philippines Area of Responsibility, 1948-2004. (Source: http://www.pagasa.dost.gov.ph/cab/cab.htm)

In addition, the country is periodically affected by the ENSO (El Niño-Southern Oscillation) phenomenon that induces prolonged wet and dry seasons. For example, the 1997-1998 El Niño resulted to a GDP contraction in 1998 caused by a 6.6% drop in agricultural production and the decline in construction and construction-related manufacturing by 9.5% (The Philippines Initial

National Communication, 1999). From 1990 to 2003, the estimated damage due to ENSO-related drought was estimated to be more then US$ 370 million (**Table 1**). As a result of the massive loss in agricultural production in the 1980s, several measures are being implemented to minimize its effects. A key to this is an early warning and forecasting system which allows government agencies to mobilize resources and farmers to plan ahead.

Table 1. Effect of El Niño drought occurrences in the Philippines from 1990 to 2003.

Year	Affected Areas		Affected Population		Estimated Damage (US$ Million)
	Region	Provinces/Municipalities	Families	Persons	
1990	VII	Mindanao and Visayas areas	220,259	1,189,309	70.54
1991	VII	Mindanao	47,987	254,282	33.98
1992	IX	Luzon, Visayas and Mindanao	209,255	1,027,103	85.29
1993					0.35
1994	XII	North Cotabato	790	3,450	0.69
1995	II	Cagayan, Isabela, Quirino		97,436	
	VI	Guimaras and Antique	33	198	
	XII	Lanao del Sur	13,103	65,515	0.01
1998	XIV	64 provinces and 11 municipalities	586,221	2,931,105	176.15
2002	II	Tuguegarao City, Cagayan			
	III	Zambales, Tarlac and Pampanga	91,571	423,091	
	XII	Cotabato Province and Sultan Kudarat			
	I	Ilocos Norte, La Union and Pangasinan			
	XI	Tarragona, Davao Oriental			
			1,296	6,480	4.54
2003	XI	Gov Generoso, Davao Oriental	148	740	0.03
		Grand Total	1,170,663	5,998,709	371.58

(Source: PAGASA database, 2006)

It is expected that climate change will exacerbate existing stresses in the country (The Philippines Initial National Communication, 1999). Recent studies in the Philippines showed that water resources, natural ecosystems and local communities are vulnerable. For example, the amount of seasonal water supply from watersheds could change leading to flooding in the rainy season and water deficit in the dry season (Cruz *et al*., 2006). In addition, forest ecosystems may shift leading to the loss of dry

forests types (Lasco *et al*., 2006). The poorest of the poor are expected to bear the brunt of the impacts of climate change (Pulhin *et al*., 2005).

It is increasingly being recognized that the way to address climate change is to “mainstream” it. The concept of climate change mainstreaming refers to the full integration of climate change adaptation policies into national development programs (Huq *et al*., 2003). This is in recognition that the most effective way to address climate change impacts on the poor is by incorporating adaptation measures into sustainable development and poverty reduction strategies (Klein *et al*., 2007; Huq *et al*., 2006; Sperling, 2003). As a result, multilateral agencies such as the World Bank are starting to find ways to integrate climate change in its project planning (Burton and van Aalst, 2004). However, in general for many developing countries in Asia, policy makers have not yet paid much attention to climate change as a priority topic (Srinivasan, 2005).

Here we assessed how far climate change has been mainstreamed in the Philippines. We first looked at climate change integration in national development policies and programs. We also conducted a survey of key stakeholders in the climate change and policy community to get their perception.

Methods

We used two approaches in assessing how far climate change has been integrated in major development plans and programs of the government. First, we reviewed the following relevant documents: the 2004-2010 Medium Term Philippine Development Plan (http://www.neda.gov.ph/ads/mtpdp/MTPDP2004-2010/PDF/MTPDP2004-2010.html), the Philippines MDG plan (http://www.neda.gov.ph/econreports_dbs/MDGs/default.asp), and the Philippine Agenda 21 (http://pcsd.neda.gov.ph/pa21.htm). We assessed whether and in what way climate change has been considered in these national development plans.

Secondly, we also conducted key informant interviews from November 2006 to January 2007 of the people who are most active in the climate change discussion in the Philippines. We used as a basis the list of attendees in the various national and international climate change meetings, conferences and workshops that have been conducted in the country, most of which we also participated. Figure 2 shows the profile of the respondents.

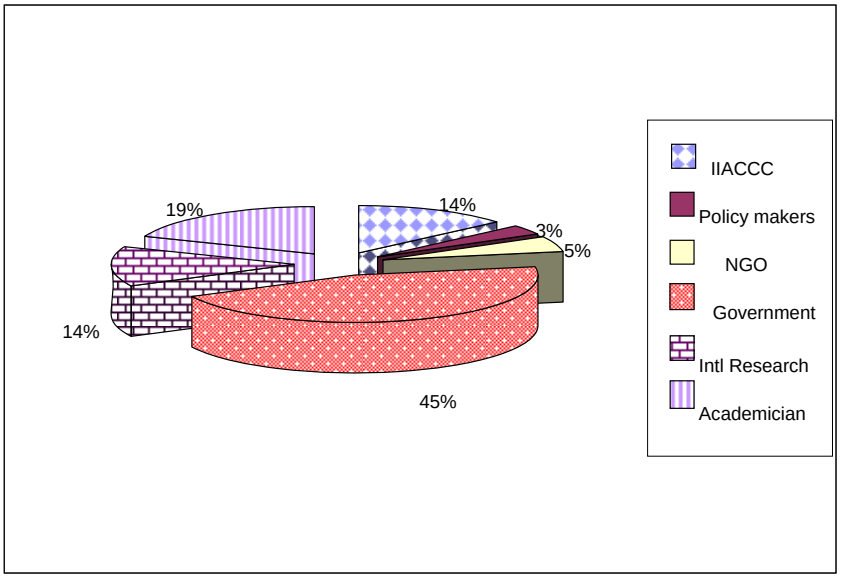

Figure 2. Profile of the respondents to key informant interviews.

A total of 83 respondents were interviewed either by telephone, fax, or actual face-to-face interview. There was a fairly even distribution of respondents from all sectors. About half of the respondents were connected with a government office while academicians and researchers comprise most of the other half (**Figure 2**). Only 3% said they were policy makers but many of the government staff interviewed have some influence in climate change policy. The government agencies represented includes various offices under the Department of Environment and Natural Resources (DENR) which is a key office that hosts the influential Interagency Committee on Climate Change.

Results and Discussion

National development policies and plans

We reviewed the following documents which reflect the main development agenda of the Philippines: the Medium Term Development Plan for 2004-2010, the Philippines Millennium Development Goals, and the Philippine Agenda 21.

The primary document that guides national development programs in the Philippines under the current leadership is the Medium Term Philippine Development Plan (MTPDP) for 2004-2010 prepared by the National Economic Development Authority (NEDA, 2004). The MTPDP contains a ten-point agenda which the executive branch hopes will be its legacy when the term of the president expires in 2010. Among its notable targets are the creation of one million jobs and the development of two million hectares of agricultural lands. One striking thing about the 283-page document is that climate change was mentioned only once. This was in the context of the Clean Development Mechanism (CDM) under the chapter on energy independence. The plan states that the government will take advantage of opportunities presented under the CDM to boost the development of indigenous energy resources. Under a cash-strapped economy, it is understandable that attention has been focused on potential income earning aspects of the climate change issue. There was no mention at all of adaptation to the impacts of climate change. Clearly, national decision makers do not see climate change adaptation as a high priority issue in the context of national development plans. In this sense, climate change adaptation has not been mainstreamed in the Philippines.

However, the MTPDP dealt with natural disasters adaptation prominently, mentioning the word "disaster(s)" 19 times in the entire document. This is understandable because the Philippines is highly vulnerable to natural disasters especially climate extremes such as tropical cyclones. For example, in the year 2000, 18,339 lives were lost due to landslides while PhP 42 million (US$ 0.88 million) worth of property were damaged in 2003. Disaster mitigation and adaptation were discussed most thoroughly in the chapter on environment and natural resources. It was also discussed more briefly in the chapters on agribusiness, financial sector, responding to basic needs of the poor, and peace and order.

The "Environment and Natural Resources" chapter mentioned that geohazard mapping is under way in order to determine the most vulnerable areas to landslides and to guide development plans on settlements, industries and production areas. It will also guide the relocation and serve as an alert system for existing settlements located in highly vulnerable areas. Geohazard mapping for regions that are most frequently visited by typhoons (Bicol and Eastern Visayas) or experience excessive rainfall (CARAGA) have been initiated. Thrust number 5 of this chapter aims to "*mitigate the occurrence of natural disasters to prevent the loss of lives and properties*". This will be done through

nonstructural measures and structural measures. Under the former, the plan aims to complete the geo-hazard mapping of the remaining 13 regions, conduct soil stability measures (e.g., reforestation and planting in river banks) for landslide-vulnerable areas; and ensure integration of disaster preparedness and management strategy in the development planning process at all levels of governance. Under structural measures, adaptation measures include: keeping at the optimum the conveyance capacities of existing river channel floodways and drainage canals through riverbank protection, dredging/desilting, observance of river easements, relocation of informal settlers, proper disposal of garbage, and efficient maintenance. In addition, flood control and drainage facilities will be constructed in all flood/sediment disaster prone areas to mitigate flooding as well as rehabilitate and improve existing facilities. The priority flood control projects are shown in **Table 2**. It is noteworthy that more than half a billion US dollars are targeted till 2010 for adaptation to climate-related risks.

Under the chapter on “Responding to Basic Needs of the Poor” the government aims to address the needs of victims of disasters and calamities which mainly refer to climate extremes. Specific activities include: strengthening emergency response capability, particularly at the local level, through an improved delivery of humanitarian assistance to disaster-affected populations and promoting a culture of resilience through continuous training and education. Under the “Agribusiness” chapter, the government aims to increase capital productivity and investments through the reduction and appropriate management of risks inherent in agriculture. This includes emergency assistance and disaster-mitigation projects for calamity-stricken areas. Under the “Financial Sector” chapter, one goal is to promote a stronger, stable and deeper financial system. This will be done by, among others, implementing a coordinated disaster recovery plan to ensure undisrupted operations or timely reopening of financial sector institutions in the aftermath of a catastrophic event. Finally, under the “Peace and Order” chapter, the government plans to train more policemen to respond more efficiently during emergencies and disasters.

Table 2. Mitigation measures for climate-related risks in the MTDP 2004-2010 of the Philippines (Source: NEDA, 2004)

Project/Site	Total Cost	% Completed (as of what month/year?
Iloilo Flood Control	PHP 4.15 billion (US$ 86.5 million)	21 (as of June 2004)
Lower Agusan Flood Control	PHP 4.87 billion (US$ 101.5 million)	60 (as of June 2004)
Bicol River Basin and Watershed Management	PHP 1.68 billion (US$ 35.0 million)	(No information available on project status yet)
Agno and Allied Rivers Flood Control	PHP 3.25 billion (US$ 67.70 million)	100 (as of September 2003)
KAMANAVA Flood Control	PHP 4.87 billion (US$ 101.5 million)	3 (civil works only; as of March 2004)
Metro Manila Flood Control Project-West of Mangahan Floodway	PHP 3.14 billion (US$ 65.4 million)	75 (as of July 2004)
Pasig Marikina River Channel Improvement Project Phase II	PHP 4.16 billion (US$ 86.7 million)	(No information available on project status yet)
Cagayan River Flood Control Project	PHP 2.39 billion (US$ 49.8 million)	(No information available on project status yet)
Panay River Flood Control Project	PHP 3.87 billion (US$ 80.6 million)	(No information available on project status yet)
Lower Cotabato River Flood Control Project	PHP 1.43 billion (US$ 29.8 million)	(No information available on project status yet)
Total Projects Funding	PHP 28,940 billion (US$ 602.9 million)	

Note: PHP 48= US$ 1

In summary, while the Medium Term Development Plan of the Philippines does not explicitly mention adaptation to climate change, there is a very strong commitment to address the impacts of climate-related hazards. This could form a viable entry point for mainstreaming climate change in the country.

The Millennium Development Goals (MDGs) were adopted in the 2000 Millennium Summit as part of the UN Millennium Declaration. It is by far the most broadly supported, comprehensive and specific poverty reduction targets ever established by the global community (UN Millennium Project, 2005). The Philippines is committed to achieving the MDGs and has issued a report on its progress towards it (NEDA, 2003). The threat posed by climate change in the attainment of the global MDGs has been recognized by international organizations. The UN Millennium Project (2005) warns that climate change could exacerbate the problems posed by food insecurity, vector-borne diseases, natural

disasters, and declining rainfall. It was recommended that integrating climate change adaptation measures into sustainable development and poverty reduction strategies would be the best way to help meet the MDGs (Sperling, 2003).

The Philippines MDG progress report (NEDA, 2003) does not contain any reference to adaptation to climate change, or even to climate variability and extremes. The closest thing to climate change is the note on increasing trend of CO_2 emissions which will be addressed by the Clean Air Act. More indirectly, there was a one-sentence reference on adapting to climate extremes through the need to improve flood control and drainage facilities to cope with the damage caused by flooding and typhoons in urban settlements. So again on the basis of its MDG agenda, climate change adaptation has not been mainstreamed in the Philippines.

Another major (sustainable) development policy document is the Philippine Agenda 21 (see http://pcsd.neda.gov.ph/pa21.htm for full text). This arose out of the Rio Earth Summit in 1992 and it was adopted as the national action agenda for sustainable development by presidential fiat in September 1996. *PA 21 envisions a better quality of life for all Filipinos through the development of a just, moral and creative, spiritual, economically vibrant, caring, diverse yet cohesive society characterized by appropriate productivity, participatory and democratic processes, and living in harmony and within the limits of the carrying capacity of nature and the integrity of creation*. In January 1999, a follow up memorandum order was issued by the Office of the President to strengthen the operationalization and localization of PA 21 and to monitor its implementation. The action agenda at the level of ecosystems consists of strategic interventions covering the following ecosystems and critical resources: forest/upland ecosystems, coastal and marine ecosystems, urban ecosystems, freshwater ecosystems, lowland/agricultural ecosystems, minerals and mines, and biodiversity.

In the entire PA 21 document, climate change was mentioned only once and this in the context of freshwater ecosystems. Under the need for water resources assessment (WRA), one of the targets is "*WRA technologies appropriate to the needs of the Philippines (including methods for impact assessment of climate change on freshwater) promoted and adopted)*". While climate change impact assessment was highlighted, the context implies the need to adapt to it. In general, the lack of attention to climate change adaptation is understandable considering that the PA 21 was drafted in the mid-1990s when climate change is but a budding global issue. However, just like the previous development plans reviewed, PA 21 recognizes climate risks and the need to adapt to them. For example, under a review of current trends, flooding is identified as a key problem in urban ecosystems. Similarly, under watershed management, a flood monitoring and forecasting system is recommended. In addition, under water resources assessment of freshwater ecosystems, it is recommended to "*establish appropriate frameworks including the legislative and regulatory arrangements and strengthen institutional capabilities to ensure the adequate assessment of water resources and the provision of flood and drought forecasting services*."

In relation to the aforementioned, the Philippines had identified 153 sustainable development indicators (SDI) during a multi-sectoral workshop held in 1998 as part of the country testing project of the United Nations Commission on Sustainable Development (UNCSD) (Philippine Country Report, 1999). These SDI cover economic, social/cultural, ecological/environmental, and political/institutional factors. Of the 153 SDIs, four were related to climate change mitigation: emission of GHG, emission of nitrogen oxides, emission of sulfur oxides, and per capita consumption of fossil fuel by motor vehicles transport. None addresses climate change adaptation.

In conclusion, our review of major development plans and policies show first of all that climate change adaptation has not been mainstreamed in the Philippines. Indeed, the same is true for many countries in the Asia Pacific region (Srinivasan, 2005). Second, whenever climate change is recognized, the focus has been more of mitigation especially now with rising interest in the CDM. Third, because of the geographical location of the country, there is a lot of emphasis on adaptation to risks associated with current climate variability and extremes (e.g., tropical cyclones). This last point is significant to climate change adaptation for a number of reasons. It could help explain why there is much less attention given to climate change impacts and adaptation. Policy makers are already dealing with destruction brought about by climate hazards every year and many times within a year. Thus their attention is focused on the here and now rather on a predicted climate change in the future. On the other hand, many of the adaptation measures for current climate risks, while not sufficient, could become a strong foundation for building adaptation to climate change (IPCC Working Group II, 2007; Huq et al., 2006). For example, massive investments are being poured into flood control projects (Table 2). It is doubtful whether infrastructure design and management for these projects incorporate potential climate change scenarios for the Philippines. One potential climate change adaptation therefore is to ensure that climate change scenarios such as of precipitation is considered in these projects. Another opportunity lies in the fact that many of the infrastructure projects in the country are funded by foreign donors. More and more, donor agencies are beginning to explore how climate change adaptation can be integrated into their project portfolio (Klein et al., 2007). For example, the World Bank has just published a study on a risk management approach for incorporating climate change adaptation into its operations (Burton and van Aalst, 2004).

Finally, there are signs that top policy makers in the country are finally realizing the importance of adapting to climate change. In the aftermath of the release of the recent IPCC Working Group I Fourth Assessment Report (IPCC Working Group I, 2007) the President ordered the formation of a task force on global warming (Philippine Star, 2007). The specific mandate of the task force includes preparation of a program of action to address global warming which will presumably include adapting to its destructive effects.

Perceptions of Key Stakeholders: Interview Results

The goal of the interview was to determine the perceptions of key stakeholders in the climate change community in the Philippines to mainstreaming. An overwhelming majority of the respondents believe that mainstreaming climate change is important (Figure 3). However, most of the respondents also think that climate change has not been mainstreamed (Figure 4). This is consistent with our review of major development plans of the country as discussed earlier.

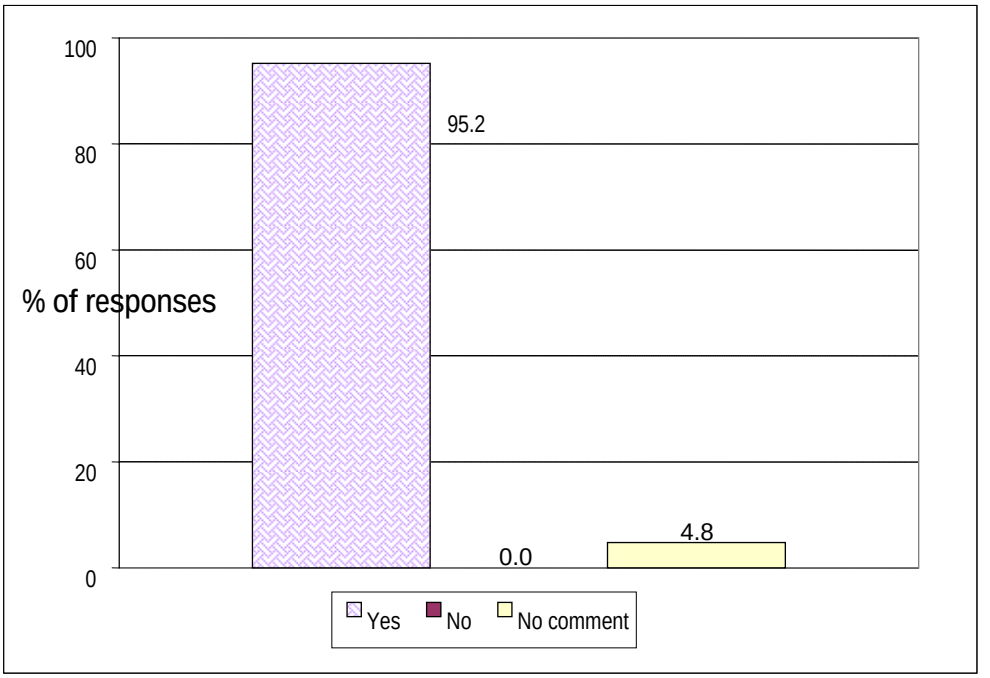

Figure 3. Responses to the question "Do you think mainstreaming climate change in Philippine policies is important?"

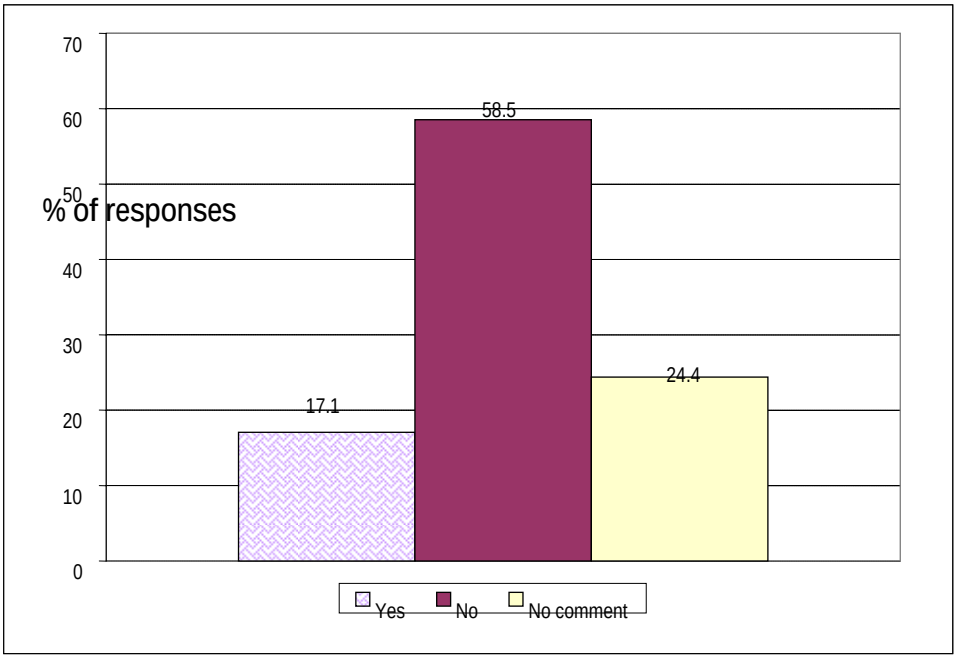

Figure 4. Responses to the question "Has climate change been mainstreamed in the Philippines?"

A minority of respondents (17%) believe that climate change has been mainstreamed in the Philippines. When asked to rank the possible factors that contributed to mainstreaming, "advocacy by NGOs" ranked the highest followed closely by "availability of funds" (Table 3 factors contributing to mainstreaming). Political will and sufficiency in knowledge were rated moderately important. Aside from these pre-identified reasons, respondents also cited other reasons contributing to mainstreaming (Table 4). The most frequently cited of these are support from the general population and the media, commitment of the country to the UNFCCC, and the role of researchers. The role of civil society groups such as the NGOs and the media are perceived to be critical in mainstreaming climate change. This is understandable in the context of Philippine society where NGOs and the media are active participants in shaping public policy. Future plans to mainstream climate change should take into account the vital role of these stakeholders. The availability of financial support is also an oft-repeated reason. Developing countries like the Philippines have limited resources to adapt to climate change and donor support is crucial.

Table 3. Rank of factors contributing (1 most important; n=17) and hindering (1 most important; n=66) to mainstreaming climate change in the Philippines (1-most important; n=17)

Factors contributing to mainstreaming		Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Availability of funds	No.	5	4	1	5	0	0
	%	6.3	5.0	1.3	6.3	0.0	0.0
Advocacy by NGOs or others	No.	6	3	3	4	0	0
	%	7.4	3.7	3.7	4.9	0.0	0.0
Support from political leadership (political will)	No.	1	4	7	3	0	0
	%	1.2	4.9	8.6	3.7	0.0	0.0
Sufficient knowledge (climate change is important in relation to other issues, e.g. poverty alleviation)	No.	4	5	4	3	1	0
	%	4.9	6.2	4.9	3.7	1.2	0.0
Factors hindering mainstreaming		Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Lacks funding	No.	8	18	12	21	0	0
	%	10.3	23.1	15.4	26.9	0.0	0.0
Insufficient advocacy by NGOs and others	No.	5	13	12	23	2	1
	%	6.4	16.7	15.4	29.5	2.6	1.3
Lack of support from political leadership (lack of political will)	No.	15	20	17	6	0	0
	%	19.5	26.0	22.1	7.8	0.0	0.0
Lack of knowledge (climate change is not an important issue relative to other issues, eg. poverty alleviation)	No.	29	11	14	3	1	0
	%	37.2	14.1	17.9	3.8	1.3	0.0

Table 4. Other reasons cited by respondents that contributes to mainstreaming climate change in the Philippines

Reason	Number of respondents
Support from majority of the population	5
Support from the print and other media	4
Commitment of DENR/Philippines as member of signatory to the Kyoto Protocol; EMB-DENR designated as the National Authority for Climate Change; Climate change should be part of the DENR policies and programs	5
Support from researchers involved in climate change; coordinated proposals/projects; Support from academe	6
Recognition that climate change policies will provide benefits (through CDM for instance) to the Philippines	1
Impact to the operation of the organization	1
Ecological--Realization by the policy makers that taking care of the environment is important e.g. calamities	1
It's a burning issue well attended by donors; financial support to afforestation/reforestation development	2
Support of involved agencies to the program; social--people; NGOs; support from funding agencies	4

Among those who responded that climate change has not been mainstreamed in the Philippines, the most commonly ranked reasons were lack of knowledge and political will (**Table 3 factors hindering mainstreaming**). Many policy makers still view climate change as peripheral compared to such issues as poverty alleviation and economic growth. They are unaware that climate change could threaten these much cherished goals of society (IPCC Working Group II, 2007). The "lack of political will" is consistent with the absence of climate change considerations in the country's developmental plans. The respondents also ranked "lack of funding" as moderately important. There seems to be a feeling that NGOs are doing better in advocating for climate change.

Aside from the above, the respondents also cited other obstacles to mainstreaming climate change in the Philippines (**Table 5**). By far the most commonly cited reasons were (a) climate change is not a priority concern and (b) there is lack of knowledge and appreciation for climate change. The latter can help explain the former. The lack of knowledge by policy makers and the civil society in general leads to apathy on the need to adapt to climate change. In addition, it is also true that there are more pressing concerns for a developing country like the Philippines. Current poverty incidence has been estimated at about 34 % in 2000 (NEDA, 2004). This is coupled with severe environmental degradation of virtually all natural ecosystems in the country (The World Bank, 2004). In this context, it is not hard to imagine why policy makers are more concerned with short term issues.

Table 5. Other reasons cited by respondents that hinders climate change adaptation in the Philippines

Reason	Number of Respondents
Not a priority or major concern (There are more pressing concerns)	26
Lack knowledge, appreciation and interest; Perspective of people that climate change is not our problem but of the first world's; necessity not recognized	24
No coordination of climate change-related activities especially among government offices	11
Lack of LGU involvement	7
Lack of academic discussion on climate change in schools	6
Lack of media coverage on climate change and adaptation	5
No efforts/lack mechanisms to mainstream climate change; organizational structure	12
Lack of a dedicated climate change office within DENR	4
Fast turn-over of decision makers (tied to short terms of people at the helm)	4
Lack of public support/community involvement; impacts are not felt at the local level	8
Disorganized data system for mainstreaming climate change, which is vital for advocacy and risk management planning	2
Human capability (technical expertise)	2
Enabling institutions and mechanisms are still wanting	1
Science on local impacts of climate change is inadequate	1
Without proper advocacy the people who don't have any access to internet will lack knowledge; insufficient advocacy; education is inadequate	3
Weak implementation of existing laws; Many political issues blur issues on ecology and environment; No formal stakeholders' paper to endorse climate change to policy makers; insufficient policy	4
Unharmonized project implementation	1
It has not been simplified or concretized at a level where policy makers and concerned entities can understand and be motivated to respond appropriately to issues; conflict of interest; Too many talks, less actions	3
The economic situation of the country limits its mainstreaming; Lack of financial capability	2

A number of reasons identified relates to institutional structures. It has been observed that coordination among different government offices is deficient. This is related to the observation that no government agency is coordinating efforts to mainstream climate change. There is also lack of involvement of local government units which are responsible for on the ground implementation of government policies and projects. At present the main mechanism for institutional and stakeholder collaboration is through the Inter-Agency Committee on Climate Change (IACCC). This body is co-chaired by the heads of the Department Environment and Natural Resources (DENR) and the Department of Science and Technology (DOST). The secretariat which runs its day-to-day affairs is

based at the Environment Management Bureau (EMB), an office under the DENR. It is composed of representatives from the government and civil society organizations. The IACCC was formed way back in 1992 in the early days when climate change was a just a rising concern. After 15 years, knowledge and activities on climate change have increased sharply, especially with the proliferation of CDM activities. Thus, it may be time to reassess its structure, composition and functions. For example, it should be examined whether a more important role should be given to the influential National Economic Development Authority (NEDA) which is in charge of development planning. An expanded role for NEDA could facilitate mainstreaming of climate change in the development agenda of the Philippines.

Conclusion/recommendations

As climate change impacts become more palpable, the need to mainstream adaptation in the national development agenda becomes pressing. Based on a review of the main development plans and interviews with key informants, climate change has not been mainstreamed in the Philippines. This is primarily because national priorities are biased towards more pressing concerns and the pervasive lack of awareness on the impacts of climate change to sustainable development. However, there are massive investments on infrastructure projects designed to adapt to climate-related hazards such as flood control. These projects could provide an entry point in integrating climate change adaptation.

Because of the Philippines' long experience with climate extremes and variability, its people and institutions have developed coping mechanisms which can form a robust basis for climate change adaptation. For example, at the national scale, the National Disaster Coordinator Center (NDCC) tries to ensure effective marshalling of government resources during tropical cyclones. A weather forecasting system is also in place to alert local government units of approaching tropical cyclones. Another example is the many ways upland farmers in the Pantabangan watershed have adapted to climate extremes and variations (Pulhin et al., 2005; Lasco et al., 2006). The lessons learned in mainstreaming climate change in the Philippines can benefit other countries who might be facing similar experiences in the future.

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