Biodiversity Conservation in Cities

Biodiversity for Urban Harmony, Disaster Management and Climate Change Mitigation

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1 Urban Sector Review

1.1 Basic General Data

Geography and Administration

The Philippines is situated Southeast off mainland Asia between Taiwan in the north and Borneo in the south. The archipelago stretches 1,840 kilometers north to south and has an aggregate land area of about 300,000 sq km distributed among approximately 7,100 islands.

The Philippines is divided into three main island groups, namely Luzon, Visayas and Mindanao.[1] It has a central government with an elected president and vice-president, a legislature composed of a senate and lower house of representatives. The executive branch is headed by the president and consists of national government agencies (departments) assigned to plan, budget and implement

[1] This is a geographical division, not a political one, i.e. there are no elected executives for the three island groups but they are distinctions used for regional planning

programs of the various critical sectors of the country. It has a nested system of local governance, with 81 provinces, 120 cities and about 1,500 municipalities. The provinces are led by governors elected by their constituencies and a local legislature called the provincial board. Component cities and municipalities make up these provinces. A number of cities do not fall under the administration of the provincial government.

Cities and municipalities have elected mayors as local chief executives. Cities also have the corresponding legislative branch, i.e. the municipal or city council. The cities and municipalities are further divided into barangays (villages), headed by an elected barangay captain with a corresponding barangay council.

The Philippine Local Government Code (LGC) of 1990 mandates a certain amount of autonomy for cities. The LGC also ensures participation of the private sector and civil society (business, non-government organizations and people's organizations) by providing that the local development councils and other special bodies have seats of at least 20% allocated for non-government representatives.

1.2 Urban Facts and Figures

Demography and Major Development Indicators

Indicator			**Value**
Population	(as of August 2007)		88.57 M
Pop Growth rate	(1995- 2007)		2.16 %
Urban Population	% of total population	(2005)	63 %

In the year 2000, there were 42 major capital cities in the Philippines. It is expected that by the year 2030, 70% of the population will be living in urban areas. The country's population growth rate·which is one of the highest in the world·places serious strains on the economy and the environment. In 2005, the population was 82.8 million, of which 51.8 million or 63% lived in urban areas. Metropolitan Manila is the most densely populated urban area with 10.7 million. By 2030, the urban population is estimated to reach 85 million or approximately 70% of the total population[2]

[2] Urbanization and Sustainability in Asia, Joel V. Mangahas (Asian Development Bank)

The Philippines is the second-smallest of the 17 megadiversity countries in the world. Because of its **population density** - the highest in Southeast Asia except for Singapore - it is also one of the most threatened biodiversity hotspots in the world. The Philippine islands, most of which are now inhabited by humans, feature a variety of topographic landscapes ranging from rugged volcanic mountains, plateaus, and vast fertile plains, which have been converted to cropland for rice, corn, and coconut. It has long coastlines with some of the world's most colorful coral reefs.[3] Many of these diverse topographic landscapes have also been converted for urban use, or are within the area of responsibility of cities.

The diverse climate and topography of the archipelago also contributes to its vulnerability, especially in cities that host large populations. The ecological uniqueness is both threatened by and poses a risk to the humans that inhabit it. This is most especially felt in cities which have been historically established along coastlines, riverbanks and near bodies of water.

The following table shows some cities and description of their areas of ecological interest.[4]

Island Group	Region	City	Biodiversity Area
Luzon	Central Luzon	Balanga	Tortugas-Puerto Rivas-Sibacan Area (Migratory birds hotspot; wetlands)
		Olongapo	Subic forest; primary forest
	National Capital Region	Parañaque	Las Piñas- Parañaque Critical Habitat (coastal wetland, migratory birds hotspot)
		Las Piñas	
	Bicol Region	Iriga	Mt. Iriga National Park
		Legazpi	Bicol River System (also site is particularly vulnerable to flooding, coastal storm surges, volcanic eruption)

[3] Conservation International Critical Ecosystem Partnership Fund http://www.conservation.org/explore/regions/asia-pacific/philippines

[4] This is an initial list that can be filled up by the cities and villages themselves

Island Group	Region	City	Biodiversity Area
Visayas	Central Visayas	Cebu	Tabunan forest: habitat of one of endemic, rare and endangered birds: South Reclamation Project: fresh wetland; habitat of threatened endemic species, Philippine Duck)
Mindanao	Northern Mindanao	Malaybalay	Mt. Kitanglad National Park buffer zones; forest and habitat of the critically endangered Philippine Eagle and other flora and fauna; cultural heritage
	Caraga	Bislig	PICOP forest; hotspot for birdwatching, under threat of settlements

1.3 Policy

There are currently national laws that protect the biodiversity (National Integrated Protected Area System), but there are no equivalent laws that are applicable in urban areas. The current practice seems to be to allow almost any kind of development in urban areas, and the Department of Environment and Natural Resources is not always successful in preventing any damage from being done, as most planning is controlled at the local level.

There are national agencies that are in charge of regulation such as the Housing and Land Use Regulatory Board (HLURB), but it deals mostly with standards in housing, building and infrastructure development for settlements. The HLURB does not have enough policies that ensure ecological integrity.

1.4 Actors and their Roles

It is important to note the crucial roles of the main actors in development in the Philippines, namely local governments, national government and civil society, composed of NGOs and Community Organizations. The Philippines has a lively civil society, which mainly interacts with all levels of government. Lately, much

has attention has been given to local government units (LGUs), because of the encouraging results of local governments being able to act more positively on urban issues than national government ever has. For example the Critical Habitat Proclamation cited above was a collaboration between NGOs, a national government and local governments.

Many of the more successful programs and projects in the country has involved the collaboration of these actors. Policies, programs and projects have shown that the participation and even leadership of civil society has increased the level of success of any program, policy or project.

Figure 1View of the Las Pinas-Paranaque Critical Habitat

2 Organisation

The Partnership for Philippine Support Service Agencies (PHILSSA) is the only network of urban development non-government organizations in the Philippines. It was established on 31 May 1988 as a non-stock service network of social development non-government organizations based in urban centers nationwide.

Among PHILSSA's current projects is the Urban Partnerships for Sustainable Upliftment, Renewal, Governance and Empowerment (UPSURGE) Project. The project is funded by the Japan Social Development Fund (JSDF) and World Bank. UPSURGE involves eight (8) cities in the three major island groups of the country. It aims to institutionalize viable models for partnerships between local authorities, non-governmental organizations (NGOs) and community organizations in addressing shelter and community infrastructure needs. It also provides capacity building opportunities for local organizations in planning and implementing infrastructure projects for poor communities.

As of 2007 the PHILSSA network had 51 partner-NGOs engaged in education and training, research and documentation, legal service, socio-economic and other technical support, issue and policy advocacy, and other innovative endeavors in the urban sector. The network has recently initiated discussions on climate change to explore the role of NGOs and their partner communities in disaster risk mitigation.

It is currently on the lookout for innovative practices that will ensure sustainable development and have very recently decided on moving towards more programs that focus on the urban environment or urban ecology. PHILSSA is also interested in replicating the UPSURGE experience of local partnerships in the areas of local governance capacity building, and ecologically sound development as will be proposed by this paper.

3 Urban Problem

Cities in the Philippines, like their counterparts around the world, provide the economic activity and services for large populations. What is not often mentioned

in discussions regarding urbanization in the country is that the Philippines is the second-smallest of the 17 megadiversity countries in the world.[5] Its population density and patterns of rapid urbanization- the highest in Southeast Asia except for Singapore[6] makes it one of the most threatened biodiversity hotspots in the world.

The Philippines currently has 120[7] cities and about 1,500 municipalities with rapidly urbanizing urban cores. Because of perceived benefits accruing to cityhood, notably an increase in the internal revenue allotment[8], urbanizing municipalities in the country aspire to become cities. To increase their incomes, cities and municipalities also tend to accelerate urbanization by allowing or even initiating housing and commercial development in unserviced land outside urban centers, or by building roads into and through hinterlands.

In a bid to attract buyers who are weary of polluted, congested and badly managed cities, real estate companies develop subdivisions in the fringes of natural habitats, or in places of natural beauty and cool climates. Ironically these developments unwittingly destroy the very features that they had originally used to attract consumers. There is also a tendency to develop resettlement areas in places far from the city center because of lower land prices.

Areas of ecological importance and biodiversity and their fringe areas fall within the boundaries of cities and urbanizing municipalities in the country even as they are managed by national government through the Department of Environment and Natural Resources (DENR).

Philippine cities are therefore both at the cause and effect of ecological deterioration. The diverse climate and topography of the archipelago contributes to its vulnerability. Especially at risk are cities that host large populations. This is most especially felt in cities which have been historically established along coastlines, riverbanks and near bodies of water.

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[5] Source: Conservation International
[6] Source: Conservation International
[7] Source: League of Cities of the Philippines
[8] Cities in the Philippines enjoy a larger portion of the Internal Revenue Allotment (IRA) that is distributed to local governments. For this reason, municipalities that comply with the minimum requirements to be reclassified as cities opt for cityhood.

Image of cities:The above photos show, from left to right: The Butuan City coastline with the beginnings of settlement and urbanization; Pasig River showing Makati and Mandaluyong Cities; middle class and urban poor resettlement subdivisions next to the Payatas dumpsite, Quezon City. The La Mesa Dam, which is the source of drinking water for Metro Manilans is at the upper left of the picture.

Improperly managed cities experience rapid expansion and haphazard urban development. Most cities have been established on coastlines and along riverbanks. Continuous urbanization and infrastructure development have already destroyed and continue to threaten fragile wetlands, avifauna habitats, coastal resources and mangroves. Unmanaged development along waterways and coasts pose dangers not only to fragile ecologies but also to the settlers who are more often than not the poor and marginalized of the cities. They are most in danger of flooding and storm surges.

The continuous expansion of cities to the hinterland due to urban sprawl also threaten forest land that protect and recharge water sources that sustain urban populations. Settlements that are developed on cheap land outside the urban core are often subject to geophysical hazards such as erosion or pose threats to areas of ecological importance, as well.

Like many cities and urban areas around the world, the Philippines cannot afford to lose the source of life for its inhabitants. Cities therefore have a role in the preservation and conservation of environmental balance and harmony within and outside their territory. They cannot afford to look at urban issues such as housing, infrastructure and livelihood separately from problems of conservation. It is becoming more and more apparent that natural ways of mitigating urban environmental problems as well as climate change are the most economic way of addressing these problems.

(1) How could cities therefore be encouraged to take active part in the preservation and conservation of fragile ecosystems within and beyond their boundaries?

(2) As centers of population, how can cities contribute to the education of urban consumers regarding the need for urban development that is in harmony with the environment?

(3) In what ways could urban inhabitants become more in touch with nature and enjoy biodiversity closer to the city core and therefore make it easier for planners and policy makers to come up with solutions that are environmentally friendly?

4 Proposal for Change and Improvement

This proposal describes a combination of project, programme and policy solutions. To this three I would like to add a fourth P, for philosophy. This philosophy involves looking at cities as "ecosystems" that relate to other ecosystems, i.e. other cities and their natural environments.

The Chinese term for "biodiversity" is **生物多样性** [shēngwùduōyàngxìng] and is composed of **生 (living), 生 (thing), 多 (many) 样 (kind/type), 性 (nature).** The simplicity of the Chinese term makes it easy to remember that we are all types of living things co-existing in nature. This fundamental philosophy could be used as the foundation of cities' survival in the face of natural disasters, climate change and other urban challenges. Several sessions at the World Urban Forum demonstrated that the best and most economical way for climate change mitigation and disaster management in urban areas is increasing and protecting biodiversity in urban areas. This philosophy will also inform the following concrete proposals:

1. Project(s): Identification and development of village (barangay) level ecological "hotspots" to serve as living museum/schools and to support urban biodiversity education. Opportunities for ecological restoration will be prioritized. The results of these projects will then be shared with other cities for their own adaptation.

2. "Biodivercity" Programme with the League of Cities of the Philippines and PHILSSA): A "Biodivercity" programme proposal will be prepared to advocate city level cooperation between different stakeholders to come up with actitivities and projects to protect city biodiversity. The League of Cities of the Philippines and PHILSSA can be assisted to discuss with the World Bank or Asian Development Bank to design funding mechanisms for infrastructure for climate change mitigation and adaptation using biodiversity conservation as a strategy.

3. Policy advocacy within the Department of Environment and Natural Resources (DENR): A policy framework will be discussed with the DENR (National Capital Region, and also the Parks and Wildlife Bureau) to discuss what policy reforms are needed to support biodiversity projects in urban areas.

Project Framework: Cities as Centers of Biodiversity Education and Appreciation

Specific actions for initiating education and campaign for biodiversity appreciation in cities include:

(1) The preparation of inventories of areas and places of ecological importance and interest at the village (barangay) level of interested cities. These inventories can be organized into maps, illustrations, and other material (such as plays and videos) that can be easily accessed and understood by all stakeholders, planners and developers. Creative means to disseminate the information through schools, village meetings (barangay in the Philippines), community organizations, and existing programs of government such in health or settlement development, or through village festivals and community gatherings.

(2) The setting up of "living museums" or ecological restoration projects that can serve as educational parks. If the city already has plans for a park for its constituents, they could be converted into biodiversity parks using planting material that is already existing in the area .

Programme Framework: Role of Cities in the Conservation of Biodiversity

Stakeholders of cities, urban and urbanizing areas must recognize that they have an important role in addressing ecological and biodiversity issues within and outside their political borders. Urban stakeholders must realize that they are not isolated organisms, and that they are ecosystems related to other ecosystems. Urban consumption of water and energy, and cities' large-scale production of waste and pollution have an impact on the environment and human life as a whole. In the end, humans living in urban areas especially the poor and vulnerable, will be on the receiving end of disasters related to declining or contaminated water sources, climate change and declining biodiversity.

A City Biodiversity Education and Appreciation Programme will have the following steps:

(1) Cities to re-visit their urban development plans and review them for approaches that are harmful to the ecosystems within and beyond their boundaries. Examples of these harmful approaches are continuing urban sprawl, improperly planned development in the hinterlands and close to areas of unique and fragile biodiversity, including water sources. All levels of government (national and local) must urgently review and provide alternatives to construction and site development approaches that drastically alter topographies, mangroves, and wetlands.

(2) Cities to re-engineer their plans, policies and projects so that they support measures such as (a) adopting appropriate densities and mixes for housing and commercial development (b) urban ecological restoration, e.g. reviving streams and rivers to respect the water cycle, (c) increase biodiversity within pockets in urban areas. Some of the most livable cities in the world[9] have shown that restoring nature using local and naturally

[9] Notably Portland, U.S.A., Suncheong Korea

occurring plants are low-cost approaches that increase water/air quality, quality of life/productivity/livelihood

(3) City stakeholder working groups to identify local policies, programs and projects that can heighten awareness and sustain city residents' support and action for ecologically-sound living in urban areas. Such policies, programs and projects will ensure that urban services such as water, sanitation, infrastructure projects, transport and settlements development will all be planned to consider biodiversity and the concept of the city as an ecosystem.

(4) Cities to identify a strategic project or projects that could demonstrate the socio-economic value and effectiveness of ecological restoration and conservation within city boundaries. These projects could be stream or river restoration or protection projects, housing projects that demonstrate appropriate densities and ecological design or combinations of parks and stream/river/coastline enhancements that provide educational, economic, scientific and social value to the city. (see project framework above)

Policy Support

The League of Cities and the Depeartment of Environment and Natural Resources can explore the potentials of such measures as the Clean Development Mechanism (CDM) for urban development projects. This can be done with official development aid agencies and international funding agencies such as the Asian Development Bank and the World Bank. Such a mechanism will provide funding for urban development projects that restore, preserve and conserve biodiversity within city boundaries. Funds must also be available for cooperation among local governments to restore, protect and conserve shared biodiversity resources.

SWOT Analysis of Proposal

PHILSSA and key officers of the League of Cities of the Philippines (LCP) attended the World Urban Forum 4 and appreciated the need for biodiversity conservation in the city as a means to mitigate climate change and avert disaster. Some mayors from the Philippines the urgency of dealing with urban environment issues through prudent conservation of areas of biodiversity in the cities. These stakeholders have already agreed to meet after the WUF to support each other in initiating biodiversity conservation related projects in their cities. The LCP, through Mayor Mel Sarmiento, has agreed to host the initial meeting.

Before the training in Nanjing, I had also informed the Department of Environment and Natural Resources (DENR) National Capital Region (NCR) Executive Director of my interest in biodiversity conservation in urban areas and they are eager to see the completed proposal and participate in discussions. I am also going to commence a project in Balanga City which is going to set up a coastal wetland and mangrove park and information center on avian and other biodiversity in one of its urban barangays. They have agreed to use my concept of a biodiversity-friendly site and architectural plan.

On a national scale, the Philippines already has a National Integrated Protected Areas System that seeks to conserve the integrity of its biodiversity without sacrificing the needs of human inhabitants. At the periphery of these Protected Areas, however, are rapidly urbanizing settlements. Because of overwhelming urbanization, such places have gained public attention particularly because they are rapidly disappearing and need protection.

Within cities and other urban areas in the Philippines also lie areas of ecological interest, such as the Las Pinas- Paranaque Critical Habitat (LPPCH) which was recently proclaimed in 2007. Although I foresee that the idea of urban biodiversity conservation will progress more rapidly in cities outside Metro Manila because of resistance and complex issues in the capital, the LPPCH could provide a model for other Metro Manila cities to follow. But of course, greater efforts will have to be made to bring Metro Manilans' attention to issues of biodiversity in the National Capital Region.[10]

[10] Because of my work in the volunteer organization Wild Bird Club of the Philippines, I sit as one of the NGO representatives at the LPPCH management committee

5 Personal Action Plan

Short Term Action (2008- 2009)

1. Convene other stakeholders for a post-WUF meeting in the Philippines, as planned at the Integrated Approach to Climate, Biodiversity and Disaster Management training event of International Urban Training Center (IUTC). The meeting will have the following objectives:
    a. Identify how urban ecological restoration projects can be immediately funded in the cities of Calbayog, Iloilo, Cebu[11] and other interested cities. Some initial ideas include 20% development fund of the cities, and the calamity fund. Sanitation, river management and other infrastructure projects could also be used as showcases for ecological restoration and biodiversity conservation efforts.
    b. Review current projects such as flood control and housing that could potentially destroy fragile ecologies in selected cities. The result of the review will be presented in dialogues with local engineering offices, the Department of Public Works and Highways, national housing agencies and NGOs involved in housing.
2. Present this paper and proposal to at least three organisations: PHILSSA, League of Cities, Ateneo School of Government, to be hosted by PHILSSA
3. Work on a pilot project and program for the City of Balanga to showcase biodiversity conservation in a current park and coastal information center project (a personal architectural design project with the City of Balanga)

[11] These three cities were represented in that training event by their mayor and city planning and development officers, respectively.

Long Term (5 years)

1. Project: Continue working with Balanga City (and other interested cities) in identifying village level biodiversity spots and develop them as living museum/schools for ecological restoration in cities.
2. Programme: Work with LCP and PHILSSA to design a programme to sustain and scale up the impact of city level efforts. This programme should also be designed to ensure sustainable funding for "biodivercity" projects
3. Policy: Continue to disseminate information (through a blog) on the first 2 endeavors for use by policy makers

References

www.adb.org/Documents/Books/**Urbanization**-Sustainability/summary-booklet.pdf

www.census.gov.ph

http://www.conservation.org/explore/regions/asia-pacific/philippines

http://www.lcp.org.ph/

http://www.nscb.gov.ph/

www.**philssa**.org.ph