A black and white photograph showing several plants growing from a dark, textured ledge, possibly a window sill. The plants include a tall, thin, bare branch on the left, a cluster of large, dark leaves in the center, and a plant with a single white flower on the right. The background is a bright, overcast sky. The entire scene is framed by dark, vertical borders on the left and right sides.

Study of Practice Diffusion  
and Adoption Process  
under the CCP Program in the Philippines

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### BACKGROUND

It can no longer be denied that Climate is changing due to human activities. In recent years the effects of global warming has already become apparent in the receding of glaciers along with the frequent occurrence of abnormal weather phenomena such as torrential rains and heat-waves. Global warming counter measures have become a priority task critical to the very foundations of human survival.

The challenge presented by global warming is the challenge of reducing carbon dioxide that is emitted from the burning of fossil fuels. Most people live and work in cities and most of the fuel and electricity use takes place in urban areas. This leads to a conclusion that energy use and local governments have to figure prominently in tackling the global warming problem.

In response to the emerging role of local governments on climate change, in 1993, at the invitation of ICLEI, municipal leaders met at the United Nations in New York and adopted a declaration that called for the establishment of a worldwide movement of local governments to reduce greenhouse gas emissions, improve air quality, and enhance urban sustainability. The result was the Cities for Climate Protection™ Campaign.

Since its inception, the Cities for Climate Protection Campaign has grown to involve more than 650 local governments worldwide that are integrating climate change mitigation into their decision-making processes. Based on recent analysis, Cities for Climate Protection participants account for approximately 15% of global anthropogenic greenhouse gas emissions.

The Cities for Climate Protection Campaign of ICLEI in Southeast Asia started in 1999 in the Philippines with 5 pilot demonstration Cities. The Cities for Climate Protection Campaign provides a framework that enables local governments to integrate climate protection policies with actions that address immediate municipal concerns.

The number of Cities for Climate Protection participants in the Philippines has grown from four in 1999 to 14. Resources that support Philippine Cities for Climate Protection activities are drawn from different sources-- the US Agency for International Development (USAID), the US Environmental Protection Agency, the US Department of Energy, and the Canadian International Development Agency (CIDA).

In 2001-2003, funded by USAID and CIDA, Cities for Climate Protection activities expanded from the Philippines to cover Indonesia and Thailand. Indonesia started with three cities in 2001 and has grown to ten in 2004. Thailand has six cities participating in the Campaign.

The campaign is based on an innovative performance framework structured around five milestones that local governments commit to undertake. The milestones allow local governments to understand how municipal decisions affect energy use and how these decisions can be used to mitigate global climate change while improving community quality of life. The Cities for Climate Protection methodology is compliant with international standards and provides a simple, standardized way of acting to reduce greenhouse gas emissions and of monitoring, measuring, and reporting performance.

Prior to the implementation of the Cities for Climate Protection in these cities, they have little knowledge of Climate Change. They thought that it is a global issue that has no local implication and knows little knowledge how they can contribute to the issue. The Cities for Climate Protection aims to mainstream Climate Change in local government processes and decision making. Most if not all local governments in the Philippines are not yet aware of the impacts of climate change in their respective territories except for the Province of Albay where they opted to do adaptation measures instead of mitigation measures recently. Advocacy at the national level on climate change has not taken off the ground to inform and educate local governments on the impacts of climate change and their vulnerabilities. While the Philippines has submitted an action plan (First Communication) to the UNFCCC, there is no or little involvement of local governments.

The Philippines is the second-largest archipelago on the planet, with over 7,107 islands counted within its borders. It has a total land area of 300,000 square kilometers bounded by the Philippine Sea to the east, Celebes Sea to the south, and South China Sea to the north and the west. It is separated by three main islands called Luzon, Visayas and Mindanao. Manila, which is located in the heart of Luzon, is the national capital. The Philippines is positioned along the ring of fire, which exposes it to frequent natural and geologic disasters making it more vulnerable to the impacts of climate change.

Almost half of the Philippines' total land area is classified as timberland. Being an archipelago, it has a coastal ecosystem stretching almost 20,000 kilometers, one of the longest in the world. It is rich in flora and fauna with an estimated two million species of plants and animals, most of which are unique to the islands. It is endowed with mineral resources thus has a vibrant metallic and non-metallic mining industry.

However, the high incidence of poverty and the lack of regard for environment in the pursuit of socio-economic development led to the unsustainable exploitation of these natural resources and the remarkable destruction of ecosystems that made the country one of the hottest biodiversity hot spots.

There are more than 1,500 local governments in the Philippines but only one (1) percent was involved in climate protection activities or has knowledge about climate protection.

The participation of the local governments in the Cities for Climate Protection Campaign of ICLEI is based on its mandate that can be found in section 16 of RA 7160, otherwise known as the Local Government Code of the Philippines, RA 8749, known as the Philippine Clean Air Act and RA 9003 or the Solid Waste Management Act. These laws enunciate the responsibilities of the local government to a balance ecology within their territorial jurisdictions. With this in mind, the pilot cities readily accepted and agreed to participate in the campaign.

The four (4) cities which is the subject of this study are major cities in the Philippines. Baguio, Butuan, Naga, and Puerto Princesa are highly urbanized cities. Rapid population growth and urban sprawl are common to these cities due mainly with its strategic location and economic activities. Corollary to its growth are a hosts of issues and challenges including poverty and environmental degradation brought about by its growing population and local economic growth to name a few.

This is most especially true to the Cities of Baguio and Puerto Princesa. Both cities are tourism destinations in the Philippines. Both local governments are hall of fame awardee for the Clean and Green Program of the Philippines and are dependent on its environment as its pull factor for tourism. Naga on the other hand is a flourishing City in the southern part of the Philippines and is heralded as an innovations city for governance. Like Baguio and Puerto Princesa, Naga is located in the heart of Bicol region and is the center of commerce and trade in the region. Butuan City is situated in the northwestern part of the Caraga Region (Region 13). It is the seat of government of the region and serves as its trading center as well. The city's strategic location makes it a natural gateway to the different prime destinations in the region, like the other cities, it is also environmentally challenged.

Table 1. Comparative Physical and Demographic Profiles of Cities

Demographic Features	Baguio	Butuan	Naga	Puerto Princesa
Region	CAR	CARAGA	CAmarines	MIMAROPA



			Sur	
Location	Summer Capital of the Philippines	Timber City of the South	Center of Governance Innovations	City within a Forest
Land Area	4,890 Ha.	81,728 Ha.	8,448 Ha.	253,982 hectares
Population	250,000	267,279	137,810	210,508
No. of Barangay	128	86	27	
Main Economic Activity	Trade, Commerce, Industry and Tourism	Trade, Commerce, Agriculture	Trade, Commerce and Agriculture	Trade Commerce and Tourism

Participation in the cities for climate protection is voluntary but once the city has express interest, it has to sign a Resolution, committing the city to undertake the five milestones of the campaign. The five milestones of the campaign are:

**Milestone 1.** *Conduct a baseline emissions inventory and forecast.* Based on energy consumption and waste generation, the city calculates greenhouse gas emissions for a base year (e.g. 1999) and for a forecast year (e.g. 2010). The inventory and forecast provide a benchmark against which the city can measure progress.

**Milestone 2.** *Adopt an emissions reduction target for the forecast year.* The city establishes an emission reduction target for the city. The target both fosters political will and creates a framework to guide the planning and implementation of measures.

**Milestone 3.** *Develop a Local Action Plan.* Through a multi-stakeholder process, the city develops a Local Action Plan that describes the policies and measures that the local government will take to reduce greenhouse gas emissions and achieve its emissions reduction target. Most plans include a timeline, a description of financing mechanisms, and an assignment of responsibility to departments and staff. In addition to direct greenhouse gas reduction measures, most plans also incorporate public awareness and education efforts.

**Milestone 4.** *Implement Policies and Measures.* The city implements the policies and measures contained in their Local Action Plan. Typical policies and measures implemented by Cities For Climate Protection participants include energy efficiency improvements to municipal buildings and water

treatment facilities, streetlight retrofits, public transit improvements, installation of renewable power applications, and methane recovery from waste management.

**Milestone 5. *Monitor and verify results.*** Monitoring and verifying progress on the implementation of measures to reduce or avoid greenhouse gas emissions is an ongoing process. Monitoring begins once measures are implemented and continues for the life of the measures, providing important feedback that can be used to improve the measures over time.

## **Objective of the Study**

This report aims to understand the practice of diffusion and adoption process within these cities and examine the success factors of diffusion of good practices in mitigating greenhouse gas emission at the local level through the network of Cities for Climate Protection of ICLEI. It also aims to study the role ICLEI played in reducing greenhouse gas emissions in the identified cities.

## **Methodology Used**

The Philippine Cities For Climate Protection study on diffusion and adoption process was undertaken following a method that consisted of two major activities: (1) questionnaire and administration; and (2) conduct of interviews.

*During the face to face interview, clarification* questions were made by including questions and adding introductory, easy questions to more complicated ones. Follow-up interviewees was also conducted for purposes of clarification and follow-up on data.

## **Schedule**

The field visit in these cities was changed several times due to the unavailability of the key informants and schedule of the author and onslaught of several typhoons.

The first field visit was in Baguio City on done in July 16 to 22, 2008. However, the visit coincided with the onslaught of typhoon "Karen" that hit the City. A number of respondents were not interviewed due to heavy rains.

In the case of Puerto Princesa, the field visit was conducted on August 5 to 11, 2008 went on smoothly. Majority of the identified respondents were available including the Mayor.

The field visit in Naga was held on August 25 to 29, 2008, key informants including Ms. Bernadette Roco, City Councilor and President of the Clean and Green Foundation were interviewed.

Due to conflict of schedule the visit to Butuan was re - scheduled several times. Finally the field visit was conducted last November 3 to 7, 2008.

## POLICY PROCESS AND THE ROLE OF ICLEI AND CITIES FOR CLIMATE PROTECTION

- *Climate Resolution*

In the implementation of the Cities for Climate Protection Campaign in the Philippines, each local government unit are required to sign a resolution before they are accepted to participate in the campaign. The resolution becomes a binding commitment on the part of the city to undertake the five milestones. However, in the case of Naga, they see fit that a City Council Resolution is more appropriate. This paved the way for the mainstreaming of climate measures in several government processes such as procurement and energy conservation to name a few.

- The Milestone Approach

The five milestones of the Cities for Climate Protection and the methodology behind provide a simple, standardized means of calculating greenhouse gas emissions, of establishing targets to lower emissions, of reducing greenhouse gas emissions and of monitoring, measuring and reporting performance.

The five milestones provide a flexible framework that can accommodate varying levels of analysis, effort, and availability of data. This element makes the Cities for Climate Protection both unique and innovative, by increasing its transferability amongst local governments. It is the breadth of this program that enables it to cross north/south, developed/developing, metropolis/town boundaries and that has made it successful worldwide.

Moreover, the campaign enables local governments to integrate climate protection policies with actions that address immediate municipal concerns.

In the first milestone, the participating cities must conduct an inventory for corporate (local government facilities) and community.

The milestone also determines the level of achievement of each city in undertaking the Campaign.

- Consultations and Dialogues

In all the cities, participatory approach in planning, implementation and monitoring is very evident. Inputs from the National line agencies of the national government, local departments, and the civil society were solicited including those from Leaders of local communities (Barangay Captains). This paved the way for a better understanding and appreciation of climate Change concept and benefits that can be derived from mitigation to reduce GHG emissions. It also served as a spring board to forging partnership among Non-Government Organizations present within the locality. ICLEI as facilitator utilized consultations and dialogues to thresh out issues and further enhance the partnership between the local government and stakeholders.

- On Line Coaching

After the inaugural workshop, ICLEI provided technical assistance to the local governments through on line coaching. Emails have found its way into the system of the local governments due to the frequency of email exchanges between ICLEI and local government staff. This also provided an avenue to facilitate swift responses to queries by local governments.

- Local Climate Action Team

Each city created a Climate Action team which mainly comes from the Local Government. The team is composed of personnel from the Environment Office, Planning, General Services, Engineering and Presidents of Transport Associations. Part of the tasks of the team is to undertake the five milestone process and along the way, recommend policy recommendations to the members of the City Council and the Chief Executive (Mayor). The team was also mandated to undertake the consultation/dialogue with the concerned stakeholders.

- Local Climate Coordinator

Climate coordinators were designated by the city for easier coordination between ICLEI and partners. They act as the main contact for Climate and at the same time takes the lead in the Climate Action Team. As such, they have evolved as program Champion for Climate and have internalized the importance of climate protection at a personal level. They have become advocates of the cause.

- Communication

Information dissemination or regular updates by ICLEI on how the city is doing in implementing their respective measures also provides inspiration and challenge to other cities. Cities tend to be more competitive when they see that other cities are moving ahead of them.

It is also imperative that local protocols are followed. All communications were addressed to the Mayor and that the local climate coordinators were copy furnished. This ensures that the Mayor is aware of all activities and at the same time, the climate coordinator can make a follow-through in cases where communications (documents) are lost along the way.

- Monitoring

Regular monitoring by ICLEI on the progress of cities has contributed well in the success of the CCP. Monitoring prompts the local climate team to also monitor the implementation of the measures on a regular basis. Field visits were also conducted by ICLEI to assist these local governments and to check on the progress of each city. While in these field visits, ICLEI conducts focused group discussions to thresh out issues or challenges that has to be hurdled by climate team and stakeholders. Despite continued implementation of measures, these cities now do not feel the need to quantify their GHG reduction because there are no more agencies where they should report to. The national government does not require local government to report GHG reduction. Moreover, these data are not even use for local planning purposes.

- Incentives/Rewards

Incentives/rewards also play a major come on for local government and staff to further do their best to implement and monitor their respective action plans. Each local government that completes each milestone gets a star. Local governments that have completed the 5 milestones gets 5 stars which is indicated in the plaques that they received from ICLEI and are sometimes asked to go to other cities to further encourage them to pursue their climate action plans.

- Resource Counterpart Funding

While the project is funded, local governments have resources allocated for climate protection especially for activities that

involves consultation and dialogue processes. Climate coordinators request for budget allocation either from the Mayor's fund or through the local department funds where the climate coordinator is attached.

In all policy decisions of the local government, ICLEI plays a recommendatory role and act as facilitator in dialogues and workshops. It provides the overall direction for climate and related activities in cities that underpins GHG reduction strategies to meet the cities targets.

### **MUTUAL REFERENCE AMONG CITY GOVERNMENTS AND THE ROLE OF ICLEI CITIES FOR CLIMATE PROTECTION.**

Republic Acts 9003<sup>1</sup> and 8749<sup>2</sup> requires local government in the Philippines to take steps in managing their solid waste and air pollution. The Cities for Climate Protection Campaign provided an additionality to their projects. Local governments were able to mainstream their local efforts at the global level.

- Workshops and Trainings (venue for exchange of info)

Through the various workshops, and trainings conducted by ICLEI-Southeast Asia, the cities were able to identify GHG emission sources and at the same time compute for its equivalent GHG emissions and further enhanced the skills of local government personnel. The inaugural workshop was conducted in May 2000 in Manila wherein the 5 pilot cities were present. Actual exercises were undertaken during the workshops by the 5 pilot cities.

The GHG accounted for in the city inventories are those that are from energy-related human activities. These are basically activities that involve the use of fossil fuels. Examples of these are electricity consumption for lighting and power, the use of gasoline/diesel for transport, LPG for cooking, kerosene for lamp and cooking, and the like.

Greenhouse gas emissions from the community come from the following sub-sectors: residential, commercial, industrial and transportation. Corporate sector emissions come from activities associated with public institutions such as those of the local government. Sub-sectors that comprise the corporate sector are buildings, transportation, street lighting and water and sewage.

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<sup>1</sup> Ecological Solid Waste Management Act of the Philippines.

<sup>2</sup> Clean Air Act of the Philippines

The three inventory years considered the CCP project are 1994, 1996 and 1998. GHG emissions projections for the year 2010 were also carried out.

An inventory of GHG is one of the first steps that a city can take to address the issue of climate change. This process enables the city to identify top emitters of GHGs and to plan avoidance measures that will specifically limit the emissions of these dominant GHG sources.

An inventory is only as good as the data set utilized. Hence, a relatively sound data set is crucial in developing a reliable GHG emissions inventory. This inventory forms one important basis for evaluating a city's development path. It is also indispensable for local action plans that are designed to engage the city in the global effort to protect the climate and the local environment. Inaccurate GHG accounting can lead to misguided policies designed to avoid emissions from sources that might not really contribute substantially to the city's emissions.

In projecting GHG emissions, the growth rate applied for projected consumption values should be carefully analyzed and evaluated. These growth rates should not only be based on the consumption patterns of previous inventory years but also on the city's plans and strategies for development.

The inventory is not just a trivial accounting exercise. Aside from being a first step in climate protection, it can be a valuable index by which a community periodically gauges the sustainability of its development.

The workshops also served as venue for cities to exchange best practices and strategies in implementation. Aside from these trainings and workshops, there were also specialized workshops that were conducted in each city.

Table 2. Workshops Conducted by ICLEI, 1999 to 2002

Date	Location	Participants
May, 1999	Manila	Cebu, Puerto Princesa, Naga, Cagayan de Oro and Tagbilaran
Feb. 23 to 25, 2000	Cebu and Tagbilaran	Cebu, Puerto Princesa, Naga, Cagayan de Oro and Tagbilaran
Sept. 26 – 28, 2000	Cebu	Pilot cities and other demonstration cities.



August 13 to 17, 2001	Cebu	Pilot cities and other demonstration cities.
Feb. 11 – 13, 2002	Iloilo	Pilot and Demonstration Cities and other Cities
Sept. 25– 27, 2002	Baguio	Pilot Cities and Demonstration Cities

- Project – Based Twinning



Twinning between Naga and Tungsong, Thailand

technical partnership/twinning on waste minimization, with focus on promoting materials recovery, methane emissions reduction, tapping biogas-to-energy, and managing hazardous waste. Baguio and Chiang Mai, Thailand had a twinning on sustainable transport, with focus on promoting the use of alternative fuels, facilitating policy formulation and implementation of local transport policies slanted on promoting non-motorized transport and efficient transport demand and management biogas/biodiesel. Each of these local governments were able to travel and learn and from each City.

This technical partnership or twinning aided cities implement emissions reduction measures and meet their reduction/avoidance goals.

The participants in the Cities for Climate Protection Campaign have set emission avoidance targets, and have committed to undertake greenhouse gas emissions reduction measures. They were linked with participating countries in the SEA Region. Naga, Philippines and Tungsong, Thailand engaged in a



Twinning between Baguio and Chiangmai, Thailand

These cities have agreed to identify demonstrable activities/components and/or enhance existing plans/measures with assistance of the country and regional ICLEI/CCP project management offices, exchange expertise and monitor progress of plan implementation and Document progress of the action plan and report the progress/results. The report should, among others, contain carbon savings when and where applicable, along with the other socioeconomic co-benefits of the measure underway.

- Showcase of Best Practices

Performing cities were invited in international and local forums through the intervention of ICLEI to present measures that have been undertaken by cities. Most of these forums are attended by local governments. Naga and Puerto Princesa were invited to present their initiatives in Freiburg, Germany and their practices were cited in several ICLEI Publications.

- Replication

Through the workshops and various exchanges by cities conducted by ICLEI, they were able to get ideas from other cities, adopt strategies and approaches and improved current project undertakings. Examples of these measures are MRF, Streetlight retrofitting. Examples are Butuan, Naga and Baguio where they are slowly phasing out the use of mercury lamps to high sodium vapor lamps, tricycle capping by Butuan and Puerto Princesa and piloting on MRF Naga and Butuan.

ICLEI – Local Governments for Sustainability provided the avenue for local and international exchanges. It linked cities with other local and foreign country cities to learn about each cities practices and approaches in program and project implementation.

## **POLITICAL FACTORS FOR ADOPTION OF NEW PRACTICES**

- Political Agenda

The adoption of new practices is largely dependent on the political agenda or priorities of the Chief Executive (Mayor) and interest of the department head or staff. For most of the participating cities, environment is one of the major concerns of the local chief executive and the local government in general. But in some of these cities, i.e. Mandaue, the CCP did not take off that much compared to other cities despite numerous

interventions made by ICLEI. There was low interest on the part of the Mayor and the staff.

- The right Staff

The interest and support of the local chief executive is vital in the implementation of the cities for climate protection campaign. Also important is the interest and support of the staff in the program. These two must be complementary. There are instances that the Mayor is lukewarm to the idea but has a staff that is very eager to implement the campaign. There are also instances that the Mayor would be interested and willing to give support but has no staff that is eager enough to push for the project, in these cases; implementation and results are very slow.

The key to this undertaking is finding the right staff, thus champions are evolved. In the case of Naga City, Councilor Simeon Adan, Chair of the Environment Committee was heavily involved in the project. He provided guidance, policy and advocacy support to the Climate Action Team. This made a difference and spelled success of the CCP in Naga. In the case of Baguio, it is the staff that initiated the activities. In this case the CCP continued despite changes in the Leadership of the City and was able to mainstream CCP in the development planning process. For Puerto Princesa, the Mayor's platform/agenda of government is centered on environmental protection and management and has readily embraced the CCP as another strategy for his advocacy.

- Mainstreaming of CC in the Development Agenda

New practices such as the CCP must also be integrated in the City's Development Agenda to sustain the process after project implementation. Such was the case in Baguio City. They were able to integrate climate protection in their development plan, particularly in the Environment Sector.

- Low Cost Investments

The limited financial capacities of local governments have constrained them to implement renewable energy projects due to its high costs. Measures that they have undertaken were a mostly project that requires little expenditures. For new practices to be acceptable to the local governments it must not be onerous and must be two or three pronged. It must address two or more issues or results to more benefits to the government and its constituents to be more palatable.

- Addressing Local Issues

New practices must address local issues or issues close to the administration to be acceptable to local governments. In the case of CCP, issues addressed were solid waste management, air pollution, transport and traffic and energy.

## **SOCIO-ECONOMIC FACTORS FOR ADOPTION OF NEW PRACTICES**

- Local Significance and Cost

New practices must have local significance and must be felt as important by local governments. This is how the participating cities perceived the Cities for Climate Protection Campaign. That they have a role to play in climate change mitigation while at the same time addressing local issues, i.e. health, poverty, pollution, traffic, etc. However, these new practices must have little or no cost to the local government to be readily acceptable and must complement local priorities inasmuch as Local governments have little resources.

The CCP was accepted by these local governments because the focus of the campaign was in the sectors of energy, transport, solid waste and forestry which are inherent mandates of the local governments except for energy which is still lodged with the national government. The CCP provided an additionality to their existing programs and does not require additional or new investment. They also saw that while energy is not within their sphere of mandate, they can generate reduction of GHG and save financial savings from these measures.

- Social and Financial Savings

In the course of implementing measures for the campaign, they were able to improved local environmental conditions reduced the health impact of climate change and financial savings were realized. Naga was able to generate a savings of 2.7 Million pesos just for retrofitting their streetlights. The number coding of Baguio has reduced air pollution levels and health implications of pollution to its residents. By reducing the number of tricycles plying its city streets, Puerto Princesa was able to solve its traffic problem and at the same time reduced competition for passengers thereby increasing the income of tricycle drivers. The MRF of Naga and Butuan has provided livelihood opportunities

to the marginalized sector but at the same time improved its sanitation situation.

- **Poverty and Livelihood**

The CCP indirectly addressed the issue of poverty in the cities that are the subject of this study. In the case of Puerto Princesa, the one day rest or 50 – 50 scheme increased the revenue of the trike drivers and operators unlike when they are competing before which resulted to traffic congestion and pollution. MRF undertakings have provided more income to scavengers that were accredited by the cities of Naga and Butuan. The same is true in the case of Baguio, they were able to organized the scavengers into a cooperative and provided them with skills in recycling.

In terms of political factors, ICLEI's role is limited to enlightening local officials and executives and the communities on the benefits of GHG reduction and impacts of climate change locally. In the field visits that ICLEI conducted in each City, workshops and dialogues are organized by the local government wherein ICLEI speaks and facilitates the dialogue. During one of the field (monitoring) visit in Naga, the city organized several focused group discussions for the different sectors and arranged meetings with local officials. It was also during this occasion that the Cities of Baguio and Cagayan de Oro were invited to present their activities in energy. These cities were also tasked to conduct an energy audit in city hall and to recommend actions that the City of Naga might take to reduce energy consumption in public buildings. These recommendations were readily adopted by the city resulting in the energy conservation program of Naga.

## **PRACTICE DIFFUSION TO OTHER CITIES**

- **Strong City, Weak City Link**

ICLEI was able to identify weak and strong cities in terms of implementing the CCP. Weak cities were left doing the first to 3<sup>rd</sup> milestones while strong cities are already at their 4<sup>th</sup> and 5<sup>th</sup> milestones. To provide more encouragement to the weak cities, ICLEI brought local climate coordinators to these weak cities to share their experience, approaches or strategies that they used in the process of implementing the CCP. This provided new insights to the weak cities and worked more towards achieving the five

milestones process. Such was the case of Puerto Princesa, Naga, Cagayan de Oro and Baguio, where these cities were brought to the weaker cities.

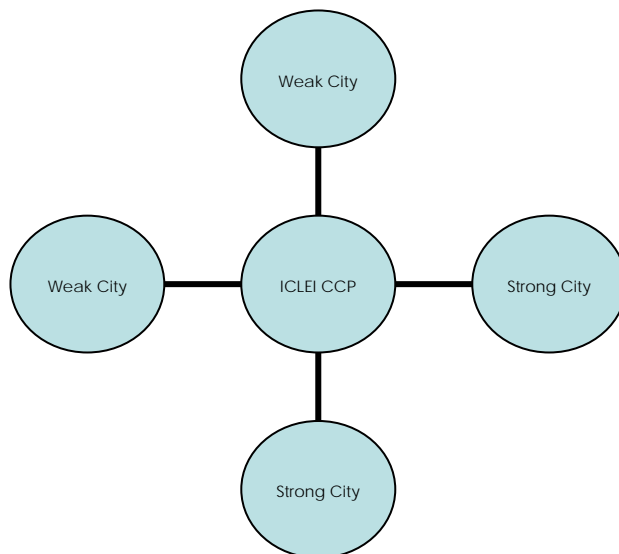


Figure 1. Strong City, Weak City Link

Project based twinning were also found to be effective across cities in other countries as in the case of Naga and Tungson and Baguio and Chiang Mai. Each not only learns about their common project but also provided an avenue for cultural exchanges. Project based twinning provides a free exchange of information especially if both cities are doing a similar undertaking. Cities are provided an avenue actually see concrete examples of what each city is doing and further build-on on their projects based on the learning that get out of the experience. The success of these twinning can be anchored on the fact that each city has an actual chance to personally observed and learn about a specific project but also the other project undertakings that each city is doing in climate protection.

- Workshops and field visits were also valuable in the process of diffusion. Representative of the cities were able to have a glimpse of what other cities are doing in the campaign. International exposure was also a key in the diffusion process. Cities that are exposed internationally develop a sense of pride and prestige that their project is being considered as best practice. This further drives their appetite to be more proactive and innovative, and to further develop measures geared towards climate protection. Learning that they get out of the international exposure are applied at the local level. However, application is largely dependent on who represented the city. A mayor would probably issue an administrative or executive order or direct a department to

implement a measure that seen at the international event. In the case of a councilor, a legislative measure is crafted and if a staff attend the event, would probably build on existing project or altogether localized what has been learned.

- Dissemination of information through quarterly issuance of newsletter contributed to the practice of diffusion and adoption. This means provided an avenue for the local governments to update themselves on what other cities are doing and what strategies they are using. According to Mrs. Lacsamana of Baguio City, the newsletter is a rich source of information and keeps the cities updated and without this information, cities would have to wait till the next workshops or dialogues will be held. This sentiment is shared by Puerto Princesa.
- Direct Communications with cities were also made by the cities themselves through phone and email exchanges. It is important for cities that they immediately get response to queries otherwise they will tend to become sluggish in implementing measure. This is more important if this direct communication has something to do with the project especially if they have reached a problematic area. This is a critical role played by ICLEI with the participating cities. Face to face meetings are important but these are usually done during workshop except in special circumstances where the cities would like to visit the ICLEI office. Frequent face to face meeting while effective are very costly and will cause brain drain from participants. It is imperative therefore that face to face meeting is space evenly. In the case of the Cities for Climate Protection Campaign, workshops (all cities) are divided into inaugural, interim and concluding workshops. The spaces in between were used for field visits wherein dialogues with the communities and other stakeholders are undertaken. Phone calls and emails were used only in problem solving, follow-up and information exchange.

### BAGUIO CITY: NUMBER CODING SCHEME

- *Background*

Baguio has made its mark as a premiere tourist destination in the Philippines with its cool climate, foggy hills, and panoramic views. It is also the melting pot of different peoples and cultures and has boosted its ability to provide a center for education for its neighbors.



Panoramic view of the City of Baguio.

Baguio City is approximately 250 kilometers north of Manila, situated in the heart of Province of Benguet. The area of the city is 49 square kilometers and is landlocked within the province of Benguet, thus bounding it on all sides by its different municipalities; on the North by the capital town of La Trinidad, on the East by Itogon and to the South and West by Tuba. With City Hall as reference point, it extends 8.2 kilometers from East to West and 7.2 kilometers from North to South. It has a perimeter of 30.98 kilometers. The City has twenty administrative districts among which its barangays are divided. Latest census reveals that it has a population of 250,000.

Baguio is 8 degrees cooler any month on the average than any place in the lowlands. When Manila sweats at 35 degrees centigrade or above, Baguio seldom exceeds 26 degrees centigrade at its warmest.

- Milestones

Baguio was among the pilot cities for the Cities for Climate Protection Campaign in the Philippines. In June 9, 1999, the City



signed a commitment agreement (Resolution) with ICLEI to undertake the 5 milestone process.

Several projects were identified in the four (4) focus area of the campaign, i.e. transport, solid waste, energy and forestry.

Baguio’s number coding scheme was patterned after the Metro Manila Development Authority (MMDA) scheme. This scheme was adopted primarily to decongest traffic in the Central Business District and at the same time reduce air pollution. The scheme was initially implemented on an experimental basis but was later on adopted as a local law as embodied under Ordinance 01, series of 2003.

In coming out with the scheme several activities were undertaken by the City as shown in the table below.

Table 3. Activities undertaken by the City in relation to the Number Coding Scheme.

Month/Year	Political /Administrative Stakeholders	Civil Society / Business Stakeholders	Network/International Stakeholder
Oct. 2002	Project Conceptualization with the Traffic and Transport Management Committee	Members of the TTMC	
Nov., 2002	Consultation with Jeepney Drivers and Operators		ICLEI
Dec, 2002	Preparation of the Executive Order		
	Two week experiment on the scheme	TTMC and Philippine National Police	
	Drafting and Finalization of the Number Coding Ordinance	City Council	ICLEI
January, 2003	Approval and implementation of the Ordinance	City Council Philippine National Police and TTMC	

Based on Baguio’s inventory, 59 percent of its GHG emission comes from the transport sector.

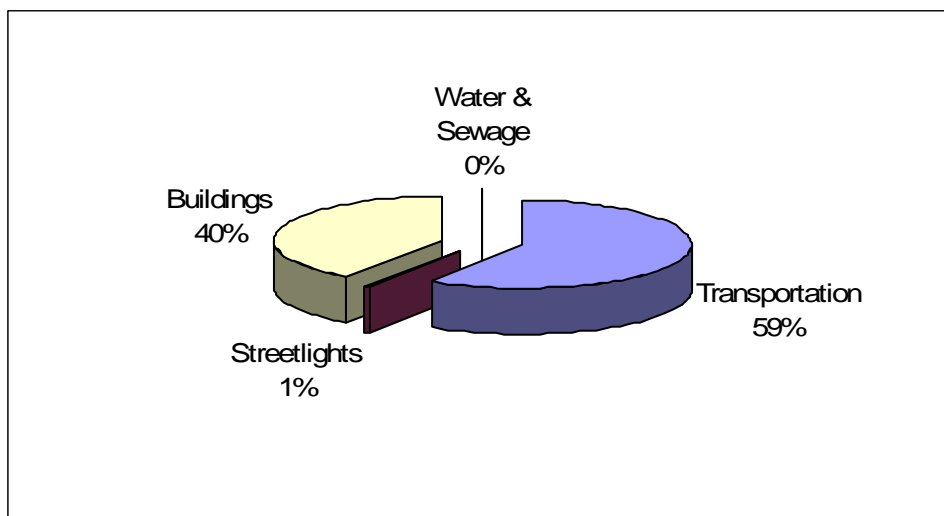


Figure 2. Overall GHG Emission of Baguio City

The number coding scheme was adopted primarily to address the twin issues of traffic and pollution. Record reveals that the air ambient quality from year 2000 to 2002 Total Suspended Particulate have exceeded the standard level which is pegged at 180 micro gram per Normal Cu.m (ug/NCM). After the implementation of the scheme in 2003, TSP level have decreased at considerable level as gleaned from the table.

Table 4. Air Ambient Quality in Baguio, 2000 to 2007

Type	1999	2000	2001	2002	2003	2004	2005	2006	2007
Average total Suspended Particulate (TSP per ncm)		216.35	152.35	318.06	204	198	176.50	163.00	204 1 <sup>st</sup> qtr.

- Key Actors

The following are the agencies and institutions that have participated in the project:

- Alay sa Kalinisan – (ASK) – Monitoring and reporting of vehicle emission to concerned agencies
- Philippine National Police – apprehension of smoke belchers

- Environment and Management Bureau – monitoring of air ambient quality
  - Department of Transportation and Communication – apprehension of smoke belchers
  - Federation of Jeepney Drivers and Operators Association – Self Monitoring and regulation of members
- Policy Process Stages

Typical of a local government in the Philippines is the creation of Committees where the different departments, line agencies of the national government, NGO's and other stakeholders are included as members.

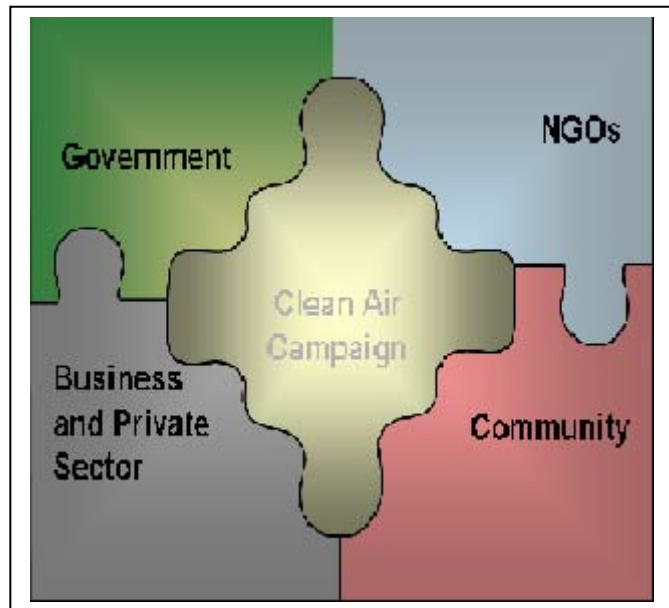


Figure 3. Diagram of Stakeholder involvement in the Clean Air Campaign.

During the conceptualization of the number coding scheme, the proposal was thoroughly discussed in the Traffic and Transport Management Committee wherein issues are discuss and debated upon. The agreement was to implement the number coding scheme on an experimental basis. This was approved by the Mayor. Information dissemination through tri-media was immediately undertaken by the local government. The composition of this committee is, the Philippine National Police, Local government Departments (City Engineering, Planning), National Line Agencies of the National Government (Department of Public Works and Highway, DOTC), private sector (association of jeepney drivers and operators association), NGO (alay sa kalinisan and Baguio Regreening Movement) and private organization (Association of Civil Engineers).

Traffic flow and pollution levels were reduced. However, there was adverse public reaction, especially from owners of motor

vehicle. After a month long implementation, the public saw an improvement in air quality as supported by the monitoring report of the EMB and traffic flow was smooth.

The public, after seeing the benefits of the policy, immediately clamored for its permanent implementation.

- Political Factors

Political agenda plays a pivotal role in program and project implementation. Without the blessing of key decision makers, projects will not take – off the ground. However in the case of the Cities for Climate Protection Campaign in Baguio, it was proven that a Program Champion<sup>3</sup> is needed to sustain the campaign even with the changes in administration.

According to Mrs. Cordelia Lacsamana, Officer-In-charge of the City Environment, Parks and Management Office, comprehensive and relevant information is key to better decision making. This was the role played by the program champion. Since, the City participated in the campaign; Climate Change has become part of the development agenda of the city as embodied in the environment sector plan.

It is also noteworthy that the Association of Jeepney Drivers and Operators is a vote rich sector in the City and any proponents of policies that will affect their socio-economic well being are affected during election time. Moreover, this sector can cripple the public transport system. As such, it has become a policy of the city to include the transport sector in development undertakings specifically in the area of transportation. However, it is the religious sector and business sector that more or less sway policy decisions.

Organizations (local and international and donor agencies) outside the city play a significant influence in local policies and decision making through the creation of committees, tasks forces or Technical Working Groups to pursue the objectives of the programs that they implement in the city based on agreements or commitments made by the city. Such was the case in the CCP and Clean Cities Program. The inputs provided by ICLEI has provided additional dimension to the scheme by providing adequate safety nets and link the program to climate protection.

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<sup>3</sup> Program Champion is a local staff or individual or group of individuals that champions the cause of the program or project, like CCP.

- Socio-economic factors

The number coding scheme was conceptualized mainly to address worsening traffic congestion and increasing pollution levels in the city. 59 percent of its pollution and greenhouse gas emissions come from the transport sector. Motor vehicle population is growing at a rate of 12.5 percent per year and is doubled every 5.75 years.

Table 5. Type and Number of Vehicles, Baguio City

AGENCY	TYPE OF MOTOR VEHICLE							TOTAL
	CARS	UTILITY SUV	TRUCKS	BUSES	MC/TC	TRAILERS		
Baguio City	7,792	13,385	318	965	89	681	6	23,236
La Trinidad	1,508	6,683	106	1,666	196	178	6	10,343
TOTAL	9,300	20,068	424	2,631	285	859	12	33,579

Data Source: Socio-Economic Profile, Baguio City.

According to Mrs. Lacsamana, because of pollution, there is an increasing incidence of respiratory related diseases in the city as evidence by its health statistics which will have great implication to the marginalized group in terms of health services.



Table 6. Leading Causes of Morbidity, Baguio City - 2001-2004

PARTICULARS	2001	2002	2003	2004
1. Pneumonia	1,441	1,351.35	946.31	942.69
2. Upper Respiratory Tract Infection	-	1,216.21	1,455.15	923.03
3. Bronchitis	928.68	827.46	946.31	756.66
4. Dog bite	-	322.13	539.67	470.27
5. Diarrhea	-	-	459.40	380.22

6. Vascular disease	354.35	379.66	438.22	293.74
7. Typhoid Fever	82.88	124.54	168.37	83.62
8. Asthma	-	-	82.14	65.03
9. Heart Disease	203.71	177.53	105.19	62.17
10. Urinary Tract Infection	-	-	70.24	56.10

Data Source: Office of the City Planning and Development Coordinator, Baguio City.

The city has evolved a multiplicity of role in regional development. It is the prime tourist destination north of Manila, education center, regional government seat and is the gateway to the Cordilleras.

There are more than 20,068 utility vehicles (including La Trinidad vehicles and does not include vehicles coming from neighboring municipalities of Benguet and La Union) in the city that competes with each other for passengers. Income of drivers and operators has decreased due to the increasing number of public utility vehicles. The policy number coding scheme has increased their income.

- Practice of Diffusion to other City

The project has been showcased in several forums conducted by ICLEI where representatives of the different local governments were present in the Philippines, Thailand and Indonesia. Cities such as Makati have a similar undertaking. However, it is only Baguio that was able to link its initiative with climate protection and GHG reduction through the assistance of ICLEI, it was able to determine its GHG reduction in this sector.

## **BAGUIO CITY: WASTE COMPOSTING AND RECYCLING**

- Background

The City's dumpsite has been in existence for 30 years with no alternative site for the city. Methane emission especially during the summer months can be observed. The average volume of waste is 300 MT of garbage per day. Households contribute 77 percent of the garbage being collected by 19 collection fleets of the city, which cover 126 of the city's 128 barangays. The city market accounts for 18 percent while collection from commercial establishments is pegged at four percent. 55 percent of the garbage being collected can be composed

while 35 percent is recyclable and about 10 percent is residual waste.

The composting plant, inaugurated on March 24, 2004 at the city dumpsite, now turns out an initial 100 to 150 sacks of compost, initially from garbage collected from the city market.

"The installation of the composting facility was supported by various agencies in Baguio City. Costing P9 million, P2.5 million of which came from the Presidential Social Fund, the existing facility includes equipment shed, ramp and a training center for garbage pickers involved in the project. Funding support of the facility came from the Canada Fund and the Official Development Assistance of Japan.

It is envisioned that aside from slowing down garbage from piling up at the dumpsite, compost production would boost the income of scavenger families surviving on recyclable waste. Aside from recycling, residents within the dumpsite also started producing the other year charcoal briquettes out of waste wood, sawdust, coco shell, corm cobs and other carbonaceous or "green waste".

- Milestones

Waste composting and recycling were one of the identified projects submitted by the City for the Cities for Climate Protection campaign to achieve its target of 10 percent reduction of GHG emissions.

30 MT of garbage are being compost daily or 28 .29 tons of eco2 emission reduction of GHG.

Most of the recycling activities are done by scavengers in the dumpsite. With the help of the city, the scavengers were organized into a cooperative and livelihood trainings were conducted to increase capacity and skills of the scavengers.

To further intensify its campaign, the city has issued a policy of "No segregation, No collection" however this backfired because of the lack of information dissemination and consultation with the public.

- Key Actors

- City Environment and Parks Management Office – Office mandated for solid waste management in the City

- Presidential Management Staff – Provided funding for the construction of the facility through the President’s Social Fund.
  - Canada Fund and Japan Embassy-Grant Assistance for Grassroots Projects– funding support to the facility
  - FSSI – Technical Assistance
  - Jaime V Ongpin Foundation – Technial Assistance
  - Irisan Community Environmental Multi-purpose Cooperative – Beneficiary
- Policy Process

Consultation and dialogues were conducted in the implementation of the composting and recycling activities in the dumpsite. This led to the organization of the scavengers into a cooperative.

However, the city has failed to use the same methodology or process when it implemented the “No segregation, No Collection” Policy which resulted in the piling of garbage in the whole of the city. The public adversely reacted to the policy because there was no consultation and very minimal advocacy campaign in implementing the policy.

The Jaime V. Ongpin Foundation Inc. (JVOFI), in 1999, in partnership with and support from the local government unit (LGU), the group initiated a series of consultations with the various stakeholders at the Irisan dumpsite residents, various market organizations, representatives from the business sector and government and non- government agencies – that eventually resulted in a strategic action plan anchored on a need to improve environmental sustainability and promote poverty alleviation. As a result, the vendors and buyers of the public market, the source of the bulk of Baguio’s waste, were persuaded to adopt waste segregation. With donations from the business community, JVOFI and the LGU launched a “Linis Palengke” (Clean Market) campaign. Separate bins were provided in strategic spots for red (non-biodegradable), and brown and green (biodegradable) trash. In the beginning, the vendors resisted the idea of waste segregation.

- Political Factors



Political will is an important aspect in implementing policies and actions on ground. In the case of this project, even if there is political will, some factors will affect the decision making ability of the Mayor. These are pressure from the neighboring municipality of Tuba requesting the city to transfer its dumpsite at another location because of possible contamination of the river and underground water but the Mayor has no other alternative due to the absence of land that is suitable as sanitary landfill in the city but to continue dumping the solid waste to the old dumpsite.

Households near or within the dumpsite do not want the dumpsite close because it is a means of livelihood for them. The law requires that each Barangays have to establish their own MRF' but some Barangays are not able to because of the absence of space.

In collaboration by the City with the Jaime V. Ongpin Foundation, it was able to hold a consultation dialogue with the waste pickers and introduce the concept of composting and recycling. Through the dialogue, the city and the foundation was able to organized the waste pickers into a cooperative and were capacitated through various livelihood trainings and skills development.

- Socio-economic Factors

The dumpsite has provided home and livelihood to about 110 scavenger families who consider solid waste as a resource to be recovered. Based on a survey of the area conducted in 2003, 73% of the community's population earn an average of P1,500 to P4,000 per month, depending on the volume and quality of recyclables they are able to retrieve. Women and children pitch in for additional income, and as a result, the children are deprived of basic education, health care and play.

With the project, the women of Irisan were gathered for several sessions with a product development consultant sponsored by Canada Fund to improve the designs and quality of their candles, candleholders, bags, Christmas decor and other items made from recycled materials. Participation in trade fairs allowed some of the women to earn P12,000 from the sale of their candles. The two Canada Fund grants totalling P670,000, together with a P400,000 counterpart from the foundation, provided the capital for the recycling ventures of about 100 women, which in turn have increased incomes by P1,500 to

P2,500 per household after six months. SINAG's products are permanently showcased in a nook of Baguio City Hall.

- Practice of Diffusion to other City

The plant has attracted such attention that even though it is set to operate by the end of 2002 only, many LGUs are already awaiting the start-up of operations so they can conduct a study-tour of the plant, waste management being a major LGU concern in Philippines with the closure of many existing landfills. The project has also been showcased in local and international forums through ICLEI where the participants were local governments.

### **PUERTO PRINCESA, PALAWAN: ONE DAY REST FOR TRICYCLES (50-50 SCHEME)**

- Background

Puerto Princesa forms part of the Philippine's last frontier, is rich in natural resources. It is the Philippines largest city with a total land area of 253,982 hectares. The town was converted into a city on January 1, 1970 under R.A. 5906 as amended by P.D. 437.

Saint Paul subterranean Park, Puerto Princesa.



Since its foundation, Puerto Princesa has been the nerve center of activities in Palawan. Aside from being the seat of public administration, it is the heart of trade, commerce, service, and industry in the province.

Today, under the present leadership, the City has gained the distinction of being a model city – in cleanliness, environmental protection and conservation, and local governance in general. To date, the City has been upgraded into a highly urbanized city from just being a mere component city. Puerto Princesa has now a population of 210,508.

- Milestones



In January 1999, Puerto Princesa signed a Resolution with ICLEI binding the city to undertake the 5 milestone process. The one day rest for tricycles was part of their climate action plan

Like Baguio City, the one day rest for tricycles was conceptualized to decongest traffic and pollution in the central business district of Puerto Princesa as well as to reduce

its health impacts. Based on the inventory that was conducted by the city, 67 percent of the city's pollution comes from the transport sector.

According to Mr. Jonathan C. Magay, Head Technical Working Group – Transport Management Program and Deputy Project Manager – Tricycle project, the one day rest for tricycle started when a study was prepared by ICLEI on the tricycle issue of Puerto Princesa City. The Mayor was invited by US-EPA to Bangkok for a study tour in Bangkok in December 2003.

After the trip, the Mayor met with his transport management team to deliberate on the issue of traffic and pollution. A Clean Air Program was conceptualized. Soon after that a series of consultation meetings with the drivers and operators of tricycles were conducted by the Mayor. Initially, the transport sector adversely reacted to the proposal but soon after, issues were resolved. In March 2004, the one day rest was implemented on an experimental basis. In November 2004, an ordinance was passed permanently implementing the one day rest for tricycles.





Activities that have been undertaken to can be gleaned from the Table below:

Table 7. Activities undertaken by Puerto Princesa

Month/Year	Political /Administrative Stakeholders	Civil Society / Business Stakeholders	Network/International Stakeholder
February 2003	Consultation with the tricycle drivers and operators to assess the impact of the traffic scheme	Jeepney Drivers and Operators Association	
March 2003	Conducted a 2 – week dry run of the scheme	Philippine Jeepney Drivers and Operators Association	
November 2003	Approval of the 50/50 tricycle Traffic Scheme	Media	
March 2004	Implementation of the 50-50 tricycle traffic scheme		

Data Source: Office of the City Planning & Development Coordinator, Puerto Princesa, Palawan

- Key Actors
  - Mayor Edward Hagedorn – City Mayor, Puerto Princesa City
  - Jovenee Sagun, City Planning and Development Coordinator, project planning and coordination

- Forester Renato Pallaya, Provincial Environment Management Office, Member, Clean Air Management Board<sup>4</sup> – provided technical assistance in the project
- Mr. Jonathan C. Magay – Head Technical Working Group, Transport Management Program and Deputy Project Manager, Tricycle Project.
- ADB – Provided grant and loan to the City of Puerto Princesa
- Policy Process Stage

As earlier mentioned 67 percent of the city's pollution come from the transport sector and also accounts issues such as traffic congestion and health.

The project was implemented as part of their action plan to reduce GHG emissions under the Cities for Climate Protection Campaign.

In the course of the implementation of the project, several meetings were held by the Mayor with its Transport Management Team including the President of the Tricycle Drivers and Operators Association. Several consultation-dialogues were scheduled with stakeholders (drivers, media, religious sector and the community) to iron out the issues raised by the affected sector.

- Political Factors

In the case of Puerto Princesa, part of the administrations development agenda is environmental protection and conservation. The primary mover of almost all environmental programs in the City is the Mayor. It can only be surmised that political commitment to the environment is a necessary ingredient in the success of environmental programs. Moreover a broader stakeholder participation and dialogue is crucial to thresh out issues in the implementation of the program. The scheme was launched a month before the election but Mayor Hagedorn push through with the program using a two week experiment as a way of gauging the impact of the program and reach out to its critics. Positive initial results surfaced, he then

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<sup>4</sup> Clean Air Management Board is a local organization established by the City of Puerto Princesa that formulates the policy framework for its clean air campaign.

pressed ahead to achieve consensus by personally conducting extensive dialogues with tricycles and other stakeholders.<sup>5</sup>

### Socio-Economic Factors

Tricycles in the city contribute 39% of CO<sub>2</sub> of its total GHG's. Two-stroke engines comprises 58% of tricycle population of which 25% of 2-strokes do not meet the HC limit, with emissions ranging at 8,000 to 11,000ppm. Of the total tricycles 25% of total tricycle population is above 10 years old.

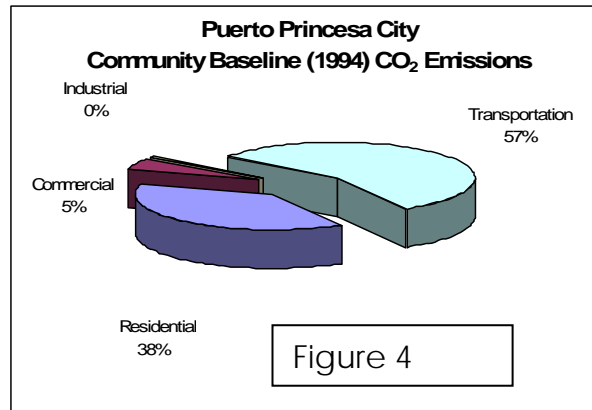


Figure 4

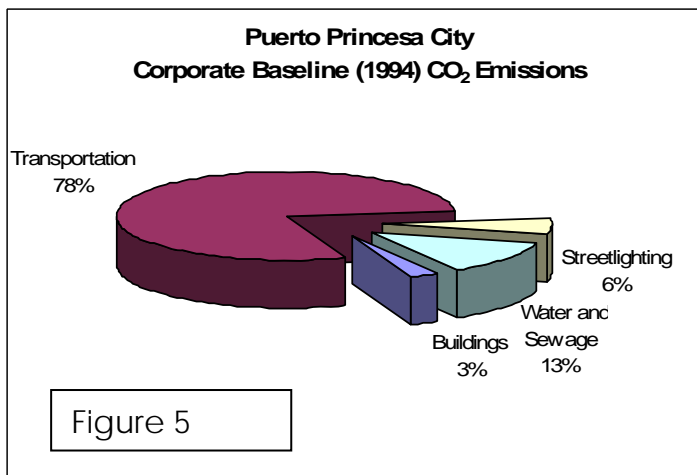


Figure 5

Noise from 2-stroke tricycles ranges at 89-96 dB, while 4-stroke at 83-91 dB under 2000rpm. Frequency of Tricycles's plying along major streets is higher than the combined figures of other vehicles. 14% had accidents with tricycles due to drivers' recklessness

and sidecar fabrication.

83% of population relies on tricycles as a means of transportation, of which 58% rides on a regular basis and 25% on a weekly basis (ADB survey). Puerto Princesa as tourist destination, tricycles is the primary means of transportation.

Some of the factors affecting transport supply are due to the increasing unemployment rate which is pegged at 14 percent.

According to the Planning Department, the one day rest reduces air and noise pollution by at least 20%, improves traffic flow by 14% and increases drivers' income by 50%.

<sup>5</sup> Puerto Princesa's Clean Air Program, A Best Practices Case Study, USAID/ASIA

- Practice of Diffusion to other Cities

The project has earned a lot of reputation not only to the national and local governments in the Philippines but also in Southeast Asia and international organizations.

It is touted as one of the best practice in the transport sector and has been featured in one of the USAID report. Moreover, the project has also been showcased in a lot of local and international forums.

Several local governments in the Philippines that visited the City would like to replicate the project but failed because of lack of political will.

The League of Cities of the Philippines has explored the possibility of replicating Puerto Princesa's Clean Air Program in at least 10 percent of the Cities in the Philippines. So far, the Cities of San Fernando, La Union, Mandaue, Cebu Province and Calbayog, Samar are in various stages in implementing the various components of the program.

## **PUERTO PRINCESA, PALAWAN: GREEN HOMES DESIGN**

### Background



This project involved energy-efficient design for a 1000-unit mass housing project which features the use of CFL instead of incandescent bulbs. The houses were designed with the use of natural illumination and ventilation which reduce energy consumption. Other installations also included rainwater catchment facility to reduce the demand for water pumping, wood for the roof and floor framing, doors and door/window jambs, and stairs to decrease the demand for wood-cutting, disposal system for non-recyclable and non-

biodegradable, and a backyard composts to reduce waste.

The increasing population Puerto Princesa has congested the city's bay threatening the coastal reserves. To protect its ecological security, a mass housing project was conceptualized to relocate 824 families. The design of the houses was revised several times. Inputs from ICLEI were solicited to link it with the climate protection efforts of the city. The prototype is designed to reduce energy demand from a mix of energy uses. By using an average of 5 compact fluorescent lamps instead of incandescent bulbs, the households will cut its energy bills by 64 percent. Moreover, energy demand will also be reduced by 30-40% due to the abundance of natural illumination, enhanced ventilation, the cooling effect of the roofing material, and the growing of at least 1 fruit tree per household. It is estimated that annual energy savings from the project is 121,414 kWh with a potential annual carbon savings of at least 72 tonnes and potential annual financial savings of 1.9 M Php or US\$35,106

- Policy Process

Mindful of the plight of residents in the coastal area and the danger posed to them by climate change and ecological security of its marine ecosystem, the City Mayor directed the City Engineer's office to design eco-efficient homes as relocation for the affected families. The design was subjected to several revisions until it was finally approved. Families near the coastal area opposed their relocation because their source of livelihood was fishing and their relocation would mean additional expense on transportation. However, after a series of consultations and dialogues, the residents were prevailed upon and agreed to the relocation. Consultation/dialogue is a powerful approach especially if it involves livelihood and ecological security. It provides an avenue for exchange of concerns and issues and is a continuing process for the residents to internalized the importance of maintaining ecological balance in the city while also mindful of their means of livelihood.

- Political Factors

The personal presence of the Mayor in these dialogues provided an added value. People tend to listen more if the person speaking to them is the authorities that they themselves have elected. It would have been different if a staff only speaks to the affected sector. There would be more heated arguments and attendance would be likely low. When the source of livelihood of



the affected sector is affected, it would be likely that a howl of protest will happen.

- Socio – Economic Factors

The project has not only provided the affected sector with land security but also ensured that in the design of the houses, the people who will live therein would be able to save money from electricity consumption and at the same time helped the city in several ways (reduction in the collection of solid waste and ecological balance of the coastal area). It is shown in this project that a single project can solved several issues as well which is beneficial to both parties and the environment.

- Practice of Diffusion

The project has not been replicated in local governments in the Philippines mainly due to the high costs of investment in socialized housing and limited space in their locality. However, the project has been highlighted in several forums and publications of ICLEI.

- Key Actors

- Mayor Edward Hagedorn, City Mayor
- Barangay Captain
- City Engineer's office
- Household Heads of affected families
- Office of the City Planning and Development Coordinator
- Local Finance Committee

## NAGA CITY: ECOLOGICAL SOLID WASTE MANAGEMENT PROGRAM



Naga City is emerging as the regional development center for Bicol Region because of its centrally located position in the province of Camarines Sur and is 377 kilometers south of Manila. It is also hailed in the Philippines as an innovations center for governance.

To date, it has a population of 137,810. Economic activities are heavily dependent on agriculture, commerce and trade. The rapid pace of urbanization has paved the way for migration because of employment and educational opportunities that resulted to problems on housing, pollution, poverty, deterioration of the natural environment and increased of solid waste.

On October 21, 1998, the city Naga passed a Resolution (98-354) to join and participate in the Cities for Climate Protection Campaign. It committed the city to undertake the 5 milestones of the campaign. In April 14, 1999, the members of the City Council ratified the Memorandum of



Agreement between the City Government of Naga and ICLEI. Naga was also a signatory to the Asia Pacific Region Nagoya Declaration on Climate Protection in 1997.

- Legal Framework

Section 3 (I) of the Local Government Code of the Philippines, local government units are mandated to share with the national government the responsibility of managing and maintaining the ecological balance within their respective territorial jurisdictions. The code further gives authority to local governments to establish their own solid waste disposal system or environmental

management system and services or facilities related to general hygiene and sanitation.

### Ecological Waste Management Program

Based on the provisions of this law, the city enacted Ordinance No 095-80 on November 27, 1995, establishing the Ecological Waste Management Program for Naga even prior to the passage of the Ecological Solid Waste Management Act of the Philippines. The framework plan for the ecological waste management program of Naga was based on the Sta. Maria, Bulacan Model.

By February 2, 1996, the ecological center of Naga was already producing organic fertilizer from biodegradable waste. It was also during this year that Naga identified solid waste management as one of its priority action areas. In 1997, to further improve the ecological waste management program of the city, it embarked on a series of site visits to existing dumpsites and organic fertilizer plants in the different local government units in the Philippines with best practices in ISWM.

### **MATERIALS RECOVERY FACILITY (MRF)**

The city's 3.5 hectares old dumpsite located in Barangay Balatas is now converted into a controlled landfill that houses the 15 Million Pesos waste processing and recycling plant. The city generates 62 tons of garbage per day. 50 percent of which are biodegradable and the other 50 percent is non-biodegradable. The processed organic wastes are marketed at Metro Naga and Bicol Region. Low grade compost is sold at Php50/50kg while high grade compost is sold at 175-200 pesos.





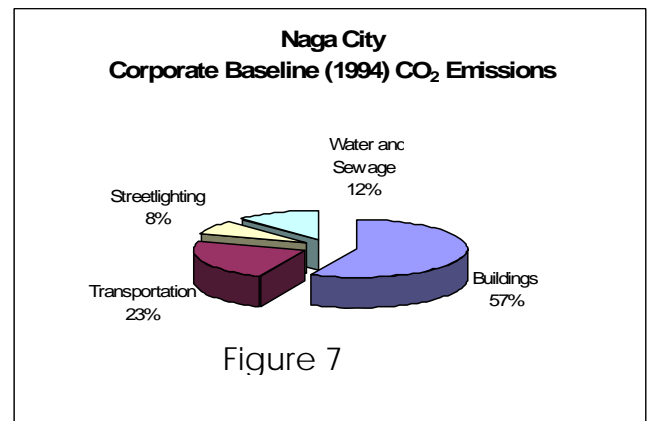
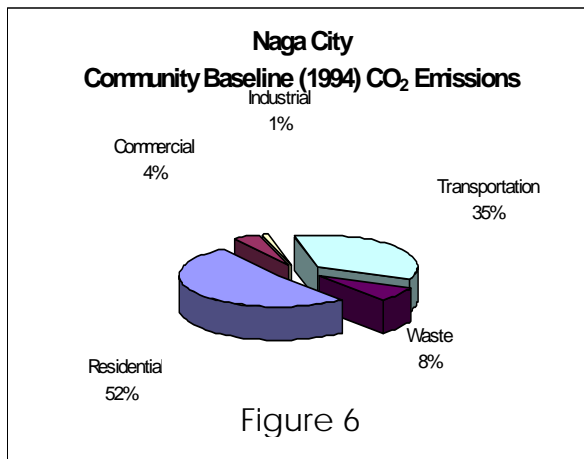
The main objective of the MRF is to reduce, reuse and recycle waste. Visit made by the city personnel in some parts of Metro Manila before the implementation of the project do not show a semblance of a Materials Recovery Facility and

what can be found in these places are transfer stations. The MRF of Naga was patterned from Middlesex Boro, New Jersey, Delaware, Montgomery and Lancaster, all in the United States.



In implementing the Cities for Climate Protection Campaign of ICLEI, Naga has given

more attention to MRF rather the other Cities for Climate Protection measures. There are 27 Barangays in the city but only 9 barangays were pilot tested for MRF.



## Policy Process for the Integrated Solid Waste Management Program of Naga City

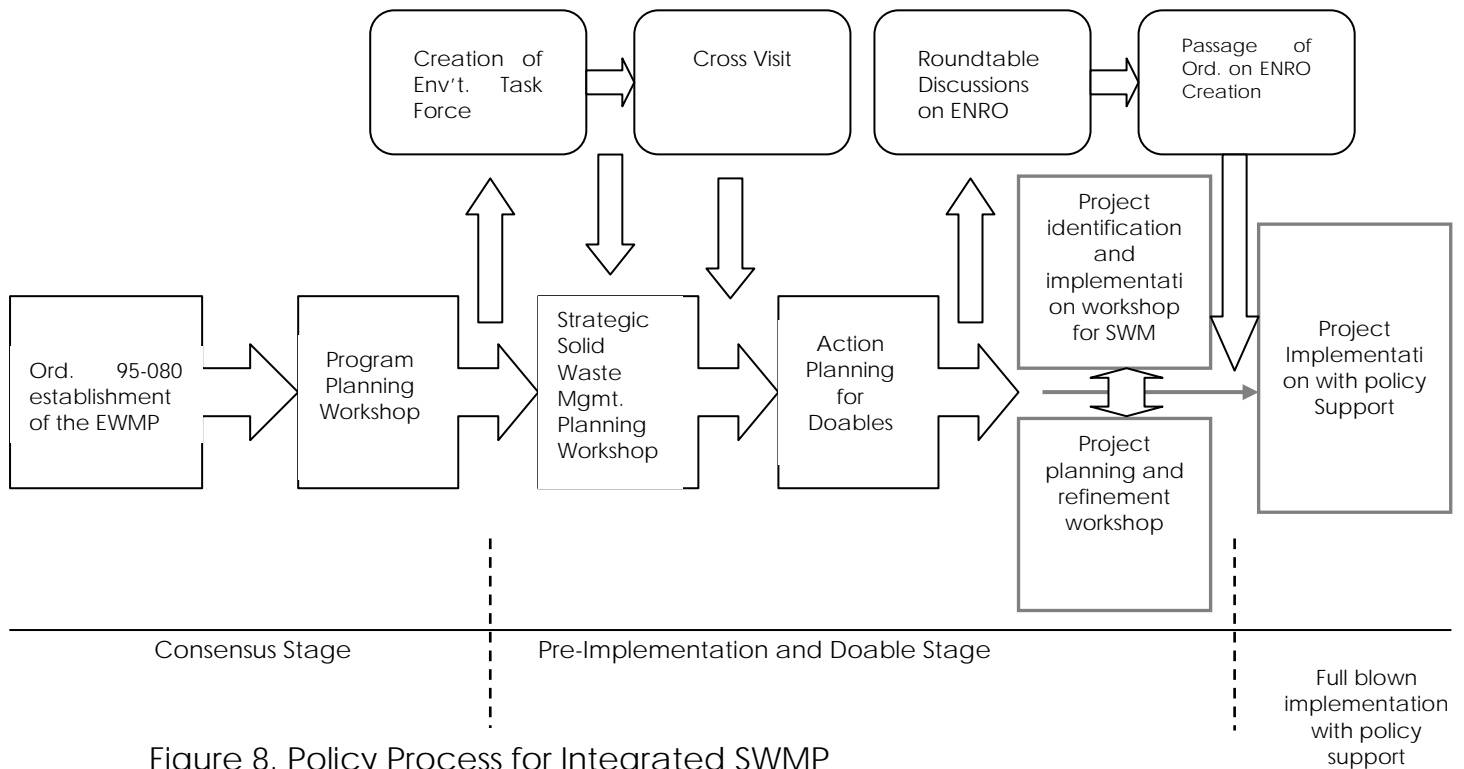


Figure 8. Policy Process for Integrated SWMP

- **Political Factors**

At present, 2 (Triangulo and Del Rosario) of the 9 Barangays (Calauag, Triangulo, Bagumbayan Sur, Bagumbayan North, Sta. Cruz, Tabaco, Lerma, Del Rosario and Dinaga) have been continuing their MRF activities under diverse strategies. In particular, Barangay name called 'Triangulo' has a joint mechanism with local Non Government Organization (NGO) – Community Organization Philippine Enterprise (COPE). At the onset, the MRF was operated by COPE and monitored by the Barangay office. However since 2006, the MRF is now being managed by the Barangay office and monitored by the NGO.

It is observed an exceptional situation in Del Rosario Barangay where they are implementing manageable and cost-effective MRF activities with support of the local government and the community. That implementation mechanism and strategies are very simple but its outputs are highly environmental friendly and effective.

However, 7 Barangays that have implemented MRF activities on their own is no longer functioning due institutional and community related issues.

Capacity and knowledge of households, community-based organizations and institutions are very important resources to reinforce the Cities for Climate Protection activities in Naga city. Local Government support to the Barangays is also an important ingredient in the successful of the implementation of the MRF.

Most households, who have been interviewed, understand about process of segregation. However, most of them are not practicing after 2006 due to the collapsed system mainly attributed to the change in leadership and agenda of Barangay leaders.

#### Issues and Challenges

1. Natural calamity (Typhoon 2006). The typhoon in 2006 has destroyed 90% of MRF sites in entire city. Total physical resources including building, machines and other infrastructures have completely been destroyed. Only 2 barangays reconstructed their MRF and are continuously functioning.
2. Financial constraints. The Barangays visited pointed out that they need financial assistance to reconstruct their MRF structures and continue MRF activities.
3. Political culture. Philippine political culture has directly influenced The Cities for Climate Protection activities. In particular, seven of nine Barangay captains are newly elected and most of them are not properly aware about on-going MRF and related activities. This is further aggravated resources problems such as availability of land and materials for the MRF. It is revealed some cases that former Barangay captain but when his term ended, the relative immediately took the land back.
4. Lack of coordination and interrogation among key actors. Coordination among key actors is an important factor to implement the MRF activities. Relevant city offices and officials lack of coordination among on-going activities causes problems. Collection of garbage, segregation, community education on Cities for Climate Protection activities, and follow up activities are not properly coordinated after 2006. Apart from that there has not

been enough interaction among community based organizations (local NGOs), institutions (schools, religious institutions and Barangay councils) and households regarding implementation of MRF activities.

5. Complexity of implementing strategy. Due to lack of coordination, it seems there are different implementing strategies utilized by the Barangay leaders. The implementing mechanism of MRF is not properly structured even at the Barangay level. This has caused overlapping of activities, competing among players (scavengers, households and Barangay officers) that lessen responsibilities among actors.
6. Lack of communication among actors. Lack of communication has caused to break the entire Cities for Climate Protection process in Naga city upon the termination of the project with ICLEI. There seem to be a communication gap among city office regarding existing Cities For Climate Protection situation in Naga city. It also affected to the relationship between Barangays and city office.
7. Lack of motivation among implementing officers. The Cities for Climate Protection implementing officers are well aware and educated on modern Cities for Climate Protection knowledge and related issues. However, due to above mentioned issues, it could not be seen that they have enough motivation to continue the MRF or other Cities for Climate Protection oriented activities. This applies to whole players in the LGU. In contrast, it could be seen that there is motivated willingness of households to restart or continue the Cities for Climate Protection activities with the guidance of relevant authorities in Naga city.

- Socio – Economic Factors

Materials Recovery from solid waste is the main source of income for the impoverished and an additional income to households. Segregation further reduces pollution which impacts on the health of residents.

Households are voluntary practicing segregation by trading recyclable garbage. In addition, there are well skilled volunteer employees who are collecting recyclable garbage and doing segregation activities in the early morning and late nights.

Though they earn limited income, their skills and contribution are contributes to the process of MRF.

- Practice of Diffusion

As discussed earlier, the concept of MRF was patterned after the United States Cities and counties. Naga also visited several local government units in the Philippines before they have implemented their MRF. Because of its well established MRF, Naga have been visited also by other local governments especially after the passage of the Ecological Solid Waste Management Act (RA 9003). They have become a model for other MRF Facility in the Philippines. During the implementation of the Cities for Climate Protection Campaign, the Cities of Butuan, Puerto Princesa, and Mandaue adopted the same project in their respective locality.

Naga's MRF is also cited in several publications of the USAID and case studies of ICLEI.

- Key Actors

- Naga City People's Council – is the umbrealla organization of all existing non-government organizations in the City
- Ladies in Green- Association of Lady spouses of the top echelon government officials
- Federation of Women's Club – A long time partner of the City Ecological Waste management Program that led the buying and selling of old newspapers and bottles in the city.
- City Environment and Natural Resources Office – Is the department charged of all environment related function of the city government.
- ICLEI – Local Governments for Sustainability.

## **NAGA CITY: ENERGY EFFICIENCY PROJECT**

The energy efficiency program of Naga has two components, namely streetlights conversion and energy conservation. In the streetlights conversion, the city changed its existing mercury lamps into sodium high compact vapor lamps. The city has 3,675 streetlights which operate for 6 hours a day. Each lamp has wattage of 160 to 200. The city pays more than 2 million for



electricity consumption per annum. With streetlight conversion, energy savings registered 20 percent of its electricity consumption. For this project the City invested 1.66 Million pesos but in the course of the implementation the city was able to generate a savings of PhP230,400 Pesos per month and an emission reduction of 57 tonnes of eCO<sub>2</sub>.

On energy conservation, the city observed simple housekeeping measures, such as equipment and lighting turning off and shut off of airconditioners between 11:30 am to 1:00 PM and at 4:30PM. Lights are switch off at 12:00 noon to 1 pm. With these simple housekeeping measures the city was able to reduce energy consumption by 343,260 KWH per year or an emission reduction of 163 tonnes or an annual financial savings of 1.5 Million pesos.

- Political Factors

The project was conceptualized to further reduced energy consumption at the local government buildings. Councilor Simeon Adan who has acted as the Coordinator for Cities for Climate Protection Campaign in Naga facilitated the passage of a policy that called for the adoption of cost saving measures on electricity consumption. As a climate protection Coordinator and Councilor, he championed the cause of Climate Protection by legislating policies that contributed to the reduction of GHG emissions in their city and have advocated Climate Protection to their constituents.

- Socio-Economic Factors

In the implementation of Climate Protection measures, not only environmental goods are protected and conserved, but financial savings are realized. The savings generated by the city from streetlight conversion and energy conservation in buildings has been put to other programs. Some of which were used to cover the price increases in petroleum products which have not been foreseen by the local government.

- Practice of Diffusion

In the course of the implementation of the Cities for Climate Protection, several exchanges were made between cities through workshops where the cities of Butuan, Baguio, Iloilo and Cagayan de Oro have similar project undertakings. While their approaches vary, each city try to learn from the success of each

city as well as strategies that were used are showcased during these exchanges.

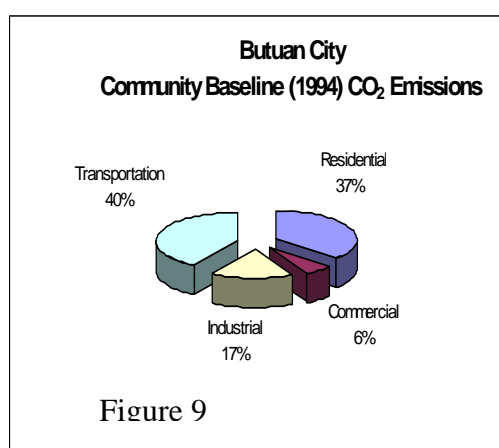
- Key Actors
  - General Services Office – department in charge of procurement
  - Barangay Leaders – monitors the work and installation
  - Accounting office – regulates and records the expense
  - Budget Office – allocates funds for the conversion work and registers the savings
  - NGO's – Provides feedback on the project

## BUTUAN CITY: TRICYLCE CAPPING

Background:

Butuan City sprawls across the Agusan River nine kilometers from its mount. Towards this, to the north and seaward, run fertile Ricelands. Halfway around the city to the southwest, roll the gently sloping hills over Mount Mayapay. To the east, the majestic Hilong-Hilong and Diwata mountain ranges protect the entire valley from fierce Pacific storms.

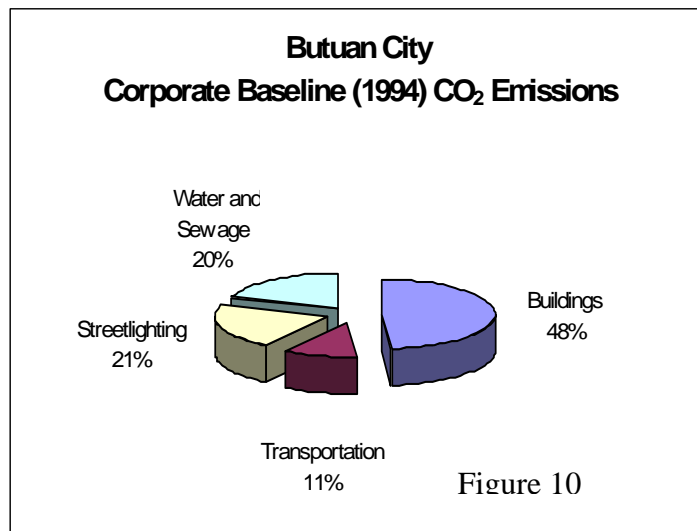
Butuan is situated in the northwestern part of the CARAGA Region (Region 13). It is the seat of government of the region and serves as its trading center as well. The city's strategic location makes it a natural gateway to the different prime destinations in the region. In 2000, Butuan City placed its total population at 267,279, which is expected to double by 2015.



As the seat of government of the region and trading center in the CARAGA Region, it has also become as the main hub of transport from neighboring municipalities. Pollution is a major concern due to vehicular emissions. In 1997, the City passed Ordinance Number 22123-97 prescribing the guidelines for the prevention, control and

abatement of Air Pollution from vehicles within Butuan City. The Ordinance aims to address this issue. To further pursue the objectives of this Ordinance, the City again passed a local Ordinance Numbered 2205 – 99, which aims to reduced the number of motorized tricycles operating within Butuan from 3000 to 2000. Under the local government code of the Philippines, franchising of Motorized Tricycles is within the mandate and control of the Local government. While it has never been implied in the report of Puerto Princesa, it would seem that the concept of Puerto have been conceptualized around the idea of tricycle capping.

Based on the inventory conducted by Butuan through the assistance of ICLEI, the transport sector is the biggest contributor of GHG emission in the city followed by the residential sector and the industrial sector. It is therefore understandable that Butuan City would like to concentrate their reduction effort in this sector which undoubtedly would also solve the pollution problem.



However, for the corporate sector, the biggest emission comes from buildings which can be attributed to electricity consumption in from office equipments and cooling systems. This is followed by consumption in streetlighting and water and sewage.

- Political Factors

Laws that penalizes local governments when it fails to act to implement the law influences how local government acts. Majority of them would implement measures but would take a longer time. The Clean Air Act requires local government to implement measures to improve air ambient quality, however, most local governments take time to implement measures due to the lack of capacity and manpower and are constrained by the lack of coordination between the national and local

government. In the case of the CCP, participating cities are able to immediately implement and align their activities to the clean air act and the CCP. ICLEI was able to show the synergy between climate and pollution. While Climate is not among the priority agenda of the Mayor, it was still able to provide some support to the project by assigning a Climate Coordinator and Climate Team. This shows that political will is critical in determining whether the project will succeed or not. This is especially true in the case of Butuan where development is the primary consideration because of poverty.

- Socio-Economic Factors

The city has not effectively determined the impact of the tricycle capping to employment and livelihood but have only seen the environmental and health impact that it is trying to solve. Unlike the one day rest or 50/50 scheme of Puerto Princesa, they were able to provide an alternative livelihood component for the tricycle drivers and operators.

- Practice of Diffusion

As mentioned earlier, there are similarities in the practice of Butuan and Puerto Princesa. Both have capped the number of franchises that the city is going to grant. However, Puerto was able to improve on this initiative by providing a livelihood component while Butuan is trying to disenfranchise at least 1,000 tricycles without providing alternative source of income. The lessons learned from this practice have made other cities more aware of the direct and unintended effect a measure will likely impact on the targeted sector.

- Key Actors

- Office of the City Mayor
- Sangguniang Panlungsod
- Office of the City Engineer
- Traffic and Transport Committee
- Tricycle Drivers and Operators Association
- Tri-Media
- Interest Groups
- Philippines National Police

- Regional Line Agency of the Department of Communication and Transport
- Regional Line Agency of the Department of Environment and Natural Resources
- Land Transportation Office

## BUTUAN CITY: MATERIALS RECOVERY FACILITY



Section 10, paragraph 2 of Republic Act 9003 mandates the segregation and collection of solid waste at the barangay level specifically for biodegradable, compostable and reusable wastes. Only non-recyclable and hazardous wastes are to be collected by the city.

While there is already a law which requires segregation at the Barangay level, the Village leaders are hampered by the following challenges on capacity,

availability of land and finance to name a few. Despite these challenges the City enacted Ordinance 2380-2002, the ecological solid waste management ordinance of Butuan City.

The Ordinance mandates, the Barangay to comply with the provisions of 9003 and to assist the Barangay, the city has established Barangay residual wastes collection points that served as drop-off center to cater to all non-recyclable/residual and special/hazardous wastes. It also requires that this facilities be established in Barangay-owned or leased lands or any suitable spaces.

Biodegradable wastes are required to be processed in the Barangays respective composting facility while recyclable or non-biodegradable wastes are to be disposed off directly to junkshops.

The city expects to generate 2,811.60 Annual kg eCO<sub>2</sub> emissions savings from the implementation of the measure.

Butuan was the pilot City for Materials Recovery Facility & Composting Facility in the Caraga Region. This is partly funded by the National Solid Waste Management Commission. The city MRF houses non-biodegradable wastes from business establishments and the local mall. There were seven (7) barangays who set up their own MRF's but some were not sustained when households opted to sell their recyclables directly to ambulant junk buyers or give it to roaming scavengers. Per Executive Order No. 161-07, residual and hazardous wastes are collected from barangay pick-up points. Bio-degradables are composted at the backyards and residuals are sold to junk buyers.

As of 2008, more than 100 tons (109 to be exact) of recyclable wastes were salvaged at the City MRF. Income from sales already amounted to P312,000.00. This consists of boxes, plastic bottles, papers, tin cans, plastics, etc. This provides additional income for the city.

Scavengers have been complaining of lesser recyclables ending at the dumpsite which could be attributed to segregation at source and the awareness of people on the economic value of the wastes people are forced to reduce their waste generation. People have become more aware of the impacts of wastes on the environment.

- Political Factors

In the implementation of the MRF, the political will of the Mayor was more or less influence by RA 9003. The law penalizes local governments that fail to comply with the provisions of the law. Village leaders on the other hand have their handful on the barriers that they have to face in implementing the local law.

- Socio-Economic Factors

The Material Recovery Facility undoubtedly addresses the solid waste management issue in the locality, but also addresses health and sanitation, employment and livelihood, and climate change but all this redounds to an improve quality of life. However, the city failed to quantify the socio-economic impact of the MRF project.

- Key Actors

- Office of the City Mayor

- Office of the City Environment and Natural Resources
- Barangay Captains
- Tri-Media
- Office of the City Planning and Development Coordinator
- Sangguniang Panlungsod
- Civil Society and Interest Groups

## **BUTUAN CITY: STREETLIGHT RETROFIT**

The high electricity consumption of streetlights in the city has prompted the local government to retrofit their streetlights from energy intensive mercury lamps to high vapor sodium lamps. Before the implementation of the project, the city was consuming 195,798 KWH per annum but with the implementation of the project, the city was only consuming 182,202.20 KWH/Annum. They were able to generate a savings of 12,595.80 KWH or an equivalent CO<sub>2</sub> reduction of 7481.91 Kg of eCo<sub>2</sub> per annum.

Because of the high investment costs, the city phased the implementation of the project into three years. During the first year, all busted mercury sodium lamps were changed with high vapor sodium lamps while for the succeeding years, all lamps that will be busted will be automatically be changed with energy efficient lamps. The city also made it a policy to purchase only energy efficient lamps and equipments.

- Political Factors

Financial savings in project implementation can be persuasive in decision making. Local officials tend to take stock of the current state of affairs of other projects no longer in terms of the intended benefits but also the unintended benefits. ICLEI – Local Governments for Sustainability has taught the local government staff to show to decision makers why measures on climate protection must be pursued.

- Socio – Economic Factors

In the cities pursuit to improve peace and order situation in the city, it has increased the number of streetlights to deter bad elements in the city in committing crimes against lives and properties. In so doing, it has increased its expenditures on electricity and at the same time increased energy consumption and GHG emissions. In the implementation of the Cities for Protection Campaign, the city observed that in changing the lamps, it had not compromise its vision to have a better peace and order situation but also addressed the issue on Climate change by using energy efficient lamps. It can be inferred that the savings generated from this measure has influence the city to further continue on the practice.

- Practice of Diffusion

Most of the Cities in the Philippines have seen the benefits of streetlights retrofitting. Local Governments have meager financial resources and in order to provide more basic public services, it has to cut costs of its operation where bulk of their budget is allocated. Almost all of the participating cities in the Philippines have adopted this measure because it is a good cost cutting measure.

- Key Actors

- Office of the City Mayor
- Office of the City Environment and Natural Resources
- Office of the City Engineer
- Office of the City General Services Officer
- Office of the City Planning and Development Coordinator
- Barangay Captains of the different Barangays



## CONCLUSIONS

Local governments in the Philippines readily adopts new practices as long as it is

- To sustain the initiatives of cities on CCP, there must be an institutional agency where local government can report their achievements. Lacking in this aspect will deter local governments in further quantifying their GHG reduction.
- To further encourage cities, an incentive or reward mechanism must be put in place to make cities more aggressive in pursuing mitigation and adaptation measures
- High investment costs deter cities from engaging in renewable energy where a large portion of GHG emissions can be reduced. This barrier limits the potential of local governments in further increasing their reduction targets. Hence, the diffusion process would be much harder for local governments in the Philippines.
- Political agenda plays a pivotal role in the diffusion process as shown by the case study cities. Without the interest and support of the local officials, programs and project will not get off the ground and is doomed to fail at the onset.
- To institutionalized a cross cutting concern, i.e. climate change, it must be institutionalized in the development planning process of the local government. This ensures continuity despite changes in administration.
- Evolving champions in each local government is a necessary ingredient to ensure proper coordination and for someone to ensure that things are moving forward.
- The practice of diffusion in cities is also largely dependent on quantifiable benefits. For cities to adopt new practices, it must be clearly shown that there are numerous benefits that can be derived as additionality.
- While a new practice may be noble and applicable there is a need to build consensus among stakeholders to thresh out issues and barriers at the onset.
- New practices are palatable to local governments when it is new and innovative and have not been undertaken by other cities. Local Governments would like to be called pioneering

cities. This provides a distinction to local governments hence provides more value to the undertaking.

- Local governments look up to national government and international organizations for guidance especially when the practice is new. Workshops, coaching, dialogues and exchanges become imperative in new practices.

## LIST OF INTERVIEWEES

### PEOPLE INTERVIEWED

- **BAGUIO CITY**
  - Ms. Cordelia Lacsamana – OIC, City Environment and Parks Management Office
  - Atty. Leticia Clemente – City Budget Officer
  - Mr. Teodorico Abad – Planning Officer III and Member, Traffic and Transport Management Committee
  - Mr. Jonie Itliong – President Jeepney Drivers and Operators Association
  - Rhoda Fe Buenaventura – Jaime V. Ongpin Foundation Incorporated
  - Mr. Romeo Concio – General Services officer
  - Mr. Ruben Carantes – Public Services officer IV
- **NAGA CITY**
  - Ms. Linda Bailey – Cities for Climate Protection Project Coordinator in Naga
  - Mr. Oscar Orozco – City Environment and Natural Resources Officer
  - Councilor Bernadette F. Roco – Member City Council and President Ladies in Green Foundation
  - Atty. Simeon Adan – Former Councilor, City of Naga
  - Mr. Arthur Abonal – Officer – In-charge, General Services Office
- **PUERTO PRINCESA CITY**
  - Mayor Edward Hagedorn – City Mayor, Puerto Princesa City

- Jovenee Sagun, City Planning and Development Coordinator, project planning and coordination
- Forester Renato Pallaya, PEMO, Member, Clean Air Management Board – provided technical assistance in the project
- Mr. Jonathan C. Magay – Head TWG, Transport Management Program and Deputy Project Manager, Tricycle Project.
- Ernie Lusoc – President, Tricycle Drivers and Operators Association
- Mr. George Evangelista, Assistant Planning and Development Coordinator
  
- **BUTUAN CITY**
  - Hon. Erwin Dano, City Councilor, Butuan City
  - Ms. Juliet Paler, Office of the City Environment and Natural Resources
  - Mr. Ivan Saburao, Environmental Management Researcher
  - Engr. Enily Gayon, City Engineer, Office of the City Engineer, Butuan City
  - Ms. Melita Loida Galbo, City General Services Officer, Butuan City
  - Engr. Altenedo Milloren, City Planning and Development Coordinator, Butuan City
  - Hon. Rodrigo Dayaday, City Councilor

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