Environmental Compliance of Small and Medium Enterprises in Watershed Regions:
The Case of Bustos Municipality in Angat River and Watershed, Bulacan, Philippines

By Sarah Thomas
ENVIRONMENTAL COMPLIANCE OF SMALL AND MEDIUM ENTERPRISES IN WATERSHED REGIONS:

THE CASE OF BUSTOS MUNICIPALITY IN ANGAT RIVER AND WATERSHED, BULACAN, PHILIPPINES

by

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B.Sc., Mount Allison University, 2012

A PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE (PLANNING)

in

THE FACULTY OF GRADUATE STUDIES

School of Community and Regional Planning

We accept this project as conforming to the required standard

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THE UNIVERSITY OF BRITISH COLUMBIA

April 2014

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Abstract

It is estimated that over 99% of enterprises in the Philippines fall into the category of small and medium-sized enterprises (SME) (Leano, 2006). This high percentage is similar to other countries. The environmental impact of SME operations is not well known, though it is expected to be high (Hillary, 2000). The Philippines has much environmental legislation but there are many gaps in making it effective and it has been suggested that there is a lack of familiarity with the laws and a need for better understanding of why the laws are in place contributes to the problem for small businesses when poor environmental compliance also affects their bottom line. Furthermore, growing industrialization and in-migration present significant demand on the Angat River Basin and water quality is at risk. This project considers the present state of environmental compliance among SMEs in Bustos, identifies hindering and enabling conditions to compliance and finally, recommends ways that environmental compliance might be strengthened. Separate from efforts to encourage small businesses, government capacity must be developed in order to support SMEs in the technical requirements and opportunities for “greening” their operations. Connections are made between empirical data collected in Bustos and ideas of Climate Smart Industry that are developed in recent local climate change action planning work.
Acknowledgements

It was a great honour to conduct research in Bustos, Bulacan. Many thanks to Bustosenyos, residents of Bustos, for their warm welcome and making me feel at home in Bustos. To municipal staff, my sincere appreciation for their ongoing assistance with everything from basic Tagalog to printing documents and digging up data, songs at flag raising ceremonies and nose bleed jokes at tree planting. Much gratitude to provincial government staff as well, particularly Randi and Rellie for their ongoing support with the project. Fernan and Arnel, thank you for all of the laughs and good humour, Mayor Mendoza for his unwavering support and help along the way, and Engineer Boyett for his willingness to drop everything and share stories. Much gratitude to provincial government staff as well, particularly Randi and Rellie for their ongoing support with the project. Fernan and Arnel, thank you for all of the laughs and good humour, Mayor Mendoza for his unwavering support and help along the way, and Engineer Boyett for his willingness to drop everything and share stories. Much gratitude to provincial government staff as well, particularly Randi and Rellie for their ongoing support with the project. Fernan and Arnel, thank you for all of the laughs and good humour, Mayor Mendoza for his unwavering support and help along the way, and Engineer Boyett for his willingness to drop everything and share stories. Much gratitude to provincial government staff as well, particularly Randi and Rellie for their ongoing support with the project. Fernan and Arnel, thank you for all of the laughs and good humour, Mayor Mendoza for his unwavering support and help along the way, and Engineer Boyett for his willingness to drop everything and share stories. Much gratitude to provincial government staff as well, particularly Randi and Rellie for their ongoing support with the project. Fernan and Arnel, thank you for all of the laughs and good humour, Mayor Mendoza for his unwavering support and help along the way, and Engineer Boyett for his willingness to drop everything and share stories. Much gratitude to provincial government staff as well, particularly Randi and Rellie for their ongoing support with the project.

I would be amiss not to mention Father Denis and St. James Parish in Plaridel; their overwhelming welcome and generosity will always be remembered and much gratitude goes out to them for all of their support and for putting up with me writing all of the time. That too was a wonderful home! Along with the parish are all of my friends in Plaridel and Bustos at restaurants, sari-sari stores, the Methodist church, and tricycle drivers. Thank you for being there and sharing a bit of your home with me.

Dr. Leonora Angeles, dear Nora, thank you, thank you, thank you, for looking out for us, being there to help discuss research directions, debrief big events, or just let loose and sing karaoke. I will be forever grateful for all of the learnings and the opportunity to work and live in the Philippines. To my family and friends, mom, dad, Charles, Kate, thanks for your willingness to jump in and lend a hand supporting me in this adventure and through all of the writing days. Many thanks to Christa for her inspiration, wisdom, and willingness to talk things through. To Daniel and Mel for their open mindedness, cultural awareness, and confidence in our work - thank you for the wonderful adventures, all of the conversations, and for jumping with me into the culture and community of Bustos. To my other classmates: Lavino, Eliana, Frankie, and Krystie I am grateful for sharing the experiences of the first month in Bulacan and for you putting up with my kirks and questions. Thank you also to Tim McDaniels for acting as a second reader for this project providing constructive feedback to incorporate in. Then a huge thank you to Linda Torio for responding to questions and quandaries in the blink of an eye, translating tagalong, and for her ongoing comfort and reassurance along the way. Finally other members of the project team, Katie, Brett, and Sameer, thank you for your ongoing inspiration, suggestions, and feedback, and Gabi, for being there every step of the way to bounce ideas back and forth and keep each other sane.

Maraming, Maraming Salamat Po. Thank you all.
Dedication

To Ann and the Bustos municipal library.

For her enthusiasm helping researchers young and old and her commitment as an advocate for the town promoting community building and all that Bustos stands for.
Table of Contents

Abstract ................................................................................................................................. i
Acknowledgements ............................................................................................................... ii
Dedication .............................................................................................................................. iii
List of Figures ....................................................................................................................... v
List of Tables ........................................................................................................................ v
Acronyms ............................................................................................................................... vi
Executive Summary ............................................................................................................ vii
1. Background and Introduction ......................................................................................... 1
   1.1 Ecosystem Services ..................................................................................................... 2
   1.2 Angat Watershed Governance .................................................................................. 4
   1.3 Client Group and Project Relevance ....................................................................... 4
   1.4 Organization of the report ....................................................................................... 5
2. Methods and Methodology ............................................................................................. 5
   2.1 Key Research Questions ........................................................................................... 5
   2.2 Methodology ............................................................................................................ 6
   2.3 Methods ..................................................................................................................... 6
   2.4 Ethical Considerations .............................................................................................. 6
   2.5 Challenges and Limitations ...................................................................................... 7
3. Context ............................................................................................................................... 8
   3.1 Geographic Context .................................................................................................. 8
   3.2 Economy ................................................................................................................... 10
   3.3 Water Resources .................................................................................................... 11
   3.4 Policy and Political Context .................................................................................. 11
4. Pertinent Policies ............................................................................................................ 13
   4.1 National Policy ....................................................................................................... 13
   4.2 Provincial Policy ...................................................................................................... 14
   4.3 Municipal Ordinances ............................................................................................ 14
5. Small and Medium Enterprises ..................................................................................... 14
   5.1 Cleaner Production ................................................................................................. 16
   5.2 Role of SMEs in Bustos ......................................................................................... 16
6. State of Compliance of SME’s in Bustos ...................................................................... 18
7. How is Compliance happening? .................................................................................... 20
7.1 Upstream, Downstream Disconnect…………………………………………………………………………………………………22
8. What are enabling conditions………………………………………………………………………………………………………………23
9. Recommendations and Conclusions ………………………………………………………………………………………………………25
  9.1 Recommendations for Bustos Municipal Government……………………………………………………………………………25
  9.2 Recommendations for Bustos SMEs…………………………………………………………………………………………………..27
  9.3 Recommendations for Busto Residents ………………………………………………………………………………………………28
  9.4 Conclusions…………………………………………………………………………………………………………………………………28
References………………………………………………………………………………………………………………………………………………30
Appendix 1: Interview Guide for Government officials ………………………………………………………………………………………34
Appendix 2: Interview Guide for SME Owners ……………………………………………………………………………………………35
Appendix 3: Interview Guide for SME Employees …………………………………………………………………………………………36
Appendix 4: Participant Letter……………………………………………………………………………………………………………………37
Appendix 5: Ethics Consent Form - English …………………………………………………………………………………………………39
Appendix 6: Ethics Consent Form - Tagalog…………………………………………………………………………………………………42
Appendix 7: Bustos Executive Legislative Agenda 2013……………………………………………………………………………………45

List of Figures
Figure 1: Loss of Ecosystem function due to grease blockage. ……………………………………………………………………………3
Figure 2: Barangays of Bustos, Bulacan (Bustos Municipal Hall). …………………………………………………………………………8
Figure 3: Map of Bulacan (Bulacan Provincial Government, 2013). ………………………………………………………………………9
Figure 4: Geographic placement of the Angat River (Google Maps, 2014). …………………………………………………………………9
Figure 5: Sewage outflow for an unregistered piggery (Photo Credit: Sarah Thomas). ………………………………………….19
Figure 6: Criteria to obtain a Business Permit (PESO, 2013). ………………………………………………………………………….21
Figure 7: Bonga Menor landfill in proximity to the Angat River (Photo credit, Sarah Thomas). …………23

List of Tables
Table 1: Bustos Population 1995-2012…………………………………………………………………………………………………………10
Table 2: Small and Medium Enterprise breakdown………………………………………………………………………………………15
<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENRO</td>
<td>Bulacan Environment and Natural Resource office</td>
</tr>
<tr>
<td>BPLO</td>
<td>Business Permitting and Licensing Office</td>
</tr>
<tr>
<td>CCA</td>
<td>Climate Change Adaptation</td>
</tr>
<tr>
<td>DENR</td>
<td>Department of Environment and Natural Resources</td>
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<tr>
<td>DFA</td>
<td>Department of Foreign Affairs (National)</td>
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<td>DILG</td>
<td>Department of Interior and Local Government</td>
</tr>
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<td>DPWH</td>
<td>Department of Public Works and Highways</td>
</tr>
<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
</tr>
<tr>
<td>DSWD</td>
<td>Department of Social Welfare and Development</td>
</tr>
<tr>
<td>DTI</td>
<td>Department of Trade and Industry</td>
</tr>
<tr>
<td>IWRM</td>
<td>Integrated Water Resources Management</td>
</tr>
<tr>
<td>LGU</td>
<td>Local Government Unit</td>
</tr>
<tr>
<td>MCDO</td>
<td>Municipal Cooperative Development Officer</td>
</tr>
<tr>
<td>MCDC</td>
<td>Municipal Cooperative Development Council</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development goal</td>
</tr>
<tr>
<td>MENRO</td>
<td>Municipal Environment and Natural Resource office</td>
</tr>
<tr>
<td>MPDC</td>
<td>Municipal Planning and Development Council</td>
</tr>
<tr>
<td>MPDO</td>
<td>Municipal Planning and Development Office</td>
</tr>
<tr>
<td>MRF</td>
<td>Material Recovery Facility</td>
</tr>
<tr>
<td>NCCAP</td>
<td>National Climate Change Action Plan</td>
</tr>
<tr>
<td>NSCB</td>
<td>National Statistical Coordination Board</td>
</tr>
<tr>
<td>NSO</td>
<td>National Statistics Office</td>
</tr>
<tr>
<td>PESO</td>
<td>Public Employment Service Office</td>
</tr>
<tr>
<td>PENRO</td>
<td>Provincial Environment and Natural Resource office</td>
</tr>
<tr>
<td>RENRO</td>
<td>Regional Environment and Natural Resource Office</td>
</tr>
<tr>
<td>PPDO</td>
<td>Provincial Planning and Development Office</td>
</tr>
<tr>
<td>PDRRMC</td>
<td>Provincial Disaster Risk Reduction and Management Council</td>
</tr>
<tr>
<td>SWMB</td>
<td>Solid Waste Management Board</td>
</tr>
</tbody>
</table>
Executive Summary

Water is central to life and is directly tied to the livelihood of many people. Bustos, Bulacan, Philippines is a rural municipality and is positioned along the urbanizing Angat River. Significant benefits and ecosystem services are drawn from the River including: irrigation for the crops, erosion control, fishing, and recreation. As a rapidly urbanizing watershed, the Angat is becoming increasingly polluted and is shrinking due to acidification from agricultural runoff, grease contaminants, and other pollutants. In the interest of maintaining the water quality of the Angat and strengthening benefits Bustos residents can attain from the river, it is important to look at ways to mitigate the impacts on the river. Governmental legislation is one way to do this and strong policies are in place at the National and Provincial level in the Bulacan province of the Philippines. The challenge arises with implementation and compliance to the regulation.

Small businesses play a large role in the economy and life in Bustos and the cumulative impact of their actions is significant. On the one hand, pollution in the form of runoff from a piggery or an overflowing septic tank may be small but on the other hand the collective impact of the 611 registered businesses and potentially 30% more businesses that are unregistered has a substantial impact. Evidence suggests that businesses are not always meeting the existing environmental legislation and so it is useful to investigate the state of environmental compliance among small businesses in Bustos and consider enabling and hindering conditions to compliance.

Two months of field research were completed, working with the municipality of Bustos, to assess this compliance. Significant observation was undertaken and many conversations were had with local businesses and municipal and provincial staff about environmental laws, mainly around the issues of solid waste and sewage management.

It was found that enabling conditions to compliance were the existence of a business licence, awareness of legislation, and a perception that the laws have value. A business licence ensures a certain level of compliance from the start and comes with ongoing compliance monitoring while awareness of the legislation and an understanding that the laws are important is crucial for people to change their way of doing business and decrease water use to avoid over flowing sewage tanks or stop using plastic bags for instance.

Separate from efforts to encourage small businesses it is obligatory that the government capacity build and aid small and medium enterprises with becoming increasingly environmentally conscientious, help decrease their environmental footprint, and “green” their operations. A series of recommendations are presented for both the municipality and small businesses. More than that, everyone needs clean water to drink and everyone benefits from the ecosystem services (tourism, recreation, cleaning, fishing, etc.) afforded by the Angat River and thus, everyone has an interest in the environmental compliance of small businesses.

Recommendations for Bustos Municipal Government include registering more existing businesses, refining compliance monitoring practices, engaging with other jurisdictions, embracing environmental legislation, strengthening material recovery facilities and pursuing a sanitary disposal site as well as supporting small businesses through technical support etc.

Recommendations for Bustos Businesses include seeking out opportunities for cleaner production, working together, and keeping each other accountable.
1. Background and Introduction

“By reducing greenhouse gas emissions and better managing water resources, we will also have cleaner creeks, less air pollution, and other ancillary benefits.” – Austin USA (CDP, 2013)

Small and medium size enterprises (SMEs) make up a significant portion of businesses and thus, they have significant environmental impact as well. It has been suggested that the sector could contribute 70% of all industrial pollution (Hilary, 2000). Growing industrialization and in-migration present significant demand on the ecological system (henceforth ecosystem) services from the Angat River Basin (henceforth Angat) (Jose and Cruz 1999) including drinking water, wash water, recreation, tourism, and erosion prevention. Additional imminent pressures on the Angat include informal settlers who depend on the river for income and waste disposal, privatization attempts of the Angat Hydroelectric Plant, and extreme climate events including flooding and drought.

Significant economic activity in and around the River Basin is adding pressure. Specifically in Bustos, Bulacan, a rapidly urbanizing, agricultural municipality, pressure to develop is being met with the need for environmental protection. The provincial government of Bulacan and the Philippine national government have identified The Angat as one of significance and both have enacted legislation aimed at addressing this typical “tragedy of the commons” type issue. Fortunately, mitigating climate change has been shown to have broader economic, social, and environmental benefits. One study found that 91% of city managers who responded to the report questionnaire believe that working to combat climate change makes cities more attractive to business and investment; furthermore, they found that energy efficiency measures implemented by cities have in fact saved millions of dollars (CDP, 2013). National, provincial, and municipal laws address pollution prevention, solid waste, and natural resource management. Laws are only as good as compliance however, and it is obligatory that strong environmental protocols are followed.

The Philippines has strong environmental legislation but there are many gaps in making it effective (Ross, 1994). A 2003 review of the impact of solid waste management found that lack of familiarity with the laws contributes to the problems with implementation and enforcement (Service Delivery with an Impact, 2003). At the same time, it is evident that government representatives and staff acknowledge that Climate Change is a major concern for the country. The fact that “the Philippines placed fourth among more than 190 countries around the world that have suffered the most extreme weather events such as flooding and storms over the past 20 years” (Guiang, A. K. A., 2013) is cause enough to motivate action towards mitigation and adaptation. On paper, the federal and provincial governments have been proactive in creating regulations aimed at protecting water quality, reducing air pollution, and promoting reforestation (Government of the Philippines, 2013, National Greening Program). The problem comes in local implementation – one of the biggest challenges in both developed and developing countries. Kliffer and Tynan (2008) specifically indicate the need to improve local waste management practices in municipalities around Angat River.

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1 The “tragedy of the commons” (see Hardin, 1968) is the phenomenon where by a shared resource (e.g. Water) is depleted because actors independently consume the resource according to each one’s self-interest despite their understanding that depleting the common resource is contrary to the group's long-term best interests.
There is a persistent perception by people who are connected with SME’s that they do not have an impact on the environment (Hillary, 2000, p. 78, 88, 107). However in the Philippines, over 99% of all registered businesses fall into the category of SMEs (Leano, 2006), similar to that of countries all over the world. This does not mean that they comprise anywhere near 99% of employment, economic output, or water effluent but nevertheless they are important for many reasons. Furthermore, their numbers are set to increase (Hillary, 2000, Lagua, no date). Presently SMEs absorb nearly seventy percent of the labour force in the Philippines (Leano, 2006). While the environmental impact of SME’s is not well calculated, it is thought that the collective impact of small and medium enterprises is greater than that of big industry (Hillary, 2000) indicating that environmental management must be strengthened in this sector.

Bustos is one of eleven Bulacan municipalities located around The Angat River, which flows into the Manila Bay area. Each Philippine municipality is responsible for creating an enabling business environment for SMEs, and designing their own integrated solid waste management program to execute an appraisal and determine their waste generation patterns. As part of the Manila Bay Water Clean Up Project (Manila Bay Supreme Court Ruling, 2008), Bustos Municipality, along with other Bulacan Municipalities, is also required to document and report what contaminants enter the water stream. Furthermore, municipalities are responsible to design disposal facilities, educate their population, and enforce the federal laws (Service Delivery with Impact, page 19). This “bottom up” approach results in significant discrepancy in solid waste management enforcement and, consequently, poor compliance among local villages across the Angat and other watershed regions. Bustos has been held up as a model municipality with good solid waste management program in the Philippines (Service Delivery with Impact, 2003) but locals feel that practices have been slipping in recent years. This project will examine the institutional, political and policy context shaping this problem, particularly how environmental compliance among small and medium enterprises has been working in Bustos. The research is framed as a case study in order to allow specific analysis of the region and permit in-depth exploration.

1.1 Ecosystem Services
Water is essential for life. Water feeds and nourishes our bodies and souls. From drinking water to bathing and washing, recreation, transportation, and general livelihood, as individuals and society at large, people rely on the ecosystem services afforded by rivers, streams, wetlands, and bogs. Rivers are natural eco-systems that render benefits or services to people. Rivers dilute wastewater, naturally purify water, and provide erosion control and habitat for fish and wildlife (Loomis et al, 1999, Holmes et al, 2004). Water pumps sourcing drinking water from either surface water or ground water require an uncontaminated source to ensure the health of the population, and bathing in a river is only effective if the water is clean. Furthermore, naturally functioning streams and wetlands have the ability to absorb shocks and strains applied to the system protecting coastal areas from erosion and flooding (Loomis et al, 1999). With over-use streams become degraded and their ability to provide these ecosystem services diminishes (Riparian Coordination Network, 2002).

For rivers in urban areas that are heavily used by people for economic activity, it is necessary to consider the benefits accruing from these ecosystem services. These benefits however are highly culturally depended and conditional on the values of local people (Wallace, 2007). Degradation of the watershed will result in decreased ecosystem services (Riparian Coordination Network, 2002).
Put simply, ecosystem services are “the benefits people obtain from ecosystems” (Millennium Ecosystem Assessment, 2005, p. 1). For instance, rivers naturally have the ability to expand and compress throughout the seasons and absorb the shocks of heavy rainfall and increased water flow through vegetation, root structures, and wetlands. River banks are of particular importance here. This function of rivers is an ecosystem service. The service however will change overtime as the river accommodates external forces. Materials such as fats, grease, and garbage getting washed into the river through taps and drains are one such problem. These inputs have the effect of reducing the capacity of the river and increase the river’s susceptibility to flooding. This can be seen in Figure 1 as layers of sediment are shown building up row upon row. In addition to increased flood risk, fifty percent of all sanitary sewer overflows are caused by grease blockages (Paola A. Vasquez, personal communication, July 7, 2013) and in his research about flood risk in Metro Manila, Greg Bankoff found that silt deposits reduced the water-holding capacity of one particular body of water by more than sixty percent (2003).

The crux of the problem is that people focus on obtaining resources and continually strive to increase final production, i.e., “economic growth”, while forgetting about the broader environmental system that sustains those resources. The question that must be considered is, what impacts are solid waste, emissions, and overall use of the Angat water basin having on the environmental capital of the river? If the activities are indeed degrading the environmental quality of the river then, with time, the ecosystem benefits will decrease along with economic growth. It has been shown by Doran and Linn (1979) that the addition of human and animal inputs as well as runoff from agricultural or industrial processes can have a direct impact on water quality as well. For example, increased nitrogen from fertilizer contamination can lead to algae blooms or water hyacinth growth which can in turn limit the potential for fishing. Similarly, a noticeable decrease in water quality can affect tourism and directly impact the economy; as Bustos is presently aiming to increase tourism through projects at Bustos dam (Bustos Municipal staff, private communication, July 22, 2013), this is a real concern.

There are guidelines, frameworks, approaches and tools developed to address watershed and watershed management. For example, the Proper Functioning Condition Assessment (PFC) was developed by the United States federal government in collaboration with Aqua-Tex Scientific Consulting in the mid-1990s.

![Figure 1: Loss of Ecosystem function due to grease blockage.](image-url)
as a method of assessing the present condition of a watershed and providing a framework for effective management of the resources (Riparian Coordination Network, 2002). Co-governance, collaboration, and community engagement are central to this integrated watershed approach.

1.2 Angat Watershed Governance
Responding to concern of rapid urbanization, industrialization, and a degrading water network in the Angat Watershed Basin, Dr. Leonora Angeles from The University of British Columbia, in collaboration with The University of Guelph in Canada, De La Salle University and Bulacan State University in the Philippines, and the Bulacan Provincial government, embarked on a project, funded by the Social Science and Humanities Research Council of Canada, to document the state of Angat and engage with local communities on the potential for a collaborative watershed governance model for the river basin. Open dumping and the spewing of raw sewage present significant strains on the water system and compound with existing issues of deforestation and the built environment. The cumulative effects problem is a significant factor at play here. This present work, as a component of this larger project, considers wastes and other inputs that enter the water stream from the small business sector, and focuses on the environmental compliance of SMEs.

1.3 Client Group and Project Relevance
The Goal of my work is to understand what is working in terms of environmental compliance among Bustos businesses and to identify conditions that can enable or strengthen compliance. The municipality of Bustos was interested in this project as it fits in with other work that they are doing to enhance local businesses and larger municipal goals of cleaning up wastes and pollution. Hence, the Bustos Municipal Government and Office of the Mayor was my primary client for the project and provided direction and input throughout the process. I met with Municipal Staff in July and then again in early August of 2013 to gather their feedback and incorporate it into my proposal before doing the final revisions of my proposal and commencing work. The participant letter given in Appendix 4 served as the terms of reference for the project with the expectation that both parties would approach the other if questions or concerns arose and that at the very least a project presentation would be held at the end of August and a final report (the project) be submitted when complete. Meetings were held periodically to gauge progress and ensure that the final product would be something that would be useful to the community. Finally an open presentation was held at the end of August where staff members from a range of departments gathered and gave feedback on the project. Then in January The Mayor’s Office was given the opportunity to comment on a final project draft.

It is my hope that this work can be used by the Municipality of Bustos in developing and adapting tools to enhance environmental compliance within the region. A positive spin off of this project was the capacity building that it afforded to local people through raising awareness of environmental concerns and helping increase the dialogue around water sustainability. This work ties into the local climate change action planning work that was done as part of a month-long Philippine Field Studio Course and offers an avenue of how to promote Climate Smart Industry and draw environmentally conscience businesses to Bustos (Harding, Iwama & Thomas, 2013). The Bulacan Provincial Government may also be able to use this work to strengthen compliance across the province.

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2 The cumulative effects problem is a theory that states that each individual action has a negligible effect on the ecosystem but that collectively there is a quantifiable impact.
1.4 Organization of the report
The report is broken down into a number of sections. Initial sections outline the background and motivation for the project, methods undertaken, and context of Bustos, Bulacan, Philippines. The paper then discusses relevant policy, how compliance is happening on the ground, and finally outlines enabling conditions to compliance. The report finishes with a series of recommendations aimed at the local government, small and medium enterprises, and citizens at large respectively. The tri-fold approach aims to draw attention to the fact that attending to environmental sustainability is everyone’s responsibility and in the case of the environmental compliance of SMEs, each group has a very specific impact whether direct or indirect.

2. Methods and Methodology
This research is the result of two months of intensive cultural immersion and field study in Bustos, Bulacan, Philippines. I lived in Plaridel, Bulacan and commuted to Bustos on a regular basis. Plaridel is a neighboring municipality to Bustos so the commute was just about 10 kilometers and served as site and participant observation as I travelled through the more rural barangays between destinations. The first month that I was in the Philippines I was taking an international service learning field studio course looking at local climate change action planning in Bulacan. I was assigned to Bustos for the group work component of the class and the work culminated in a final report and framework towards local climate change action planning for the Municipality of Bustos: Bustos, Thriving, Vibrant, Climate Smart (Harding, Iwama & Thomas, 2013). Through the course work I had the opportunity to meet and interact with municipal staff in Bustos, Plaridel, and Pulilan, Provincial Planning and Development Office (PPDO), Bulacan Environment and Natural Resource Office (BENRO), Provincial GIS Centre, and The Provincial Disaster Risk Reduction and Management Council (PDRRMC) staff, University professors and administrators, informal settlers, and school children in addition to other community members. Strong connections with the community were forged during this time and the work and experiences of the month greatly informed my research. Following the field studio course I spent one month of intensive study in Bustos investigating the environmental compliance of Small and Medium Enterprises (SMEs).

2.1 Key Research Questions
Looking at how the current state of SME’s compliance with municipal, provincial and national environmental policies might be strengthened, this research addressed the following primary research question and sub questions, using Bustos, Bulacan as a case study:

What and who governs SMEs compliance with municipal, provincial, and national policies?

- What is the current state of SMEs environmental compliance?
- How is compliance happening?
- What are the hindering and enabling conditions for compliance?
- What opportunities exist to strengthen the current state of SMEs environmental compliance?
2.2 Methodology
Case study analysis was the primary methodology utilized in this research. While VanWysenbergh argues that “case study is neither a method nor a methodology (2007, p.1)” and is a choice of what to study rather than a methodological choice (VanWysenbergh, 2007, p. 83), in this study it was used as the methodological underpinning of the work and is, consequently, a methodology. Case study analysis encompasses exploratory, descriptive, and explanatory research in tandem and uses a variety of data collection methods. This approach was used to permit the exploration of a unique phenomenon, the environmental compliance of SMEs, in an individual region, Bustos, minimizing the need for broad generalizability, recognizing the merits of the individual study and the lessons that can be drawn from that (Flyvbjerg, 2006). Flyvbjerg is adamant that as specific in-depth examples, case studies are crucial exemplars for understanding of major issues. This research is locally grounded and very region specific. It answers how questions, has little control over the events that are being studied, and is focused on a real life context.

2.3 Methods
Many methods were used within this research. Environmental legislation, surveys, and reports were sourced from the internet where available and through consultation with municipal officials at the Municipal Planning and Development Office (MPDO) and the Sangguniang Bayan in Bustos. These documents formed the basis of a literature review and documents analysis. A series of interviews (five) were then conducted with owners and employees of small and medium-sized enterprises, in Bustos. Additionally, six individual interviews were held with representatives from the local municipal governments and other government representatives (Interview guides can be found in Appendices 1, 2, and 3). These interviews generated specific perspectives on the legislation and helped assess the level of knowledge of environmental legislation on the part of local people. A survey was conducted of all businesses in Poblacion, Bustos assessing the present level of compliance. Participant observation and site visits to factories, piggeries, and waste management facilities were additionally taken to get an understanding of what is working on the ground in the community.

The project took an inductive approach, working from specific observations and discussions, through synthesis, analysis, and development of patterns, to broader generalizations and theories of the conditions that enable environmental compliance of SMEs in Bustos. The reliability of findings was tested using triangulation and comparing and contrasting the data gathered from literature, interviews, and site and participant observations. Furthermore, internal validity of the research was addressed by ensuring that an iterative process was used. Literature was continually referred to and multiple rounds of participant observation were conducted throughout the interview process. External validity was tackled by rooting the problems in the greater Philippines context. Municipal staff and community members played a significant role in the project. Conversations in other communities around the province also informed the research.

2.4 Ethical Considerations
This project falls under the ethics review of the larger Collaborative Watershed Governance project (described above). It is UBC ethics review H12-01252. The nature of the research was low level risk as I was working exclusively with adults. However, there were a number of ethical considerations that I had to be aware of and consistently reflect upon throughout my work. Being a white, middle-class woman was one. In an article about cultural safety, Papps (2005) describes how one’s own life-experiences and
realities will have an impact on others. For this reason it was obligatory that I constantly reflect back on my own cultural notions and ideas of environmental compliance, learning from what people suggested would be helpful, and building upon what was working already. There was, at times, a language barrier as some Filipinos spoke limited English (Tagalog is the first language in Bulacan) and my Tagalog is minimal, though improved as time went.

The interview consent letter (Appendix 5) was translated into Tagalog (Appendix 6) in addition to other notes and documents as needed. Despite this there is the potential that miscommunication occurred along the way and I had to be extremely attentive and pick up on subtle cues if someone was feeling uncomfortable or gave the impression of not really understanding what I was asking so that I could step back and explain my motives and intentions in their community. Getting between locations within Bustos, and the greater Bulacan, was generally not a problem. However, site visitations in very remote rural areas relied on local people who knew their way around and were willing to take me to the sites. A lack of street addresses and recorded information on the location of particularly informal businesses meant that I could not locate them on my own. It was absolutely crucial to make good connections in the field to get around these issues. Trust was very important on both sides and I was conscious of my actions and of what I was taking, as well as leaving, with the community.

2.5 Challenges and Limitations
Community was central to my time in Bulacan and good relationships with municipal staff and community members rooted me in the region, gave me networks in Bustos, and ensured I practiced my Tagalog. While I learned some along the way and got good at making “nose bleed” jokes\(^3\), my limited Tagalog was a significant limitation of the project. Tagalog is the main language spoken in Bulacan. Due to the inequality in language instruction and the uneven access to English for countries all over Asia (Nunan, 2003), there is a potential class differential in the portion of the business community that I interviewed.

Due to the language barrier I had to change my methods. I had planned to hold focus groups with the SME owners and employees; however it was evident that that would prove challenging. I considered getting a formal translator but this was hindered by a number of factors. Consequently, a translator was used, when required and available, for interviews and other work. When using a translator I had to be aware that my questions were being interpreted by that person and I was receiving their interpretation of the interviewee’s response. Especially in written translation, the world view of the translator will come into the work. People’s perception and trust of the translator would have also affected what they said.

Interview guides led my work but were often shortened because interviewees often did not have the time or patience for too many questions. People were often working in their stores when I interviewed them and if customers entered, they, often, took precedence.

It was virtually impossible to pick up on the subtle details, small cues, and one line phases written and spoken. The inability to know what people were saying about me or about the work when they were speaking in Tagalog was an additional limitation and not being able to read many of the little phrases on

\(^3\) In Philippine culture, speaking a language at a beginner or intermediate level is akin to having a nose bleed. The way the joke goes, the more one struggles to string the words together, the heavier the nose-bleed. People make jokes and cover their noses to imitate catching the blood.
books or posters I inadvertently passed on the street. When such phrases seemed particularly important, I would ask someone to translate them for me.

Having only having eight weeks in the Philippines and four weeks focusing on environmental compliance constrained relationship building in the community. I would have liked more time in order to build strong rapport with people and develop a higher level of trust. A series of monsoon rains and typhoon winds further reduced this time. Significant flooding materialized while I was in Bulacan which prevented me from executing follow up interviews with a few respondents at the province. While not crucial, it does provide a limitation to my data.

3. Context

3.1 Geographic Context
The town of Bustos (Figure 1) is located in the south western part of Bulacan province (Figure 2) in Central Luzon, Philippines along the Angat River (See Figure 3 below). The municipality is comprised of fourteen individual government units otherwise known as barangays: Poblacion, Tanawan, Bonga Menor, Bonga Mayor, Tibagan, Catacte, Malaming, Malawak, Liciada, Buwisan, Camachilihan, Cambaog,

Figure 2: Barangays of Bustos, Bulacan (Bustos Municipal Hall).
Figure 3: Map of Bulacan (Bulacan Provincial Government, 2013).

Figure 4: Geographic placement of the Angat River (Google Maps, 2014).
Talampas, and San Pedro. Despite its position of being a rural municipality, urban centres are readily accessible and Bustos itself is urbanizing. The new Bustos Bypass Road facilitates access to Manila and reduces travel time to about an hour if there’s no traffic. Water resources are rich in the area and other natural ecosystems provide amenities to the growing population. The population of Bustos has been growing steadily over the past several years (see Table 1 below) and the population currently rests at 69,962 (Bustos MPDO, 2013).

3.2 Economy

Bustos has had an agricultural focus for the past number of years and to this day the agricultural sector contributes significantly to the local economy. About 2286 Hectares (Municipal Department of Agriculture Survey, 2012) of the 6999 Hectares (Philippine Statistics Authority, 2014) are rice and vegetable fields and fish ponds. Much of the additional area is still devoted to agricultural use and supports the numerous piggeries and poultries. At the same time, there is significant pressure to urbanize and grow the industrial base which presently consists of food repackaging, local delicacies, and bag making (Provincial Government of Bulacan, Philippines, 2012). Baliuag, a community located just across the Angat River from Bustos, is rapidly urbanizing and about to gain city status (MPDO, personal communication, July 2013). Additionally, Metro Manila is located approximately forty-five kilometers to the south providing the employment and commercial benefits of the metropolitan city.

The tension between remaining rural and becoming more urban is strong in Bustos. On the one hand, people recognise the need to preserve agricultural land and grow sufficient food for the population, on the other hand, livelihood is a significant concern in town. This tension became stronger with the construction of a new provincial highway, the Bustos Bypass Road, which makes the connection to the city easier than ever. Bustos is aiming to attract new businesses to the area and grow the town’s economy and population base (Bustos Municipal Staff, personal communication, 2013). Recent local climate change action planning work recommends using this as an opportunity to attract Climate Smart industries to Bustos and reconcile some of these tensions by reducing the impact of businesses on the natural resources in the region.

Table 1: Bustos Population 1995-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>41,372</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>47,091</td>
<td>-</td>
</tr>
<tr>
<td>2007</td>
<td>60,681</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>62,415</td>
<td>9,799</td>
</tr>
<tr>
<td>2012*</td>
<td>65,712</td>
<td>14,982</td>
</tr>
<tr>
<td>2013*</td>
<td>69,962</td>
<td>14,548</td>
</tr>
</tbody>
</table>

Source: Census data retrieved from Bustos Bulacan “Place” Facebook page
*Data collected from the Municipal Planning and Development Office
3.3 Water Resources

“Due to geographic and seasonal variations, water availability has become time and site specific. The problem of water scarcity is already felt in many areas of the country at certain seasons.”

- Climate Change Commission, 2011

Water resources are particularly rich in Bustos. The municipality is blessed to be located along the Angat River and have access to many underground aquifers. The Angat River provides 10% of the electricity and 97% of the water used by Metro Manila (population: 12 million). It irrigates approximately 31,500 hectares of rice and vegetable crops (total 94,000 hectares of farmlands) in the provinces of Pampanga and Bulacan (population: 4 million, density: 805 people per km). It also provides the water and land resources for Bulacan’s small fisher folks and commercial fish farmers and those with interests in logging and other forest products, mining and quarrying (Angeles 2011; Fresco 2012; Harding, Iwama, Thomas, 2013). The Angat River passes through 8 of the 14 barangays and is used for recreation, bathing, washing, and drinking in some cases. Particularly use of the river for drinking is a concern due to current levels of pollution in the water. The Bustos Dam, located in Barangay Tibagan, feeds water from the river for use as irrigation water. The South Main Canal cuts through the municipality and grants the majority of farmers’ access to this water. According to a recent survey by the Municipal Agriculture Office (MAO), ninety-seven percent of rice land area in Bustos is irrigated. The remaining 58.7 hectares are rain fed. Despite the abundance of fresh water, supplies are being rapidly depleted due to over withdrawal and contamination (Climate Change Commission, 2011). The available supply is being reduced (Rola, Francisco, & Linguton, 2004). Local policies are working to improve the situation and more closely regulate the water that is used.

3.4 Policy and Political Context

There are four main levels of government in the Philippines each of which has an elected body which governs it: national, provincial, municipal, and barangay. The National and Provincial governments work somewhat independently of one another with Governors leading the provinces in each case as the Executive Head. The municipalities, as creatures of the national government, are led by the Mayor and the Sangguniang Bayan (or Municipal Legislative Council) and are in charge of implementing laws of the higher orders of government bringing them down to the local level. Barangays are headed by the elected Barangay Captain and Councillors and are components of the municipalities and composed themselves of puroks or sitios (neighborhoods or wards). Like neighbourhoods in Canada, puroks may have a distinct culture about them though they do not have their own operating council but rather fall under their barangay.

Each barangay, municipality, and province is termed a Local Government Unit (LGU) and very decentralized in the Philippines. Under the 1991 Local Government Code, “territorial and political subdivisions of the State shall enjoy genuine and meaningful local autonomy to enable them to attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national goals” (Local Government Code, 1991). One challenge of this system, despite its many strengths, is that there is often a lack of capacity at the local government to do what has to get done. Furthermore, jurisdiction is fuzzy and there are numerous organizations involved in any given issue. This is similar to the problem of governance fragmentation and local implementation in water resource management noted by the OECD (2012) in many parts of both the developed and developing world.
In the case of environmental compliance of businesses, the overseeing government organization is determined by the level or amount of company profits. Enterprises with capitalization of over five hundred thousand Philippine pesos fall under the jurisdiction of Regional Environment and Natural Resource Management Office (RENRO), whereas those under five hundred thousand are overseen by the Provincial Environment and Natural Resource Management Office (PENRO). The municipalities are overseen by the Department of Interior and Local Government (DILG) and DENR executes the ongoing monitoring of local governments, which in turn monitor the small and medium enterprises that operate in their community. Barangay officials relay some data to the Municipal Planning and Development Office (MPDO) but other data is collected by the MPDO themselves or the Sanitation Officer. BPLO, the Business Permitting and Licensing Office (connected with the Public Employment Services Office (PESO) in Bustos), is in charge of giving business permits so they have a role to play as well.

Amidst different departments there can be disjoint ideas. People’s perceptions of implementation often vary and sometimes contradict one another. What is reported does not always correspond with reality seemingly due, at least in part, to a pressure to comply and a bureaucratic and political culture of aiming to please. More support is needed for lower levels of government, especially when people are not occupying government positions that they were trained for. Workshops and specific skills training days are helping this though set back by high turnover rates in municipal staff.

Laws to address compliance are in place however and the government is, to a large extent, aware of the need to make change. As stated in the Manila Bay Clean Up Superior Court decision in 2008, “The era of delays, procrastination, and ad hoc measures is over. Petitioners must transcend their limitations, real or imaginary, and buckle down to work before the problem at hand becomes unmanageable” (Manila Bay Supreme Court Ruling, 2008). The problem is in implementing the laws and providing sufficient support to the local government units and to the local people to put the laws into practice. For instance, it has been suggested that there are cases in Bulacan where tickets for littering or violations of the anti-littering laws are given, but the people cannot afford to pay so they go to the Barangay captain and ask for the money in order to pay the ticket. This goes on and it comes to the point that the Barangay officials go to the Municipal Government and beg that the laws not be enforced because they cannot afford to pay all of the tickets. A concerted effort is needed and a coherent, holistic plan to addresses all facets of the problem. For instance, in the case of solid waste management, facilities are needed to dispose of garbage and an education campaign targeting the whole population before the laws can be implemented. People need to know that change is coming and a plan needs to be in place whereby Barangay officials are working towards the same ends and not providing the funds to supplement what people cannot pay in these scenarios. Plans need to be in place so that people who can’t pay are educated and know what the rules are so that they have the ability to meet the laws and don’t get imprisoned for fines they are unable to pay.

On top of this, local elections occur every three years and any given mayor can be in power for at most three consecutive terms, nine years. It was suggested that in order to “protect” their brand, mayors often take off with reports that were written and established during their time in office causing setbacks to policy work as people need to reinvent the wheel with any given change in leadership. With these challenges, local policies are what remain. Consequently, it is crucial that any given plans get implemented into policy and rooted in the culture of the municipality before the end of any given mayor’s term.
The present Mayor of Bustos was elected in May 2013 for his second term in office. This is the ideal time for change to occur and progress to be made as the Mayor already has a firm grounding in the community, is well respected, and has time before him to put ideas into action. These actions then are driven by the Mayor’s Legislative Agenda and national and provincial policy directions. Significant policy exists at the national and provincial level which needs to be brought down to the local level and get implemented into the system. At times the challenge remains to recall just what all of that legislation is but, with time and coordination this is possible.

4. Pertinent Policies
The Municipal governments are responsible for making national and provincial policies relevant for their local communities and construct local ordinances that speak to the National and Provincial policies. Laws developed by the provinces are independent from those of the Philippine National Government but converge at the community level where all of the policies come together to create planning on the ground. Where discontinuity often exists, it is the role of the local municipalities, together with their Barangays, to make legislation accessible and build momentum for it. National and Provincial policies can be lofty and high level but municipal ordinances must be practical and attainable by community members.

Bustos has many local ordinances and is working to refine existing policy and bring in more to directly speak to some of other, newer, national and provincial policies such as the 2012 No Plastic Ordinance from the Bulacan Provincial Government.

4.1 National Policy
The Local Government Code (RA 7160) directs LGUs in their day-to-day operations and is the enabling legislation giving municipalities the power, and the responsibility to take policy to their communities and build the “vibrant economy, safe environment, and strong middle class” (Provincial Government of Bulacan, Philippines, 2012) that is called for in the vision of Bulacan. RA 7160 also affords local governments the ability to make their own laws and levy fees.

The Ecological Solid Waste Management Act 2000 (RA 9003) is the main legislation most relevant to the focus of this project. RA 9003 speaks to solid waste management and mandates segregation of wastes, as well as local material recovery facilities for Barangays. Addressing environmental concerns as well, the Clean Air Act of 1999 (RA 8749) and the Water Act of 2004 (RA 9275) both touch on pollution issues. Specifically, RA 9275 addresses sewage treatment and prohibits the dumping of oils, fats, or human wastes into the water system.

In specific attempts to clean up Manila Bay and acting in response to complaints from local citizens, the Manila Bay Clean-up Project was enacted through a Supreme Court ruling in 2008 and seeks to decrease point-source and non-point source pollution that is channeled into the river from all of the tributaries along the Manila Bay Watershed. A direct reporting mechanism requires LGUs to quantify activities that take place along the rivers and undertake inspection of such homes, factories, and commercial establishments and ensure sufficient sewage treatment and water management practices are in place. These demands goes along with the regulation imbedded in the Code on Sanitation of the Philippines (PD No. 856) through which some of this inspection is already supposed to take place.
Small businesses are governed by and supported by two main pieces of legislation: An Act to Promote the Magna Carta for Small Enterprises (RA 9501, amending RA 6977) and The Barangay Micro Business Enterprises (BMBE) Act of 2002 (RA 9178). The Magna Carta for Small Enterprises is an act to “promote entrepreneurship by strengthening development and assistance programs to micro, small and medium scale enterprises” (RA 9501). Similarly, the BBEs Act of 2002 gives incentives directly to micro businesses at the barangay level aiding their growth and development.

4.2 Provincial Policy
In the scope of environmental compliance of small and medium enterprises in Bustos, Bulacan, the most significant piece of legislation at the provincial level is Provincial Ordinance 2012-09, the No Plastic and No Styrofoam law. The law bans the use and sale of plastic bags and Styrofoam in the province and is very significant in the sense that in the past decade or so, the consumption of plastic has dramatically increased and is now the go to packing replacing banana leaves, brown bag, newspaper, containers made of bamboo and other grass, and other natural options that would have been used not all that long ago. The law recognises the environmental pollution that these synthetic plastics are having and calls on the local governments to take action.

4.3 Municipal Ordinances
At the local level, municipal ordinances are the formalization of National Republic Acts and Provincial Ordinances. Municipal ordinances reflect other policy and fit the local context and, in some cases, the local executive leadership. Both The Zero Waste Ordinance and the Anti-Littering Ordinance (Ordinance No. 19-S2004) fall under the Ecological Solid Waste Management Act and address the disposal of garbage. Other ordinances including garbage collection, Dos and Don’ts regarding garbage, and ordinances regarding trucking companies are said to exist (MPDO, personal communication, August 12, 2013) however, the Sangguniang Bayan office was unable to locate them at the time of this research. The question arises of how useful the legislation can be if people are unable to access it when they need it.

With municipal ordinances in place it then comes to the municipality to implement them and work with the local businesses and community members to execute the vision.

5. Small and Medium Enterprises
Small and Medium enterprises are businesses that are contributing to the local community. Subject to a range of definitions, SMEs are generally defined with a maximum employee count of somewhere on the order of a hundred (Hillary, 2000). According to the Philippines Department of Trade and Industry (DTI) any business with less than two hundred employees is classified as a micro, small, or medium enterprise. For the purposes of this paper, I have included micro businesses into SMEs as the DTI does, using MSME (micro, small, and medium enterprise) in place of SME. Furthermore when referring to SMEs I sometimes call them “small businesses” however I still mean micro, small, and medium enterprises. SMEs can also be categorised based on asset value or capitalization. The DTI breakdown is included along with the employee numbers in Table 2 below.

The role of SMEs varies from country to country and region to region but there is a widely held view that SMEs are central to present day society and have been for over a century. In 1849 John Beauchamp Jones, a small scale Missouri shopkeeper highlighted their role by saying that “wherever the surges of
**Table 2: Small and Medium Enterprise breakdown.**

<table>
<thead>
<tr>
<th>Asset size</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro</td>
<td>Up to P3,000,000</td>
</tr>
<tr>
<td>Small</td>
<td>P3,000,001-P15,000,000</td>
</tr>
<tr>
<td>Medium</td>
<td>P15,000,001-P100,000,000</td>
</tr>
<tr>
<td>Large</td>
<td>Above P100,000,000</td>
</tr>
</tbody>
</table>

Source (Government of the Philippines, 2008)

‘manifest destiny’ scatter the seeds of civilization…the merchant or trader is always found in their midst” (Blackford, 2003, p.11). Indeed SMEs have been around awhile, but their image and aims have changed over time. Where at one time they were small, subsistence, and family oriented they are now competing with big corporations to serve consumer society. It has become an atmosphere of rapidly changing, continually fragmented global markets aimed at high-performance, customer-configured products and services (Montazemi, 2006); making money at the cost of everything else has become a reality. Gunninham and others claim that collectively, SMEs are the source of around 70% of total environmental pollution in the United Kingdom (2002). Literature is silent to the subject in other countries but it is nonetheless evident that their impact is significant. Furthermore, there is evidence to suggest that small businesses are often not complying with environmental legislation (Hillary, 2000). There is wide diversity within the sector and reasons for lack of compliance are many but six key reasons have been returned to time and again.

Much literature surrounds the question of why SMEs so often don’t comply with environmental legislation (Gerstenfeld and Roberts, 2000, Gunningham, 2002, Hillary, 2000, Johansson, 1997, Petts, 2000, Yap, 2006). Specific issues that have been identified as barriers to implementing environmental management in small and medium-sized enterprises are (1) lack of training and awareness, (2) lack of legislative support, (3) lack of sector-industry-specific support and solutions, (4) the expenses involved, (5) a lack of relevant information, and (6) the fact that environmental management standards are ill-suited for SMEs (Gunningham, 2000, Hillary, 2000). The belief that pollution prevention pays is not widespread among SMEs and many companies have “yet to be convinced about the benefits of cleaner technology and waste minimization” (Hillary, 2000. p 112). Unlike health and safety legislation where “non-compliance has immediate, obvious, and serious effects” (Hillary, 2000, p.56) environmental impacts are less visible and cumulative impacts play a significant role. Frequently trying to make ends meet, some SME entrepreneurs believe that it is money at the cost of the environment and many believe they are too small to make a difference.

Ninety-one percent of businesses in the Philippines have less than ten employees. While they may conclude that their operations are too micro, collectively they are significant and their greenhouse gas emissions and environmental impact are important as well. Often SME managers feel that they are powerless next to large enterprises and multinational organizations. Either people associated with SMEs feel that environmental problems are global in nature, and therefore outside the ability of an SME, or that they do not have the resources within their grasp to make the changes necessary due to; lack of time, a shortage of staff, or insufficient financial resources (Johansson, 1997). Consequently, without awareness of ecological systems and ecological goods and services, and in light of tight fiscal environments,
business owners and managers may shirk their duty to tackle the problems. The Philippine National Government recognizes the importance and collective size of SMEs and legislation is there for support. Communication is needed with local governments to point to areas where they could potentially offer more support to SMEs by way of information regarding environmental tradeoffs and cues as to how it might be financially viable to make changes towards cleaner production. “Harm to the environment is separate from causation in people’s minds” and this must change if ecosystem services are to be preserved (Hillary, 2000, p.52).

5.1 Cleaner Production
Cleaner production (CP) is an approach to business management that seeks to reduce impact and resource use, reuse products wherever possible, and recycle materials when they are no longer able to be used at the business. Cleaner Production is the introduction of revised processes to help reduce consumption of natural resources and can reduce the environmental impact of SMEs as well as improve the environmental performance and productivity of industry. In addition, according to Yap (2005), “cleaner production offer[s] real opportunities for addressing the tension between employment and environmental protection in [SME]s” (p.2).

There is a need to link cleaner production with waste management and housekeeping practices and cleaner production changes must be “translated into small steps relevant to the actual conditions of the companies” (Yap, 2006, p. 2). Similar to a conservation ethic, cleaner production refers to the “continuous application of an integrated preventative environmental strategy to reduce risks to humans and the environment” (UN Environment Program 2004). CP encapsulates the preservation of raw materials and energy, eliminating toxic raw materials, and reducing the quantity and toxicity of all emissions and wastes. For instance, some examples of cleaner production would be the use of vegetable oil-based links in the publishing industry, automated preparation of dyes in the textile industry, and the recovery of chromium for reuse in the tannin industry (Yap, 2005). Such seemingly small changes can have a dramatic impact on environmental impacts and often end up being cost effective for businesses. The challenge comes in devising the approaches and undertaking the research and capacity building to figure out what might work and then apply it in businesses at the local level.

5.2 Role of SMEs in Bustos
SMEs are central to the economy of Bustos; over 99% of all businesses in the Philippines are small and medium enterprises (DTI, 2008, Leano, 2006). Bustos has six hundred and eleven registered businesses nearly all of which fall under the category of small and medium enterprises (Municipality of Bustos, 2013a). Any informal, non-registered businesses would also fall under this category and of those there are many. According to the survey I did of businesses in Poblacion, Bustos, approximately 70% of businesses are licensed. This leaves a substantial number of small businesses that are not officially accounted for or operating informally. At the end of the day, the contribution to the community and the impact of the SMEs collectively is significant. Seventy percent of the Philippines labour force is employed by SMEs and 32 % of GDP is generated by the sector (Leano, 2006).

The DTI acknowledges that SMEs play a major role in the economic development of the Philippines particularly industrialization, rural development and decentralization of industries, and the creation of employment opportunities. By their nature, small businesses are more labour-intensive than big industry
and therefore generate more jobs in the local region. Furthermore they bring more balanced economic growth and increased equity in income distribution.

An additional bonus of SMEs is their ability to effectively bolster the local content of their projects and value add to final goods that are processed and marketed by large manufacturing firms. This increases labour hours per resource and boosts the local economy. At the same time, SMEs manage to make very good use of scarce capital resources. Finally, along with the creation of wealth, employment, and income generation, small businesses are willing to establish themselves in under-served areas and play a crucial role in the provision of services in the community. They then also contribute to the generation of ideas, skills, and innovations needed to help allocate scarce resources (Government of the Philippines, 2008).

In order to help support and promote SMEs, the National government has made provisions to ensure that SMEs are not undercut by big business. RA 9501 includes provisions for the following (Magna Carta for Small Enterprises, 2008):

a) expanding programs for training in entrepreneurship and for skills development for labor;

b) facilitating their access to sources of funds;

c) assuring access to a fair share of governments contracts and related incentives and preferences;

d) instituting safeguards for the protection and stability of the credit delivery system;

e) raising government effectiveness in providing assistance to SMEs, at the least cost;

f) promoting linkages between large and small enterprises, and by encouraging the establishments of common service facilities;

g) assuring a balance and sustainable development through the establishment of a feedback and evaluation mechanism that will monitor the economic contributions as well as bottlenecks and environmental effects of the development of SMEs.

Separate from these efforts to encourage small businesses it is obligatory that the government capacity build and aid SMEs with becoming increasingly environmentally conscientious, help decrease their environmental footprint, and “green” their operations. A direct link to specific operational modifications or potential adjustments will be needed so that there is technical understanding and not just another knowledge gap. There is a persistent perception by people who are connected with SME’s that they do not have an impact on the environment (Hillary, 2000, p. 78, 88, 107). However each bucket of blood that goes down the drain, cup of fat that gets mixed in with the wash water, or plastic bag that gets used has an impact. Individually they are small but collectively they have a significant effect.

The overall impact of small businesses is rarely measured. Some facts are known however and give an indication of the potential impact. One poultry facility that I visited uses about 278 cubic meters of water every three months (Poultry, Private Communication, August 13, 2013). With 17 registered poultries and piggeries (Municipality of Bustos, 2013a) in Bustos and perhaps that many again that are operating informally, it is probable that well over 20 000 cubic meters of water are being used annually by the piggeries and poultries alone. This is a significant volume of water. Cumulative consumption could very well be higher. Once used, this water will eventually end up back in the Angat and depending on the operation of sewage tanks the water may or may not have high levels of contaminants that are being washed into the river.
6. State of Compliance of SME’s in Bustos

“By law need to have 50% compliance rate. Target by the end of 2013 to be 70% compliant with the law.” - MPDO, personal communication, August 12, 2013

When looking at environmental compliance of SMEs, it is important to consider both licensed and un-licensed businesses. In a lot of cases licensed businesses are doing much better than un-licensed businesses, in part because businesses have to achieve a certain amount of compliance with environmental legislation before they are able to obtain an Environmental Compliance Certificate (ECC) from the province, which is necessary to obtain a municipal business permit (see Section 7 for further details on obtaining a business permit). In evaluating the state of compliance of small and medium enterprises in Bustos, then I consider the prevalence of business permits, specific compliance with RA 9003 and PO 2012-09, and general observations about sewage treatment.

‘Ideally all businesses would have a business licence to operate’. This was stated by the Municipal Planning and Development Office (Private communication, Aug, 2014). There is little concern among staff however about the very small businesses and especially the sari-sari stores operating out of people’s homes. The largest concern is among businesses that are operating too close to the river. Presently there are 611 business permits in Bustos (Municipality of Bustos, 2013a) though work is being done to increase this. Many of these businesses are operating in close proximity to the river so it is in the communal interest to monitor the activity. The economic cluster established as part of the Executive Legislative Agenda (see Appendix 7) for the Mayor’s current term in office includes a goal of increasing the number of registered businesses to 1500 primarily through the licensing of existing informal businesses at first (Municipality of Bustos, 2013b).

As mentioned above, based on my estimation, 70% of the businesses in Poblacion, the town center and location of the commercial business district, are licensed. The proportion of licensed businesses to non-licensed businesses decreased with distance from the centre. Given this observation, I expect the overall percentage of licensed businesses in Bustos to be less. Among un-registered businesses are numerous sari-sari stores, piggeries, and karinderias, or small eateries. While specific compliance monitoring does not exist, observations reveal challenges with sewage treatment at informal, un-regulated piggeries, in addition to a series of informal karinderias. My observations support the literature and suggest that many solid and water wastes are going down the sink. It fact, the book Winning the Water Wars noted that “the increase in population and economic activities has considerably increased the effluents being discharged to water bodies” (Rola, Francisco, & Linguton (Eds.), 2004, p.9). Similarly, animal blood maybe washing down the drain at piggeries, poultries, or the slaughterhouse, no one really knows and no one is keeping track. As discussed above, the cumulative effects of the dumping of wastes can lead to a loss of ecosystem function and consequently ecosystem services.

Since 2000 garbage disposal has been embraced as an issue at the National level and at the municipal level; the Ecological Solid Waste Management Act of 2000 is directly implemented in Bustos by way of the Zero Waste Ordinance and the Anti-Littering Ordinance. Together with municipal staff, awareness campaigns, and years of discussion, Bustos residents are aware of RA 9003 and at least vaguely know what they are supposed to do with their garbage, whether they understand why this has to be done or not (more on this in Section 7 below). Awareness of the laws is absolutely crucial before compliance can be achieved. While compliance is about 50% in Bustos (Bustos MPDO, 2013) there is a lot that is working
which can be built upon. Garbage is collected two to three times per week from businesses and Material Recovery Facilities (MRFs) and it seems that people generally do bag their garbage and leave it out for pick up by the garbage truck.

There is room for improvement however with sorting wastes before they go out to the street. RA 9003 calls on all wastes to be sorted into biodegradable and non-biodegradable categories in order that they might be most effectively disposed of. Compost facilities in each MRF at the barangay level would theoretically allow organic materials to decompose and turned back into dirt without being oxygen deprived and contaminated by toxins leaching from soggy plastic bags. Business owners sheepishly said that their wastes went out *halo-halo* (mixed). I got the sense that people are interested in doing the right thing and would be willing to sort. For this to be achieved, however, people will need to know how to sort and this will require a concerted effort on the part of the municipality as not even municipal waste disposal bins are segregated at this point.

A little more recently, just over a year old now, the implementation of the provincial ordinance aiming to reduce, rather than just manage waste, is struggling. Provincial Ordinance 2012-09 outright bans plastic bags and Styrofoam from being sold or given out in the province. Similar to other legislation in the country, municipalities are responsible for embracing the law as given by the province and implementing it at the local level. Just south of Bustos, the municipality of Pulilan is successfully heading towards the eradication of plastic bags in town. Large and small businesses are taking up the challenge and the Municipal Environment and Natural Resource Management Office in Pulilan is on one them. Despite complaints of cost (which may or may not be warranted), the inertia required to make change, and the education and communication needed to get all businesses, organizations, and residents on board, it has nearly been achieved. Whether a “biodegradable” plastic bag should be allowed or not is a different story but the point is Pulilan has been intentional about applying the law and reducing plastic and it has had an impact on people’s behaviour and business practices. In Bustos on the other hand, little is happening with regards to PO 2012-09 implementation. Municipal staff believe that nothing can be done without “police enforcement” and SME business owners I consulted, by and large, did not know that the law existed. The few businesses I talked to who were aware of the law were not prepared to give up plastic as they believed the only way to do that was to give customers cloth bags which would be costly. Simply not having bags for customers when they purchased goods did not appear to be an option. Consequently, in Bustos, plastic bags line the shelves at Nesabel, the local grocer; plastic bags wrap individual portions of

Figure 5: Sewage outflow for an unregistered piggery (Photo Credit: Sarah Thomas).
meat for the lunchtime rush at *sisig* places; and plastic bags are given for any purchase right down to a single package of cookies.

The Philippine Water Act of 2004 prohibits the disposal of human or animal wastes into the water system and disallows run-off from such activities from entering the water network un-treated. Furthermore, RA 9275 requires cities of a certain size to implement a coordinated sewage collection system. Given Bustos’ designation as a rural municipality, this is not required and such a system does not exist in Bustos. Rather, municipal septic tank standards require people to use concrete septic tanks, with a minimum of two chambers, located at least ten meters away from any artesian wells (MPDO interview Aug 19, 2013). Each business is responsible to maintain its own septic tank and deal with emptying it should it reach capacity. In the agricultural, river-fronting barangays of Bonga Menor and Bonga Mayor, there are a plethora of large and small, formal, and informal, poultries and piggeries. Septic tanks seem to exist, however, there is very little regulation and from conversations with people operating the businesses, there appears to be a problem with overflowing septic tanks being streamed directly into the abutting irrigation canals. Anecdotal evidence suggests that BENRO undertook a survey of the septic tanks of river fronting households in Bustos though I was unable to track this down.

What it really comes down to is there is little data on what is actually happening on the ground, as is with other contexts where local implementation is the major issue. The problem is exacerbated by the absence of any monitoring or compliance validation for any businesses that are unlicensed or unregistered. In other words, there is little compliance monitoring of actual businesses and no compliance monitoring for businesses that are operating but do not have a business licence. While their impact may be small, the collective impact of, for instance, ten piggeries of 10 mature pigs and 10 piglets each, allowing the waste to wash into the river, is equivalent to a large factory operating with close to 200 animals and has a quantifiable impact on the water supply. For political reasons it was said that the municipality “should not report any that are not registered with the municipality” (Municipal Staff, private communication, August 13, 2013). The environment does not discriminate based on source however and the river is affected regardless of how, or by whom, the wastes ended up in its water or tributaries.

### 7. How is Compliance happening?

Anyone is eligible to apply for a business permit; however, stipulations are in place to differentiate between various locations. For instance, the Environmental Climate Certificate (ECC) requires that businesses be a certain distance from the edge of a body of water. Residents that fall inside this setback are then unable to obtain an ECC. Three options then remain for people: relocate, don’t start a business, or go on without a business permit. Some combination of all of these seems to occur in Bustos.

In order to secure a Business Permit one must obtain approval from all three levels of government. The exact steps that must be taken are outlined in Figure 6 below.

Once a business license is obtained, the enterprise is registered with the Public Employment Services Office (PESO) and is part of the roster for regular compliance monitoring. Regardless of whether someone makes it to the business to check up on them, a conversation is had at least once a year when the

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4 A restaurant that serves sizzling plates. Sizzling plates traditionally contain some sort of sautéed meat with rice. The meat is cooked directly on the plate from which it is served.
REQUIREMENTS IN SECURING A BUSINESS/MAYOR’S PERMIT

- Business License Applications/Assessment Form
- Community Tax Certificate
- Barangay Business Permit
- CNC/ECC
- TIN

*Additional requirements for New Applicants

- Cooperative Development Authority Registration (for cooperative)
- Securities and Exchange Commission Articles Of Incorporation (for corporations)
- Department of Trade and Industry Business Name Registration (for sole proprietorships)

*Additional Requirements for Renewals

- Prior Year Print out of Mayor’s Permit
- Certificate of Compliance (SSS)
- Quarterly Tax/Annual Income Tax/Audited Financial Statement
- Certificate of Registration (BIR)
- Philhealth certificate
- PAG-IBIG Clearance

Figure 6: Criteria to obtain a Business Permit (PESO, 2013).

business owner proceeds to renew their business licence. This is not the case for informal businesses however. SMEs that exist under the table and do not have a business licence operate with or without the knowledge of the municipality and little seems to be done to even document it.

The Municipal Sanitation Officer in conjunction with the MPDO is responsible for ensuring that businesses are in compliance with existing environmental legislation. Reporting requirements of the DILG seem to drive the compliance monitoring that is done. Employees who are in the position to do the compliance monitoring seem to lack the time or the knowledge to do a thorough job of it. This results in minimal monitoring and the monitoring that does happen appears to focus on the larger businesses and aims to simply check the forms. To challenge matters further, business addresses rarely exist and to visit one of the local enterprises, the inspectors must know where they are located. Informal businesses may only be known by their purok (neighbourhood) and perhaps the Barangay Captain. Henceforth, very small, home-based businesses that are not registered are not even considered nor are they recorded for any number of reasons. This does not help the cause of identifying sources of pollution and working with businesses to reduce run off and open dumping in order to improve the water quality of the Angat River and clean up Manila Bay.
When it comes to the solid waste management regulation, there is no compliance monitoring of SMEs and other businesses. It is generally accepted that neither businesses nor households, are segregating their wastes, striving to reduce wastes, or refraining from using plastic. However, the municipality acknowledges that there is a knowledge gap and launched an education campaign in the schools in August. *Ako’y Makalikasan* (I am Pro-Environment), the “room to room” campaign, seeks to educate children about the importance of sorting their waste. Children will hopefully then go home and talk to their parents about what they learnt and help their families begin segregating their waste.

Solid waste segregation is a prime example where people generally know that they are supposed to segregate waste but they may not know how that could actually be done and furthermore do not understand WHY it is important to do this.

The legislation says to “promote recycling and segregation as effective and practical measures to manage waste” (*Zero Waste Ordinance*, 2008) but does not say anything about chemical leaching, heightened methane production when organic materials are prevented from decomposing, decreased reuse potential due to contamination, and the intense land use requirements for dealing with unsorted trash. If people realized that all of these things directly affect the quality of their drinking water and the cleanliness of the Angat River, they might be more inclined to make an effort to sort their solid waste. The second question is how. Differentiating between biodegradable and non-biodegradable can be challenging. This is further confused by adding the term “recycling” into the mix. Major, corporate, stores offer “sorting stations” outside of their businesses; bins often contain mixed materials and it is difficult to determine what goes where. In this instance, it would be helpful for example if the municipality had consistent sorting stations set up at municipal facilities such as the gym, library, municipal hall, and schools and encouraged BulSU and other businesses to implement a similar system. In this way people would have the opportunity to sort their waste every time they threw something out in public and would potentially motivate small businesses and residential home owners to sort.

**7.1 Upstream, Downstream Disconnect**

A disconnect exists between upstream water uses and downstream impacts. From the Bustos dam, water from the Angat river flows past Bustos and Baliuag before heading through Plaridel and Pulilan on route to Metro-Manila where the water supplies the drinking needs of the city (*Philippine Institute for Development Studies*, 2002). Pollutants and contaminants that enter the water are accumulated downstream as the river flows and pulls the wastes and particulates along. Given this, downstream communities have an interest in reducing point and non-point solution all along the river in order to increase water quality and the ecosystem services they gain from the Angat.

One particular example of this disconnect is with solid waste management. The Bustos landfill is presently a controlled dumpsite (*Bustos MPDO*, 2013) next to the river (see Figure 7 below) in Bonga Menor. Anecdotal evidence suggests that the dumpsite was at one time closed due to ecological impacts and the proximity of the site to the river. However, the dumpsite is presently operating, receives waste from local MRFs and is the only dumpsite in Bustos at this time. Plans are in place to develop a sanitary landfill in Barangay Catacte but funds are needed to drive the project forward.

At this time the Bonga Menor dumpsite functions as the transfer station for all solid waste coming from MRFs around the municipality. Everything from coffee cups, to plastic bags, diapers, coconut shells, and
meat scraps get piled up. What is not picked through by eco-aids\textsuperscript{5} remains just out of reach of the daily water flows. Evidence suggests that when the monsoon rains come and the typhoons move through the region, these piles of trash are lifted up by the rushing water and taken away (MPDO, personal communication, Aug, 2013). At the same time, not twenty kilometers downstream, citizen action groups meet on a regular basis to “get their feet dirty” so to speak and pick up garbage. Residents of a river fronting informal settlement in Plaridel spoke of piles of garbage that would arrive in their community especially following heavy rains and flooding events (personal communication, July 9, 2013).

More analysis would need to be done and specific consideration of water currents to verify that these incidents are directly correlated nonetheless it speaks to the need for collaboration and communication. Perhaps Plaridel and Pulilan or even Metro-Manila would be willing to help pay for the new sanitary landfill in Bustos if only the problem were articulated and they were aware of the issue. These events are not occurring in isolation; pollution is a problem across the river from Bustos in Baliuag as well and like Plaridel, Pulilan river banks are littered with plastic wrappers and cups and groups go out weekly to pick up not only along the river but in water grates as well. It stands to reason that similar stories would likely be found further downstream in the Metro-Manila area as well.

8. What are enabling conditions
What works in one place is not necessarily what works in another place; some criteria on the other hand just seem to ring true time and again. Enabling conditions to support environmental compliance for SMEs

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\textsuperscript{5}“Eco-Aids are people who are paid a moderate salary by the local government to collect garbage from rural areas. Eco-Aids can supplement this income by sorting through the solid waste and collecting items which can be recycled (sold to) at a different facility. Juice bottles are one such example of what could be sold back.
in Bustos in the twenty-first century seem to be very strongly reflected in the literature. A lack of training and awareness, lack of relevant information, and the expense involved all continually came up in secondary sources (Gunningham, 2000, Hillary, 2000, Johannson, 1997, Yap, 2006). Specifically three enabling conditions to increasing the environmental compliance of SMEs in Bustos are: (1) the existence of a business license; (2) overall awareness of the legislation; and (3) a sense of value in that legislation.

**Existence of a business licence**

Businesses licensing ensures that a minimum set of environmental conditions are met as a consequence of the requirement to meet certain legislation including zoning codes, setbacks, and the use of proper sanitation facilities. It further secures a network of infrastructure and service supports, provides the potential for eligibility for government programs under RA 9501 and RA 9178 and increases business owners’ awareness of the pertinent legislation in addition to the services that are available to them. The existence of a business licence further opens the lines of communication permitting owners to confront the Municipality with questions and concerns and allowing the Municipal Government to honestly execute compliance monitoring.

**Awareness of legislation**

For laws that the municipality have embraced, like sanitation, more compliance is happening and people are more aware of the laws. Compliance requires that the municipality take the laws to heart, talk about the laws, and create corresponding local ordinances to be disseminated to local Barangay Captains, shared at Flag Raising, posted on the notice board and generally promoted within the community. Time of course helps with this but the process can be helped along by conversations on the streets and targeted action by the citizens and the Municipality. Witnessing direct action that supports the law increases general awareness about the particular legislation and also indicates that the Municipality believes in the law.

**Value in the law**

Compliance with environmental legislation is greatly aided when it is evident that public divisions and public businesses are embracing a law and committing financial resources to put it into practice. The act of putting money into programs to directly start, or further, the implementation process of laws indicates to the public that the legislation is valuable and helps build trust with the community around the law. This encourages people to comply, giving merit to the laws, and shows people that at least the Municipality believes that there are compelling reason and importance for the law. People need to be able to believe that it is worth their time and energy, and in some cases money, to change their ways and comply with the law. Together these actions can help to create a culture of sustainability and change the way people view wastes and the communal water resources.

Given these enabling conditions, significant progress towards environmental compliance, and improved environmental quality could be made if Bustos follows through with their business licensing goals, manages to licence existing, unregistered businesses, and sticks to the books when granting business permits. Leniency with the environmentally driven rules will be counterproductive. Competing aims of increasing licensed businesses for the financial benefits afforded to the Municipality and the desire to increase the number of businesses for economic development reasons, at times comes at odds with the demand of executing regulation and ensuring that businesses are complying with the laws for the sake of the environment, eco-system health, and society at large. Through dedicated effort, both objectives are
achievable. These long-term societal benefits are difficult to quantify but are in the best interest of everyone and will pay off.

9. Recommendations and Conclusions
Driven by the above enabling conditions, a series of recommendations have arisen out of this work. Everyone needs clean water to drink and everyone benefits from the ecosystem services (tourism, recreation, cleaning, fishing, etc.) afforded by the Angat River and thus, everyone has an interest in the environmental compliance of small businesses. As such, the recommendations are grouped in three sections: those for the Bustos Municipality; those for micro, small, and medium enterprise owners and operators; and thirdly, the community and public at large.

9.1 Recommendations for Bustos Municipal Government
As the regulatory body it is the role of the Municipal Government to ensure that SMEs are complying with existing environmental legislation and work with the Bulacan Provincial Government and the Philippine National Government to devise and finance support programs to assist SMEs where there are shortfalls in how compliance is happening. Furthermore, as the overall planning authority and with the need to look out for the sustainability of resources for generations to come, it is crucial that the Municipal Government consider the long term environmental consequences of present day actions and help improve the health of local ecosystems including the Angat River. Five targeted actions that should be taken in the near term are:

1. Register more existing businesses
Called for in The Executive Legislative Agenda (see Appendix 7) with a planned completion date of 2016, registering existing unlicensed businesses will have myriad benefits. These benefits include the environmental benefits listed above including the knowledge of where businesses are actually located and the ability to execute compliance monitoring in addition to leveraging increased revenues to support compliance monitoring and system organization. The effectiveness of such revenue collection is outlined by Amellar Solutions in their Cost Benefit Analysis submitted to the Municipal Government of Bustos in August of 2013.

Be clear on what the point of having a business licence is. Through the process of licensing these businesses, it is pivotal that direct communication occur around environmental values and the connection of sewage and solid wastes to the health of the river. It is important that business owners are aware of the

6 Revenues will only increase if they are effectively collected. Amellar Solutions’ cost benefit analysis from 2013 gives an overview of the Municipality’s real property collections over the years from 2008 to mid 2013 based on historical data. The report looks at the efficiency of collection and the municipality’s potentials before undertaking a system audit providing an assessment of the current computerized revenue generation systems being used in the Municipality of Bustos. The report gives a good outline of the status of collection in Bustos as compared with other LGUs. The report then works to build a case for a computerized system over the present manual collection and clearly outlines steps that would be necessary to develop a comprehensive computerized system. It fails however to fully flesh out the benefits of the manual collection system and does not address some of the potential unintended consequences that could arise if such an approach is taken. For instance, the ongoing operational cost and expertise required in order to maintain a computerised database and the fact that a computerized system will replace people’s much needed jobs. Furthermore, reasons for non-collection are not discussed. Again, there could be repercussions of hounding businesses too hard for their licence fees so these should be considered in advance. A balance will be needed. The Amellar solutions report establishes a foundation for further discussion on this issue.
existing environmental legislation and comprehend reasons why it is important that the legislation be adhered to. Building on this, it is also important that they know what government supports are available and where to go for assistance should it be necessary at some point.

When granting the business permits then make sure that the SMEs do indeed meet the environmental regulation at that time so that there is a baseline data or case from which to compare in the future. If the business is not presently meeting the required level of environmental compliance, ensure that it is thoroughly documented so that it too can be referred to in the future. Especially in the case of anti-plastic bags law for instance, a limited amount of public engagement leads me to believe that there is a lack of awareness of the No Plastic Law and this in itself makes compliance very unlikely.

2. Compliance Monitoring
Firm up the compliance monitoring framework and increase the communication between groups who are working on different aspects of compliance. Strengthen linkages between the compliance monitoring that is happening and continually reaffirm the importance of the laws and what is being sought out through the compliance monitoring. Together these actions will build consistency in expectations and compliance behavior, and grant the people executing the inspection a better sense of what they are looking for and what has changed since they were last visiting these businesses.

3. Embrace the laws
In getting the community to respect the legislation, give communities some time to read and discuss the laws and determine how the laws would actually work in practice. Consider why they are important. From here, the recommendation is to bring this information to the community through: writing, or re-writing, corresponding Municipal Ordinances and refining them to fit the local context; implementing the law in public buildings and government institutions first to show commitment; and communicate the positive benefits to be accrued by the law.

The new MENRO office in Bustos could be leveraged to do some of the background work around what successful implementation could look like and create a buzz in the community around environmental issues. That Office could support the MPDO in doing community engagement on the issue, possible ideas of which are outlined in the document, “Towards a Local Climate Change Action Plan, Bustos: Thriving, Vibrant, Climate Smart” (Harding, Iwama, Thomas, 2013).

4. Strengthen MRFs and Pursue Sanitary Disposal Site
Material Recovery Facilities (MRFs) exist and are functioning in eight of Bustos’ fourteen Barangays. These MRFs are, for the most part, in accessible locations and effectively collecting wastes and acting as a transfer station before the garbage is transferred to Barangay, Bonga Menor, Bustos. To increase the efficiency and value of these MRFs, it would be valuable to begin composting on site and reduce the amount of solid waste that needs to get transferred to the landfill site.

A strong recommendation is also made to evaluate possibilities for the construction of a sanitary landfill to replace the controlled disposal facility in Bonga Menor. The MPDO has been considering the possibility of opening a facility in Cacacte. The sufficiency of the landfill site should be tested and compared against existing and alternate sites in light of the environmental impacts of a landfill. Intentional planning should scope out the design of the space and establish waste diversion avenues from the start. Including projects such as composting, charcoal making, bag making, and other such projects
out of garbage have been discussed. These are very inspiring possibilities and would do a lot to mitigate
the environmental costs of solid waste, promote good jobs, create new revenue streams, and put the
wastes to a new life rather than tossing them away as garbage.

When people see that there is organized planning and sortation occurring for solid waste, trust will be
built and it is likely that more people will be motivated to make the effort to decrease and properly deal
with their wastes as a result.

5. Support Cleaner Production
In order to help businesses along in the improvement of environmental practices consider supporting
cleaner production initiatives. Cleaner production is the introduction of revised processes and focuses on
revising business practices to emphasise the “reduce, reuse” part of reduce, reuse, recycle. Cleaner
Production increases industry environmental performance and productivity while working within the
same budget constraints. A month could be dedicated for each type of business (karinderias, piggeries,
poultries, etc.) whereby there could be direct, one-on-one work done with each of the businesses, formal
and informal, to look at how wastes could be potentially decreased or at least better managed. Peer
workshops could also be established to build capacity and encourage businesses to work together.
Dedicated awareness-raising could go along with it perhaps encouraging citizens to support businesses
that are improving their operations. This could go hand in hand with registering existing unlicensed
businesses. Identification of the unlicensed businesses could happen and then through the direct support
as part of this larger campaign, businesses would hopefully get to the point of complying with legislation
so that they could get their Environmental Compliance Certificate from the province and consequently
their business permit from their Barangay and subsequently the Municipality.

6. Engage other jurisdictions
Financial resources will be required upfront in order to achieve greater sustainability, environmental
compliance, and reduced costs over the long run. Look to alternative revenue streams and the possibility
to leverage funds from outside the municipality of Bustos. The benefits of environmental compliance and
cleaner production stretch beyond the boundaries of Bustos and so should the conversation of how to pay.
Liaise with downstream municipalities to devise more holistic planning approaches. Drawing on the
province (BENRO), RENRO, and the National Government of the Philippines could also help address
resource constraints. Where research gaps exist consider engaging local universities and Non-
Governmental Organizations in the region to partner on projects and assist with technical analysis.

9.2 Recommendations for Bustos SMEs
Micro, small, and medium enterprises are central to life in Bustos. SMEs have a central role to play and
have a direct impact on the economy, society, community, and the environment. Where the impact of a
cup of oil or a bucket of chicken crap may seem small, there are many actions that can be taken to
minimize the environmental impact of SMEs.

1. Seek Out Opportunities for Cleaner Production
Consider daily operations and evaluate where resources are used and how wastes are disposed of.
Investigate whether water could be consumed more efficiently or if plastic consumption could be reduced.
2. Seek Outside Opinions in your Work.
Approach the municipality, local NGOs, or universities to help innovate towards cleaner production. Significant research is going on in a variety of industries around Bulacan which can be drawn on for insight and suggestions.

3. Work Together
Furthermore, bind together with cooperatives, business associations, and other enterprises in your area, and work together to devise more efficient ways of operating, work towards cleaner production, and prevent wastes from going down the drain. Encourage and support one another.

4. Keep Each Other Accountable
Everyone relies on good water quality, especially those who rely on it for their enterprise. Keep each other accountable for maintaining good water quality, preventing contaminants from running into the water, and complying with environmental legislation.

9.3 Recommendations for Busto Residents
In representing the best interests of the community and their role as the regulatory agency for the environmental compliance of small businesses, the Bustos Municipal Government has the official power. However, Bustos residents at large have a significant impact in this. Citizens shop at the stores, interact with people on the streets, and elect the governmental leaders. Bustos residents can use your everyday actions to work for environmental protection, reduce and segregate garbage, and prevent grease, manure, and other wastes from entering the water system in order to improve drinking water quality and ensure the health of the people of Bustos. Specifically, four actions are outlined here:

Talk with each other
Learn more about the reasons for specific legislation and educate yourself and others about the connections between individual actions and the cleanliness of the Angat River. Share, question, and explore new ways of living that increase environmental quality.

Encourage the businesses you shop in to improve environmental practices, carry a plastic bag and reusable mug whenever you go out, refuse plastic bags and share with people why you care. Inform your friends and family about the No Plastic, No Styrofoam Law and discuss the benefits and challenges with them. Engage your barangay captains and councillors, or SK leaders in the case of the youth, and make it an issue they want to act on.

9.4 Conclusions
Where there is a will there is a way. – Old English Proverb

The will of the people, engagement from SME owners, and support and direction from the government will work towards heightened awareness of environmental issues, increase environmental compliance among SMEs and put action towards improving the water quality of the Angat River. These in turn will help in improving ecosystem services, increasing tourism potential, improving fishing opportunities, and providing for drinking and recreation water. Legislated targets will need to be met and effort will be required but it can be done and is in the interest of all Bustos residents. The revival of the Municipal

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7 Meaning if one has determination then they will find a way of doing something. It is possible.
SWMB will raise the profile of solid waste management issues and send a message that the problem is being taken seriously and this can build off of existing momentum from other recent projects such as the room to room campaign and community tree planting efforts.

Partnerships can be made with other groups within and without of the community. For instance, Bustos could coordinate with other municipalities who might be able to help out or offer support; alternatively, a group of municipalities could pool resources or petition the provincial and national governments seeking funding for upgraded waste collection facilities. There is already collaboration with University of the Philippines on the clusters for the 2014-2016 goals which will launch a swath of initiatives. Other possible collaborators include: NGOs, The Philippine Rural Reconstruction Movement (PRRM) based out of Quezon City, Philippine Youth Environmental networks, youth groups, and Churches of various faiths and denominations. The effects of climate change are being felt in the community and people are ready to bind together and take action.
References


Bustos MPDO. (2013). *Environmental compliance audit: RA 9003 or the ecological solid waste management act of 2000*


Kliffer, & Tynan, (2008). *Recommendations for solid waste management for plaridel, bulacan, the philippines.* Unpublished manuscript, School of Community and Regional Planning, .


Municipality of Bustos. Office of the Mayor, (2013b). Executive order no. 36


Appendix 1: Interview Guide for Government officials

Are you aware of the Ecological Solid Waste Management Act of 2000 and the Zero Waste ordinance of 2013?

What other policies address Solid Waste Management? Sewage? Water treatment? There is the water act, but are there others?

What is your sense of the public perception of the situation of environmental quality (with solid waste management and water quality)?

What percent of the population do you think is aware of these policies? What percent of small business owners?

What is your impression of compliance among small businesses?

What tools do you use to engage with SME’s on issues of environmental management? What support do you give small businesses in meeting environmental legislation? E.g. treating waste water.

What opportunities do you see to further support small businesses?

What is the system for residential waste? How is it working?

Are there different regulations for businesses (factories, piggeries...)?

Have you seen a change in environmental compliance of SMEs over the years? Especially since the zero waste ordinance came out?
Appendix 2: Interview Guide for SME Owners

What is your sense of the situation of water quality? Environmental degradation?

What types of wastes are generated as part of your business?


Have you considered different approaches to solid waste management? Sewage treatment?

What are barriers or challenges in changing how you deal with solid waste? Waste water?

Are you aware of the Ecological Solid Waste Management Act and the new Zero Waste ordinance in Bustos?

Are you doing things differently than you were before the act came into legislation?

What do you think would help environmental legislation to be more closely followed by businesses such as yours?

What do you think your role is in addressing these issues?

What sort of support do you receive (e.g. from the government) in environmental management?

What other types of support would be useful?
Appendix 3: Interview Guide for SME Employees

What is your sense of the situation of water quality? Environmental degradation?

How much is Environmental management and garbage disposal discussed at your workplace?

Does your workplace provide training on environmental issues?

How do you dispose of garbage today? Is that different from what you would do at home? Other places of work?

Have things changed over the years with regards to how garbage is managed?

What do you see as barriers or challenges to your workplace addressing environmental concerns?

Are you aware of the Ecological Solid Waste Management Act and the Zero Waste Ordinance of Bustos?

What do you think would help environmental legislation to be more closely followed by businesses such as the one you work in?

What do you think your role is in addressing these issues?

What sort of support do you receive (e.g. from the government) in environmental management?

What other types of support would be useful?
August 4, 2013

RE: UBC REB Approval # H12-01252

Dear Participant:

99.8% of enterprises in the Philippines fall into the category of small and medium-sized enterprises (SME). This is similar to other countries. The environmental impact of SME operations is not well known, though it is expected to be high (Hillary, 2000). The Philippines has much environmental legislation but there are many gaps in making it effective and it has been suggested that there is a lack of familiarity with the laws and a need for better understanding of why the laws are in place contributes to the problem for small businesses. Furthermore, growing industrialization and in-migration present significant demand on the Angat River Basin and water quality is at risk. Building on recent local climate change action planning work, this project will seek to look at conditions that enable environmental compliance in the hopes that the work might be used to help develop climate smart industry and build a culture of sustainability in Bustos. SMEs have a crucial and unique role to play in this movement. Your participation is being sought today for a short interview. The interview is meant to discuss waste disposal and sewage treatment practices and how different business approach environmental management.

The project is exploring:

What governs SMEs compliance with municipal, provincial, and national policies?  
What is the current state of SMEs environmental compliance?  
How is compliance happening?  
What are the hindering and enabling conditions for compliance?  
What opportunities exist to strengthen the current state of SMEs environmental compliance?

Your participation will take approximately half an hour to one hour for the interview with the researcher to discuss the questions outlined above and you may be contacted for a short follow up interview. Names of participants and participating businesses will be kept confidential and if I wish to quote you directly I will contact you to seek permission. Participation is voluntary and you may choose to withdraw your participation at any time.
This project is a component of a larger project looking at Collaborative Watershed Management for the Angat River and De La Salle University, Bulacan State University, and the Bulacan Provincial Government are key partners in the project. If you have any questions do not hesitate to let me know.

Sincerely,

Sarah Thomas
(Contact Information below)

CONTACT INFORMATION

Principle investigator:

Nora Angeles, Professor, School of Community and Regional Planning
Tel/Text: 044-896-1974  Landline: 044-795-0205  Email: nora.angeles@ubc.ca

Student Lead:

Sarah Thomas, Master’s student, School of Community and Regional Planning
Tel/Text: 0915-719-3851; e-mail: stinbc@gmail.com

Reference

Appendix 5: Ethics Consent Form - English

University of British Columbia
School of Community and Regional Planning
6333 Memorial Road
Vancouver, B.C., Canada V6T 1Z2
Tel: (604) 822-3276
Fax: (604) 822-3787


Principal Investigator
Leonora Angeles, Associate Professor, School of Community and Regional Planning, UBC Faculty of Applied Science; Tel/Text: 044-896-1974   Landline: 044-795-0205
Email: nora.angeles@ubc.ca

Co-Investigators
Atty. Rustico de Belen, Director, Bulacan Environment and Natural Resource Office (BENRO)
Ms. Arlene Pascual, Director, Provincial Planning and Development Office (PPDO)
Dr. Tony del Rosario, VP- Planning and Extension, Bulacan State University
Dr Emerlita Sebastian Naguiat, Director, Office of Research and Development, Bulacan State University
Dr Victoria Valenzuela, Director, Graduate School, Bulacan State University
Dr. Tim McDaniels, Professor, UBC School of Community and Regional Planning
Professor Aprodicio Laquian, Professor Emeritus, UBC School of Community and Regional Planning
Professor Peter Boothroyd, Professor Emeritus, UBC School of Community and Regional Planning
Professor Terry McGee, Professor Emeritus, UBC Department of Geography
Dr. Mark Stevens, Associate Professor, UBC School of Community and Regional Planning
Dr Leila Harris, Program on Water Governance, UBC Institute for Resources and Environmental Studies
Dr Mark Johnson, Program on Water Governance, UBC Institute for Resources and Environmental Studies
Dr Joselito Arocena, Canada Research Chair in Soil Engineering, University of Northern BC
Dr Nonita Yap, Professor, School of Environmental Design & Rural Development, University of Guelph
Ms. Sarah Thomas, Masters Student, UBC School of Community and Regional Planning

Institutional Partners
Provincial Government of Bulacan – Office of the Governor, BENRO, PPDO
Bulacan State University Office of Research and Development & Graduate School
De La Salle University Institute of Governance
UBC School of Community and Regional Planning & Centre for Human Settlements
UBC Program on Water Governance,
Purpose:

You are being invited to participate in the research component of above project because of your role with Small and Medium Enterprises in Bustos, Bulacan. This research will identify and analyse the system of relationships among political, economic, social and cultural factors supporting (or hindering) the regional institution-building and collaborative governance needed in urbanizing watersheds; generate knowledge about the kinds of collaborative action that could be taken by governments and civil society organizations to strengthen inter-jurisdictional governance for watershed sustainability and climate change adaptation.

Through this research partnership, we also want to strengthen ongoing connections among researchers, governments, and civic organizations for collaborative governance of watersheds and climate change adaptation efforts. We will assess what types of knowledge and capacities are useful to governments and civil society leaders as they enhance collaborative governance through institution-building, human resource development, and other means; 2) assess the means by which such knowledge and capacities can be generated and usefully shared to other regions, municipalities, and wider society.

Study Procedures:

You are being asked to participate in a 30-60-minute interview at a location that is convenient for you.

It is up to you if you want to participate. You can refuse to participate or withdraw from the research at any time. If you decide to participate, feel free to answer only the questions you feel comfortable answering. With your consent, the interview focus group will be tape-recorded. If tape-recording causes you any discomfort, notes can be taken instead. You may refuse to answer any questions if you are uncomfortable doing so.

Possible Risks:
A possible risk to participating in this research is feeling uncomfortable if you are asked a question that relates to a challenging situation in your community or something you want to keep private. Feel free to say that you do not want to answer any question if you are uncomfortable.

Possible Benefits:
A major benefit to participating in this research is for you to feel empowered from sharing your contributions to Enhanced capacity of local/provincial/regional government officials and civic leaders to contribute to collaborative governance and climate adaptation in Angat region and Bulacan province.

Confidentiality:

We guarantee your complete confidentiality in the interview, if you do not want your name or identity identified in the research report. During the research process, all documents and/or audio recordings from the focus group will be kept in a password-protected computer in the office of the PI or one of her co-investigators, or their graduate students. After the research is completed, the interview transcript will remain in the locked cabinet in the office. If you choose to not to be identified in the reports, your name
will be removed from any interview transcript [focus group documentation] and recordings of your voice will be erased from audio files, if created.

Contact for information about the research:
Please contact Leonora Angeles, Tel/Text: 044-896-1974, or BENRO office (791-8163, 791-8164) if you have any questions. If you have any concerns about your rights as a research subject and/or your experiences while participating in this study, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent:
Your participation in this study is completely voluntary. You may refuse to participate or withdraw from the study at any time without judgment. You do not waive any of your legal rights by signing this consent form. Your signature indicates that you received a copy of this consent form for your own records.
Your signature indicates that you consent to participate in the study.

________________________________________________________
Signature of the Research Participant

________________________________________________________
Printed Name of the Research Participant
Appendix 6: Ethics Consent Form - Tagalog

University of British Columbia  
School of Community and Regional Planning  
6333 Memorial Road  
Vancouver, B.C., Canada V6T 1Z2  
Tel: (604) 822-3276  
Fax: (604) 822-3787  
www.scarp.ubc.ca

PAGSANG-AYON SA PAKIKILAHOK SA PANANALIKSIK SA PROYEKTONG:

“Tulong-tulong na Pamahala ng mga Ilog at Daluyang-Tubig: Pinagsamang Pananaliksik at Pagtataguyod ng mga Lokal na Institusyon at Kapasidad Para sa Pangmatagalang Kaunlaran at Pagtugon sa Climate Change Related Risks sa Ilog Angat Basin, Bulacan, Pilipinas”

Pangunahing Mananaliksik na may mga Kasamang Istudyanteng nag-ma-Masters o Doktorado:
Leonora Angeles, Associate Professor, School of Community and Regional Planning, UBC Faculty of Applied Science; Tel/Text: 044-896-1974  Landline: 044-795-0205  
Email: norangeles@ubc.ca

Mga Kamahang Mananaliksik na may mga Kasamang Istudyanteng nag-ma-Masters o Doktorado:
Atty. Rustico de Belen, Director, Bulacan Environment and Natural Resource Office (BENRO)  
Ms. Arlene Pascual, Director, Provincial Planning and Development Office (PPDO)  
Dr. Tony del Rosario, VP- Planning and Extension, Bulacan State University  
Dr Emerlita Sebastian Naguiat, Director, Office of Research and Development, Bulacan State University  
Dr Victoria Valenzuela, Director, Graduate School, Bulacan State University  
Dr. Tim McDaniels, Professor, UBC School of Community and Regional Planning  
Professor Aprodicio Laquian, Professor Emeritus, UBC School of Community and Regional Planning  
Professor Peter Boothroyd, Professor Emeritus, UBC School of Community and Regional Planning  
Professor Terry McGee, Professor Emeritus, UBC Department of Geography  
Dr. Mark Stevens, Associate Professor, UBC School of Community and Regional Planning  
Dr Leila Harris, Program on Water Governance, UBC Institute for Resources and Environmental Studies  
Dr Mark Johnson, Program on Water Governance, UBC Institute for Resources and Environmental Studies  
Dr Joselito Arocena, Canada Research Chair in Soil Engineering, University of Northern BC  
Dr Nonita Yap, Professor, School of Environmental Design & Rural Development, University of Guelph  
Ms. Sarah Thomas, Masters Student, UBC School of Community and Regional Planning

Mga Ka-Partner na Institusyon:
Provincial Government of Bulacan – Office of the Governor, BENRO, PPDO  
Bulacan State University Office of Research and Development & Graduate School  
De La Salle University Institute of Governance  
UBC School of Community and Regional Planning & Centre for Human Settlements
UBC Program on Water Governance

Hangarin ng Pananaliksik:

Kayo po ay ina-anyayahan na makilahok sa aming pananaliksik sa naasaad na proyekto sa itaas dahil po sa iyong pangangatawan bilang [sabihin dito ang tungkulin ng pakikinayamin] sa “small and medium enterprises in Bustos, Bulacan. Ang pananaliksik pong ito ay (1) tatalakayin at susurin ang sistema ng relasyon o pakiki-pag-ugnayan ng mga pang-pulitikal, pang-ekonomiya, pang-kultural at pang-lipunang sangkap at mga aktor na maaaring sumuporta (o humadlang) sa pagsasagawa ng mga local, pambayan, Panglalawigan at pang-rehiyong institusyon para sa tulong-tulong na mamamahala ng Ilog Angat; (2) mangangalap ng mga datos at kaalaman ukol sa sama-samang pagkilos na kailangang gawin ng ating pamahalaan at mga organisasyong pang-tao upang makalikha at maitaguyod ang ating mga institusyon para maka-pagtulungan ang mamahalaan at taumbayan para sa ikagagaling ng ating ilog at iba pang daluyang-tubig at para sa ating paghahanda sa nagaganap na kakaibang pagbabago ng ating klima.

Sa pamamagitan po ng pananaliksik na ito, inaasahan rin naming mapapatibay ang kasalukuyang pakiki-pag-ugnayan ng mga mananaliksik sa pamantasan, mga opisyales ng pamahalaan, pang-sibikong organisasyon para sa tulung-tulong na mamamahala ng Ilog Angat at sa sama-samang pagkilos na kailangang gawin ng ating pamahalaan at mga organisasyong pang-tao upang (1) malaman natin at masuri ang mga kaalaman at kapasidad na kailangan ng ating pamahalaan sa barangay, bayan at lalawigan at ng taumbayan para sa ikagagaling ng ating ilog at iba pang daluyang-tubig at para sa ating paghahanda sa nagaganap na kakaibang pagbabago ng ating klima; at (2) masuri kung paano mapapalaganap ang mga kaalaman at kapasidad na ito upang maikatulungan pa sa ibang bayan, rehiyon o lalawigan matutulungan ng mga aral mula sa pag-aaral sa Ilog Angat.

Pamamaraan ng Pag-aaral:

Kayo po ay tatanungin upang lumahok sa isang pakikipanayam na tatagal mula 30 hanggang 60 minuto.


Posibleng Epekto:
Isang posibleng epekto po ng inyon pakibalik sa pananaliksik na ito ay ang inyong pagkakaroon ng pakiramdam na hindi komportable kung kayo ay tatanungin ng mga katanungan na may kaugnayan sa isang mahirap na sitwasyon sa iyong komunidad o isang bagay na nais mong panatilhin o pribado. Huwag mag-atubiling sabihin na hindi po ninyo na sa sagotin ang anumang mga katanungan.

Posibleng Benepisyo:
Isang pangunahing kapakinabangan sa mga kalahok sa pananaliksik na ito ay para sa iyo na sa tingin kapangyarihan mula sa pagbabahagi ng iyong mga kontribusyon sa Pinahusay na kapasidad ng mga lokal na / panlalawigan / pampook na mga opisyal ng pamahalaan at mga civic lider upang tumulong sa ng collaborative pamamahala at pagbagay ng klima sa ng Angat rehiyon at lalawigan ng Bulakan.

Pagiging Kompidensiyal:

Namin ginagarantiya ang iyong kumpletong pagiging kompidensiyal sa interbiyu, kung hindi mo nais ang iyong pangalan o pagkakakilanlan na kinilala sa ulat Gayunpaman, kung din mo ay tatanungin upang tumanggap ng kopya ng pananaliksik, ang lahat ng mga dokumento at / o mga audio recordings mula sa grupo ng focus ay na pinananatiling sa isang password-protected na computer sa opisina ng pay o isa sa kanyang co-investigators, o sa kanilang mga nagtapat na mag-aaral. Pagkatapos pananaliksik ay nakumpleto, ang mga transcript ng interbyu [focus group na papeles] ay mananatiling sa ang naka-lock na cabinet sa opisina. Kung pinili mong hindi na kinilala sa mga ulat, ang iyong pangalan ay tinanggal mula sa anumang transcript [papeles focus group] at recordings ng iyong boses ay nabura mula sa mga file na audio, kung nilikha.

Kontakin ang Mga Kinauukulan Tungkol sa Pananaliksik:

Kung kayo po ay may katanungan o gusting isagawa ang iyong pangalan sa kinauungkulan, hinggil sa pananaliksik na ito, maari pong kontakin si Dr Leonora Angeles, Tel/Text: 044-896-1974, or BENRO office (791-8163, 791-8164) if you have any questions. Kung mayroon po kayong iba pang isyu ukol sa inyo karapatan o karanasan bilang kalahok sa pananaliksik na ito, maari po ninyong kontakin and Research Subject Information Line sa UBC Office of Research Services, telepono 604-822-8598, o kung long distance, magpadala po ng e-mail sa: RSIL@ors.ubc.ca o tumawag nang toll free 1-877-822-8598.

Pagbibigay ng Pahintulot:

Ang iyong paglabahok sa pag-aaral na ito ay ganap na kusang-loob. Maaari mong tanggihan upang tumanggap ng kopya ng pananaliksik na ito, o bawin mula sa pag-aaral sa anumang oras nang walang paghatol. Hindi mo talikasan ang anumang sa iyong mga legal na mga karapatan o karanasan bilang kalahok sa pananaliksik na ito, maari po ninyong kontakin and Research Subject Information Line sa UBC Office of Research Services, telepono 604-822-8598, o kung long distance, magpadala po ng e-mail sa: RSIL@ors.ubc.ca o tumawag nang toll free 1-877-822-8598.

Ang iyong lagda ay nagpapahiwatig na ikaw ay nakatanggap ng isang kopya ng form na ito ng pahintulot para sa iyong kabilang mga talahan.

Ang iyong lagda ay ibaba ay patunay na kayo sa sumasang-ayong makilahok sa pag-aaral na ito.

____________________________________
Lagda ng Kinapanayam o Kalahok sa Pananaliksik
Petsa

____________________________________
Pangalan ng Kinapanayam o Kalahok sa Pananaliksik
Petsa
Appendix 7: Bustos Executive Legislative Agenda 2013

Office of the Mayor
Municipality of Bustos

Executive Order No. 36

A decree that defines seven (7) key result areas (KRAs) of the “ASENSO MAMAMAYAN NG BUSTOS” (“PROGRESSIVE PEOPLE OF BUSTOS”) 12-point agenda and their governing program cluster teams for greater and genuine participation of the people of Bustos in decision-making and implementation of projects and activities of the municipal government, and for other purposes.

WHEREAS, in the year 2010, the Executive-Legislative Agenda known as "Asenso Mamamayan ng Bustos" (“Progressive People of Bustos”) Comprehensive Development Plan which contains twelve (12) programs involving projects that will bring progress to the town/municipality;

WHEREAS, in the short term, many of its projects have been implemented, and the Municipality of Bustos is now moving into a new phase in order to continue the progress it has achieved; and this is only be possible with the help of more committed leaders;

WHEREAS, in order to facilitate the effective implementation of programs and projects, the twelve (12) program "Asenso Mamamayan ng Bustos" (“Progressive People of Bustos”) Comprehensive Development Plan will be divided into seven (7) Key Result Areas or KRAs to each of which will be assigned a Program Cluster Team for proper implementation;

WHEREAS, the Program Cluster Teams will serve as agents for greater coordination among municipal offices and their programs and projects, for government offices and employees to work closely together, for the elimination of duplication of programs and projects among municipal offices, for the review of programs that need improvement, for the discontinuity of projects that are deemed ineffective, and for the implementation of various innovations that will actually be experienced and enjoyed by every Bustosenyo home;

WHEREAS, through the Program Cluster Teams, the municipal government will be able to achieve its objective of promoting a participatory, collective and consultative governance that will result in effective and efficient leadership;

WHEREAS, also through the Program Cluster Teams, the people of Bustos (mga Bustosenyo), with the help of their representatives in civil society organizations or CSOs, will be empowered and will be given the opportunity to participate in the decision-making processes of the municipal government, as well as in the formulation, implementation and assessment of its programs and projects;
THEREFORE, I, ARNEL F. MENDOZA, with the powers vested upon me by law as the Mayor of Bustos, Bulacan, so order:

Section 1. The Seven (7) "Key Result Areas" or KRAs. – (a) the twelve (12) programs of the "Asenso Mamamayan ng Bustos" ("Progressive People of Bustos") Comprehensive Development Plan will be covered by the seven (7) Key Result Areas that will be handled and overseen by their respective Cluster Program Teams. The designated members of the Program Cluster Teams are presented in Annex A.

(b) The KRAs are as follows:

<table>
<thead>
<tr>
<th>Key Result Area (KRA)</th>
<th>12 Programs of &quot;Asenso Mamamayan&quot; (&quot;Progressive People&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Development Cluster</td>
<td>Support for the Elderly and People with Disabilities Citizen, Family and Women Action</td>
</tr>
<tr>
<td>2. Health Cluster</td>
<td>Health Care</td>
</tr>
<tr>
<td>3. Education, Arts, Culture and Tourism Cluster</td>
<td>Education as a Priority Beautiful Attractions in Bustos</td>
</tr>
<tr>
<td>4. Economic Development Cluster</td>
<td>Assistance to Investors and Workers Importance of Agriculture</td>
</tr>
<tr>
<td>5. Environment, Public Works, Peace and Order Cluster</td>
<td>A Peaceful and Orderly Community I am for the Environment</td>
</tr>
<tr>
<td>6. Youth, Recreation and Sports Cluster</td>
<td>Active and Happy Community</td>
</tr>
<tr>
<td>7. Governance and Public Administration Cluster</td>
<td>Good Governance in the Municipality Participatory Governance</td>
</tr>
</tbody>
</table>

Section 2. Scope of the "Key Result Areas" or KRAs. – Each Key Result Area or KRA has its own scope:

1. Social Development -- Includes all related programs, projects and activities that will improve the quality of life of people in all levels of society, especially those who are less fortunate and those who are deprived of their human rights. Its main focus is on rights-based approach to development.8

2. Health -- Includes all programs, projects and activities that will provide quality and effective public health services to every home and community. The formulation of health programs and projects will take into account the social determinants of health, such as environment, economy and government. Aside from providing health services, they will also establish a mechanism that will make every family and community capable of improving and maintaining their own health and wellbeing.

---

8 Focus of development shifts from servicing needs to building capacity of individuals and communities to understand, claim and fulfill their rights. In a human rights-based approach, human rights determine the relationship between individuals and groups with valid claims (rightsholders) and State and non-state actors with correlative obligations (duty-bearers). It identifies rights-holders and their entitlements and corresponding duty-bearers and their obligations, and works towards strengthening the capacities of rights-holders to make their claims, and the capacity of duty-bearers to meet their obligations.

3. **Education, Arts, Culture and Tourism** -- Includes all programs, projects and activities geared towards human development through the arts and education, whether formal or informal, and those which promote tourism for economic development and community-based management of tourism resources. The goal is to actively promote tourism and to open up employment opportunities for economic development.

4. **Economic Development** -- Includes all programs, projects and activities that will provide economic opportunities to the Bustosenyo (people from Bustos). The objective is to create jobs, to protect the interest of the workers, and to establish and maintain the agriculture sector as the main source of economic and food security.

5. **Environment, Public Works, Peace and Order** -- Includes all programs, projects and activities that will ensure a peaceful and orderly community which has sufficient infrastructure and facilities conducive for investment and livelihood. These will also ensure that the people are actively involved in environmental protection, promotion of anti-pollution campaigns, disaster preparedness, and the prevention of criminality.

6. **Youth, Recreation and Sports** -- Includes all programs, projects and activities that will strengthen and empower the youth as a sector and as a movement by promoting a variety of recreational activities and sports.

7. **Governance and Public Administration** -- Includes all programs, projects and activities that will improve governance at the municipal and barangay levels, advocate good governance to curtail corruption, and promote adherence to the principles of transparency, accountability and citizen engagement in local government.

---

**Section 3. Establishment of "Program Cluster Teams."** – Each KRA will have a Program Cluster Team which will consist of:

1. One (1) **Program Cluster Coordinator** designated by the Mayor;
2. **Representatives of civil society organizations (CSOs) and nongovernment organizations (NGOs) as members and partners**;
3. **Offices and staff of the Municipal Government as Staff Support**.

**Section 4. Additional Participation in the "Program Cluster Teams."** – At the discretion of a Program Cluster Team, it can get additional members from civil society organizations (CSOs) and nongovernment organizations (NGOs), as well as involve other municipal offices or staff, as may be required.

**Section 5. Duties of the "Program Cluster Teams."** – The duties of the Program Cluster Teams are as follows:

1. Set quantifiable targets and deliverables for each **Key Result Area** or KRA every year until 2016;
2. Set realistic and reasonable **Plan of Action** for the projects and activities;
3. Set up or establish appropriate budgeting guidelines and procedures for the implementation of the projects and activities;
4. Review and analyze the programs and projects stipulated in the "Asenso Mamamayan ng Bustos" ("Progressive People of Bustos") **Comprehensive Development Plan**;
5. Identify the projects that are proven to be effective and devise methods to further improve them;
6. Introduce new and innovative projects for each of the programs;
7. Consolidate the projects of the different Municipal Government offices to avoid duplication;
8. Implement, manage and assess the projects and activities, and
9. Ensure that the results of the projects will trickle down to every Bustosenyo (person from Bustos) home or to every sector of the community.

Section 6. Duties of the “Program Cluster Coordinators.” – The duties of the Program Cluster Coordinators are as follows:
1. Call a meeting of the Program Cluster Team at any time with the permission of the Mayor, and supervise these meetings;
2. Designate, if necessary, one (1) Assistant Program Coordinator to take over the supervision of Program Cluster Team meetings;
3. Lead the implementation of projects and activities of the Program Cluster Team from conceptualization to actual monitoring and evaluation of implemented projects;
4. Require offices under the Staff Support to perform various responsibilities for the implementation of projects and activities, with the approval of the Mayor or in accordance with what has been agreed upon by the Program Cluster Team; and
5. Ensure that the Program Cluster Team achieves its targets, meets its deliverables, submits regular reports to the Mayor at the end of each project or activity, and directly coordinates with the Mayor.

Section 7. Rights and Powers of CSOs and NGOs as members and partners. – As members of the Program Cluster Team, representatives of CSOs and NGOs can actively participate in the presentation of ideas and in decision making, especially where it involves the implementation of projects and activities of the Program Cluster Team. The Program Cluster Coordinator will ensure that their inputs will be given greater weight in the decision making process of the Program Cluster Team.

Section 8. Duty of the "Staff Support." – The offices and staff of the Municipal Government shall abide by the rules of the Program Cluster Team and shall provide the necessary technical support and assistance for the implementation of projects or activities. Together with the CSO- and NGO-affiliated members, they will participate and provide the necessary resources at every step of a program/project’s implementation process.

Section 9. Assignment of Technical Advisers. – The Mayor may assign to each Key Result Area or KRA technical advisers who can share their knowledge and experience in order to assist the Program Cluster Teams in the performance of their duties.

Section 10. Regular Meetings. – Each Program Cluster Team will schedule regular monthly meetings (or more frequent meetings, if necessary) to ensure that projects and activities contained in the Key Result Area or KRA are efficiently carried out.

Section 11. Flow of Tasks and Communications. – To ensure the smooth flow of tasks and communications, the Program Cluster Team and the Municipal Government offices shall adhere to two (2) approaches of the Work Flow:
Section 12. Schedule of Activities or "Plan of Action." — (a) Each Program Cluster Team will make a schedule of activities or Plan of Action for its Key Result Area or KRA from 2013 to 2016, the implementation of which will be spread over the 4-year period. Below is the suggested format:

(b) The Plan of Action will be decided upon by the Project Cluster Team and will be presented to the Mayor for approval. This will be the basis of the Municipal Planning and Development Office in making its Local Development Investment Program and Annual Investment Plan every year.

Section 13. Budgeting. — The projects and activities for each Key Result Area or KRA will be determined by the Program Cluster Team and will be incorporated in its Plan of Action. The set budget will be presented by the Local Finance Committee at the yearly budget hearing of the Municipal Government.

Section 14. Revised "Project Proposal" Format. — Projects or activities that are NOT CONTAINED in the Plan of Action but need to be implemented will be presented in a Project Proposal which will be reviewed and decided upon by the Program Cluster Team. The Program Cluster Team will submit the same to the Mayor for approval. The project proposal must be prepared according to the format presented in Annex B.
Section 15. Reporting After Project/Activity Implementation. – Within ten (10) days after the completion of a project or activity, the Program Cluster Team shall submit to the Mayor a Project Evaluation Report. The report must be prepared according to the format presented in Annex C.

Section 16. Annual Evaluation. – At the end of each year, the Mayor will require an Annual Evaluation of the projects and activities of each Program Cluster Team to determine whether targets and deliverables are being met for each Key Result Area or KRA.

Section 17. Amendment to Clause. – All executive and administrative issuances, memorandum orders, or parts thereof, which are inconsistent with the provisions of this Executive Order, are hereby repealed or modified accordingly.

Section 18. Separability Clause. – If any provision of this Executive Order is declared invalid or unconstitutional, the other provisions not affected thereby shall remain valid and subsisting.

Section 19. Effectivity. – This Executive Order shall take effect upon signing.

Done in the Municipality of Bustos, Bulacan, this 24th day of May 2013.

ARNEL F. MENDOZA
Mayor

Sourced from the Office of the Mayor, Bustos, Bulacan, Philippines.
Translated by Linda Torio,
July 2013