

EDUCATION FOR DISASTER RISK REDUCTION:
THE CASE OF THE 'CLIMATE CHANGE ACADEMY' IN ALBAY PROVINCE,
PHILIPPINES

Miss Claudine Claridad Tanvir



จุฬาลงกรณ์มหาวิทยาลัย

CHULALONGKORN UNIVERSITY

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ ที่ส่งผ่านทางบัณฑิตวิทยาลัย

The abstract and full text of theses from the academic year 2011 in Chulalongkorn University Intellectual Repository (CUIR)
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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Arts Program in International Development Studies

Faculty of Political Science

Chulalongkorn University

Academic Year 2014

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การให้การศึกษาเพื่อลดความเสี่ยงจากภัยพิบัติ:
กรณีศึกษาด้านการเปลี่ยนแปลงสภาพภูมิอากาศในจังหวัดอัลไบประเทศฟิลิปปินส์



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาการพัฒนาระหว่างประเทศ
คณะรัฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2557
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title	EDUCATION FOR DISASTER RISK REDUCTION: THE CASE OF THE 'CLIMATE CHANGE ACADEMY' IN ALBAY PROVINCE, PHILIPPINES
By	Miss Claudine Claridad Tanvir
Field of Study	International Development Studies
Thesis Advisor	Carl Middleton, Ph.D.

Accepted by the Faculty of Political Science, Chulalongkorn University in
Partial Fulfillment of the Requirements for the Master's Degree

..... Dean of the Faculty of Political Science
(Associate Professor Ake Tangsupvattana, Ph.D.)

THESIS COMMITTEE

..... Chairman
(Professor Surichai Wungaeo, Ph.D.)

..... Thesis Advisor
(Carl Middleton, Ph.D.)

..... External Examiner
(Associate Professor Edsel Sajor, Ph.D.)

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

คลอดิน คลาริคาด ทานวีร์ : การให้การศึกษาเพื่อลดความเสี่ยงจากภัยพิบัติ:กรณีศึกษาสถาบันการเปลี่ยนแปลงสภาพภูมิอากาศในจังหวัดอัลไบประเทศฟิลิปปินส์ (EDUCATION FOR DISASTER RISK REDUCTION: THE CASE OF THE 'CLIMATE CHANGE ACADEMY' IN ALBAY PROVINCE, PHILIPPINES) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: คาร์ล มิคเคิลสัน, หน้า.

เนื่องจากในหลายปีที่ผ่านมา ความเสี่ยงจากภัยพิบัติทางธรรมชาติ เช่นพายุไต้ฝุ่นที่โจมตีฟิลิปปินส์ มีตัวเลขสูงขึ้นเรื่อย ๆ ซึ่งเป็นที่น่ากังวลในหมู่ผู้ดำเนินงานในโครงการจัดการภัยพิบัติทางธรรมชาติ โดยเฉพาะในจังหวัดอัลไบ ซึ่งเป็นจังหวัดที่มีความเสี่ยงจากพายุไต้ฝุ่นสูงในประเทศฟิลิปปินส์ การออกกฎหมายในระดับชาติและท้องถิ่นเริ่มตระหนักถึงความสำคัญและการหาทางแก้ไขปัญหาดังกล่าวโดยวิธีการเพิ่มขีดความสามารถให้กับหน่วยงานราชการท้องถิ่น เพื่อลดความเสี่ยงจากภัยพิบัติทางธรรมชาติ และเพิ่มความสามารถในการปรับตัวในชุมชนต่าง ๆ ในจังหวัดอัลไบ จุดประสงค์สำหรับวิทยานิพนธ์ฉบับนี้ เพื่อศึกษาผลงานของ “สถาบันการอบรมและจัดการลดความเสี่ยงจากภัยพิบัติทางธรรมชาติ และการปรับตัวกับการเปลี่ยนแปลงของสภาพภูมิอากาศ” หรือที่รู้จักกันในนาม “สถาบันการเปลี่ยนแปลงสภาพภูมิอากาศ” ที่มีผลต่อกระบวนการลดความเสี่ยงจากภัยพิบัติ (Disaster Risk Reduction) เพื่อสร้างความสามารถในการปรับตัวให้กับชุมชนในจังหวัดอัลไบ

วิทยานิพนธ์ฉบับนี้ใช้แนวคิดเกี่ยวกับ รูปแบบการเปลี่ยนแปลงในด้านสังคม-สิ่งแวดล้อม และพฤติกรรมองค์กร เพื่อวัดปัจจัยที่ส่งผลกระทบต่อเปลี่ยนแปลงพฤติกรรมของคณะผู้ทำงานในหน่วยงานราชการท้องถิ่น ผู้ให้การอบรมและสร้างความเปลี่ยนแปลงในสภาพที่ทำงานจากของโครงการอบรม โดยวิทยานิพนธ์ฉบับนี้อธิบายการเปลี่ยนแปลงเหล่านั้นโดยใช้แนวคิดเกี่ยวกับการให้การศึกษาด้านการลดความเสี่ยงจากภัยพิบัติ (Education for Disaster Risk Reduction-EDRR) เพื่อศึกษาว่าโครงการจัดอบรมของสถาบันดังกล่าวจัดขึ้นอย่างไร เพื่อให้ได้มาซึ่งผลที่พึงพอใจโดยใช้แนวคิดเกี่ยวกับ การให้การศึกษาด้านการลดความเสี่ยงจากภัยพิบัติ และแนวคิดเรื่องวัฒนธรรม เพื่อวิเคราะห์พัฒนาการของรูปแบบการอบรมของสถาบันดังกล่าว การเก็บข้อมูลส่วนใหญ่ได้มาจากการตามรอยศึกษาของอดีตผู้เข้าร่วมอบรม 11 คน และการสัมภาษณ์เชิงลึกจากบุคคลต่าง ๆ 12 คนที่เกี่ยวข้องทั้งทางตรงและทางอ้อมเกี่ยวกับสถาบัน

ข้อค้นพบหลักของวิทยานิพนธ์ฉบับนี้ชี้ให้เห็นว่าการพัฒนารูปแบบการอบรมขึ้นอยู่กับประสบการณ์หลาย ๆ ด้านจากการเผชิญภัยพิบัติในจังหวัดอัลไบ ผ่านการชี้แจงจากองค์กรการจัดการและลดความเสี่ยงจากภัยพิบัติทางธรรมชาติ และข้อเสนอว่าโครงการอบรมที่ดำเนินการโดยสถาบันดังกล่าว และการเปลี่ยนแปลงเชิงพฤติกรรมในเชิงบวกที่แสดงให้เห็นชัดนั้นมีส่วนช่วยอย่างมากทั้งในด้านส่วนตัว ในฐานะสมาชิกของชุมชน และในทางปฏิบัติภารกิจ ในฐานะราชการท้องถิ่นในจังหวัดอัลไบด้วย อย่างไรก็ตาม ในสถานการณ์จริง การเปลี่ยนแปลงพฤติกรรมถูกค้นพบในระดับหมู่บ้านเท่านั้นที่ซึ่งเจ้าหน้าที่ท้องถิ่นเป็นผู้ตอบสนองต่อภัยพิบัติเป็นคนแรก ผลการดำเนินงานของโครงการอบรมจากสถาบันดังกล่าวในแง่ของการให้การช่วยเหลือเพื่อบรรเทาภัยพิบัติที่ร้ายแรง และโครงการพัฒนาวัฒนธรรมเกี่ยวกับลดความเสี่ยงจากภัยพิบัติขึ้นอยู่กับทรัพยากรทั้งด้านการเงิน และศักยภาพทางเทคนิคซึ่งมีสำคัญในการรับรองการปฏิบัติการณ์อย่างมีประสิทธิภาพของสถาบัน วิทยานิพนธ์ฉบับนี้จึงสรุปว่าสถาบันในฐานะสถาบันฝึกอบรมได้มีส่วนในกระบวนการ ลดความเสี่ยงจากภัยพิบัติ โดยรวมในการสร้างการฟื้นฟูชุมชนในจังหวัดอัลไบ และในการกำหนดประเด็นโดยรวมของ การศึกษาด้านการลดความเสี่ยงจากภัยพิบัติทั้งในระดับชาติและระดับโลก



ACKNOWLEDGEMENTS

This thesis has been the product of a challenging yet rewarding journey with the help of many wonderful people. This research has been supported by the Ratchadaphiseksomphot Endowment Fund of Chulalongkorn University (RES560530225-HS).

I am deeply thankful to my thesis supervisor Dr. Carl Middleton, my external examiner Dr. Edsel Sajor and my thesis committee chair Dr. Surcikai Wun'gao for their wisdom, critical insights and guidance. I would have not finished my thesis without their support and dedication. My appreciation also goes to Dr. Úrsula Oswald Spring, Dr. Hans Günter Bruch, Dr. Prapaporn Tivayanond, and Dr. Jose Roberto Guevara for providing insightful comments towards the development of my thesis proposal.

I would also like to thank Dr. Naruemon Thabchumpon and the programme team composed of Khun Bass, Khun Oh, Khun Boyne and Khun Jeab, and my classmates in MAIDS for making this journey amazing, fun, and unforgettable.

To my informants in the field, who are too many to name here, thank you very much for your time and wisdom. To Kuya Jun, Ate Bam and their son Mikoy, thank you for hosting me during my fieldwork.

I would also like to thank my friends in ASPBAE especially Maria, Rene, Raquel, Thea and Anita for supporting me in many ways to achieve my dreams.

To my family in the Philippines and in Bangladesh, especially to my Mom and Dad, and my siblings Jessica and Jeremy, thank you for always supporting me. To my sister Geraldine who moved to Bangkok with me and took care of my son while I finish my masters, I cannot thank you more than enough.

Last but not the least, I thank the two boys in my life, my husband Tanvir and my son Jibril to whom I dedicate this thesis. You are my greatest inspiration and anchor to my aspirations in life.

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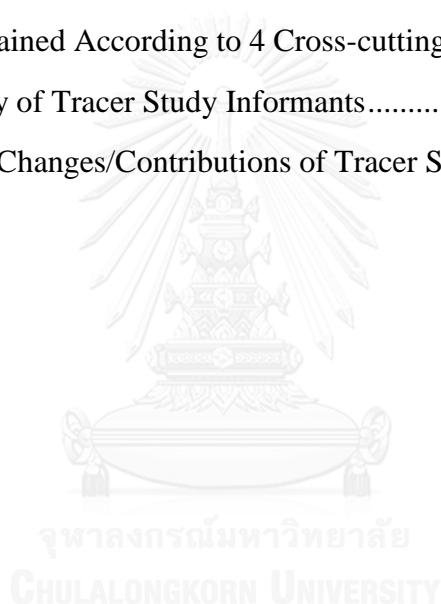
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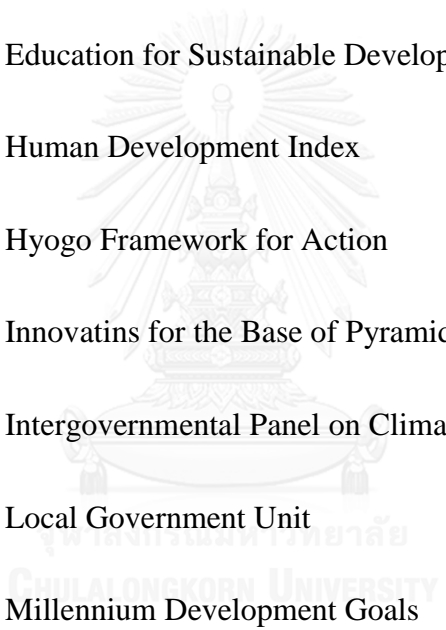
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LIST OF ACRONYMS AND ABBREVIATIONS

ACCU	-	Asia-Pacific Cultural Centre for UNESCO
AECID	-	Agencia Española de Cooperación Internacional para el Desarrollo (Spanish Agency for International Development Cooperation)
AMDGO	-	Albay Millennium Development Goals Office
APSEMO	-	Albay Public Emergency and Safety Management Office
ASoG	-	Ateneo School of Government
BDRRMC	-	Barangay Disaster Risk Reduction and Management Committee
BU	-	Bicol University
CBDRRM	-	Community-based Disaster Risk Reduction and Management
CCA	-	Climate Change Adaptation
CCADRRMTI-	-	Climate Change Adaptation and Disaster Risk Reduction and Management Training Institute (formerly Climate Change Academy)
CDP	-	Center for Disaster Preparedness
CIRCA	-	Centre for Initiative and Research for Climate Adaptation
CLUP	-	Comprehensive Land Use Plan
DENR	-	Department of Environment and Natural Resources (Philippines)



DILG	-	Department of the Interior and Local Government
DRMO	-	Disaster Risk Management Office
DRR	-	Disaster Risk Reduction
DRRM	-	Disaster Risk Reduction and Management
EDRR	-	Education for Disaster Risk Reduction
EFA	-	Education for All
ESD	-	Education for Sustainable Development
HDI	-	Human Development Index
HFA	-	Hyogo Framework for Action
iBoP Asia	-	Innovatins for the Base of Pyramid Asia
IPCC	-	Intergovernmental Panel on Climate Change
LGU	-	Local Government Unit
MDG	-	Millennium Development Goals
MDRRMC	-	Municipal Disaster Risk Reduction and Management Council
NDRRMC	-	National Disaster Risk Reduction and Management Council
NDRRMP	-	National Disaster Risk Reduction and Management Plan
NGO	-	Non-Governmental Organisation
NSCB	-	National Statistical Coordination Board (Philippines)
OCD	-	Office of Civil Defense (Philippines)

PAGASA	-	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PDRRMC	-	Provincial Disaster Risk Reduction and Management Council
PGA	-	Provincial Government of Albay
PHIVOLCS	-	Philippine Institute of Volcanology and Seismology
SB	-	Sangguniang Barangay (Village Council)
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
UNFCC	-	UN Framework Convention on Climate Change
UNISDR	-	United Nations International Strategy for Disaster Risk Reduction
UPLB	-	University of the Philippines – Los Baños

CHAPTER I

INTRODUCTION

The Province of Albay has been identified as one of the most vulnerable to disasters provinces in the country according to the recent data released by the Department of Environment and Natural Resources (DENR) and the Manila Observatory (Center for Environmental Geomatics - Manila Observatory, 2005).

Bounded on the east by the Pacific Ocean, on the northwest by the Lagonoy Gulf and on the west and southwest by Burias Pass, Albay with a population of 1.2 million (2010 Census) is no wonder prone to climate related disasters with three to five major typhoons that hit every year resulting to mudflows, storm surges, flooding, and landslide. Situated also along the Pacific Ring of Fire, it has a very high risk of exposure to volcanic eruptions due to Mount Mayon's active volcanic activities that may threaten the communities of three cities and municipalities of Albay. Because of its geographic location, tsunami is a huge threat to people as Albay is surrounded by 364-kilometre long coastlines that can affect around 300,000 people.

It is not surprising to know that Albay has been labelled by its own Governor Joey Sarte Salceda as the 'Vatican of Disasters'¹ considering the climatological and geophysical hazards that pose enormous risks to the province, as shown in Table 1.

¹ No given explanation but can be assumed that it is related to Governor's beliefs being a devout Catholic

Table 1. Disaster Ranking in Albay

Type of Disaster Risk	Type of Hazard	Ranking
Climate Weather Related	(Historical) Typhoons	5 th
	(Projected) Rainfall Increase	1 st
	(Projected) Temperature Increase	16 th
	(Historical) El Nino	54 th
Geophysical (History)	Earthquake-Induced Shallow Landslides	1 st
	Earthquakes	59 th
	Tsunami	1 st
	Volcanic Eruptions	2 nd

Source: Salceda, 2013. Powerpoint presentation made during the Global Public Innovations Conference, 3 October 2013, Quezon City, Philippines, p. 7.

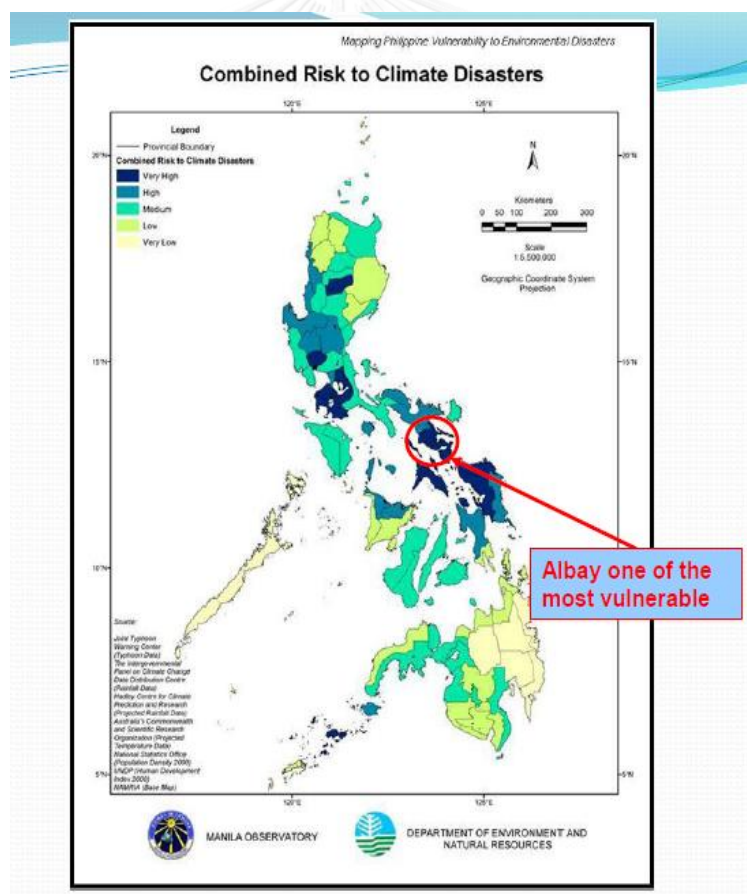
Disaster risks and vulnerabilities of Albay, therefore, includes climate weather related risks such as typhoon, rainfall increase, El Niño, and temperature increase and geophysical hazards such as earthquake induced landslides, earthquakes, tsunami, and volcanic eruptions (J. S. Salceda, 2012). These risks and hazards are a constant threat to the poor population of Albay which trap them in a cycle of disaster and poverty (Oxfam GB, 2013). This is without mentioning that the Philippines is ranked second among the top 10 most affected countries in the world according to the Climate Risk Index for 2012 (Kreft & Eckstein, 2013), a notch below earthquake devastated and poverty stricken Haiti.

Apart from the environmental aspect of vulnerabilities, Albay is also challenged by persistent poverty. According to the official poverty statistics released by the national government, poverty incidence among families in Albay has increased from 30.2% in 2009 to 33.9% in 2012. This provincial figure which is way above the national average of 19.7% has not been changed that much since 2006 when poverty²

² Poverty as a social indicator is defined by the Philippine government as the condition in which the basic food and non-food needs are not being met by an individual or a family. Income of a household/family (with 4-5 members) which fall below the national average of USD 183 (PhP 7,890) is categorised as poor. Non-food needs pertain to other household expenses on education, health, housing, clothing, transportation, electricity, leisure, and technology.

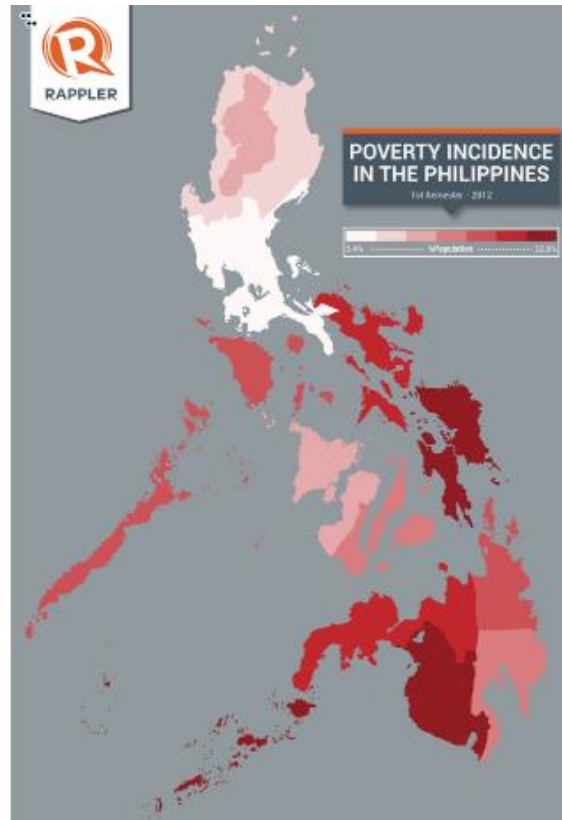
incidence was posted at 28.7%. In a national scale, Bicol (Region V), where Albay is located, is historically among the poorest regions in the Philippines (National Statistical Coordination Board (NSCB), 2013). This can be explained by the constant threat and destruction of disasters to the source of livelihoods of a large portion of the Albay population which are mainly based on agriculture, fisheries and ecotourism. This traps the poor in a cycle of (increased) poverty and disaster (Oxfam GB, 2013) – a tremendous challenge which the government of Albay hopes to overcome through building community resilience (J. S. Salceda, 2012), Figure 1 and Figure 2 below captures the vulnerabilities of Albay to disasters.

Figure 1. Combined Risks to Climate Disasters



Source: (Center for Environmental Geomatics - Manila Observatory, 2005)

Figure 2. Poverty in the Philippines



Source: (National Statistical Coordination Board (NSCB), 2013)

It is this context of environmental and social vulnerability that the Government of Albay and other stakeholders have been addressing these issues to alleviate poverty and to mitigate the impacts of natural hazards through innovative approaches to development. The government has institutionalised policies and practices on disaster risk reduction (DRR) and climate change adaptation with specific programmes and budget allocation, many of which can be considered innovative.

In 2008, Albay was declared a 'Global Local Government Unit (LGU) Model for Climate Change Adaptation' by the UN Office for Disaster Risk Reduction (UNISDR) and the World Bank due to its strategic goal of maintaining 'Zero Casualty' target during extreme weather events. This goal has been maintained until

today except in 2011 when Typhoon Juaning (international name: Nock-Ten) left 77 deaths in the Bicol Region, including Albay Province, and billions of pesos worth of damages in infrastructure and agriculture. Albay was also the first province to integrate the laws on disaster risk reduction and management (RA 10121 or the Philippine DRRM Act of 2010³) and on climate change adaptation (RA 9729 or the Climate Change Commission Law of 2009⁴) into its local government policies and programmes. Both laws that are practiced at the local level are aligned to Albay's commitment to achieve the Millennium Development Goals (MDGs) and the Hyogo Framework of Action⁵.

To demonstrate its innovative stance, Albay has established the Albay Public Emergency and Safety Management Office (APSEMO), provincial MDG Office (Albay MDGO) and the Centre for Initiatives and Research for Climate Adaptation (CIRCA), the first of their kinds in the country, to particularly give attention to disaster risks, poverty, and climate change issues, respectively.

In its vision to improve the quality of life of its people through sustainable development and resilience, Albay has been proactively partnering with educational institutions, local and international non-governmental organisations (NGOs), various government agencies and departments, and private/business sectors in its development projects. In terms of good governance in implementing the MDGs, for example, Tabaco City in Albay has forged partnerships with Social Watch Philippines, Philippine Rural Reconstruction Movement (PRRM), and the UN Millennium Campaign from the civil society group as well as telecommunication companies such as Smart and Globe through an innovative feedback mechanism based on using mobile phones. In the same city, Albay also works with PRRM in its disaster risk

³ Republic Act (RA) 10121 or the "Philippine Disaster Risk Reduction and Management Act of 2010" is a law that institutionalises the strengthening of the country's DRR and DRM system by providing a national framework, plan, and funds for its implementation from the local to national levels.

⁴ Republic Act (RA) 9729 or the "Climate Change Act of 2009" is a law that aims to mainstream the concept of climate change into government policies, establish a framework strategy and programs on climate change, and create a Climate Change Commission that will address the vulnerabilities of the Philippines and its people.

⁵ Hyogo Framework for Action (HFA) is a 10-year plan agreed by the international community to "Building the Resilience of Nations and Communities to Disasters". HFA was endorsed by the UN General Assembly following the 2005 World Disaster Risk Reduction Conference in Hyogo, Japan.

reduction and management programmes particularly on reducing vulnerabilities of communities affected by disasters.

Inspired by its recognition in disaster risk management and the mandate to serve the people, Albay government including its partners are piloting an education initiative called the ‘Climate Change Academy’ which has now been transformed into ‘Climate Change Adaptation and Disaster Risk Reduction and Management Training Institute’ (CCADRRMTI)⁶ under the auspices of CIRCA, the first in Philippines and in South East Asia, to develop and strengthen the theoretical knowledge and practical skills of major local stakeholders, especially the local government units, that will address the risks and vulnerabilities of the people. The Academy is envisaged to contribute to the over-all national effort to fast track the development of climate change adaptation and disaster risk reduction capacities towards building resilience of vulnerable localities and their vulnerable groups/sectors (MDG Achievement Fund Website).

1.1 Statement of the Problem

The recurrence of natural hazards in the Philippines in general exposes the weaknesses of systems and structures of and tests the quality of disaster risk reduction and management (DRRM) programmes which are aimed to reducing the adverse impacts of hazards to the lives and livelihoods of the people. The DRRM continuum – which brings together four thematic areas namely on prevention and mitigation, preparedness, response, and rehabilitation and recovery – requires knowledge and skills to carry out an effective plan on disaster risk reduction, especially in risk areas such as Albay.

Without doubt, education brings out a positive effect on reducing risks and vulnerabilities of peoples and communities (Asia-Pacific Cultural Centre for UNESCO (ACCU), 2011; Fazey et al., 2007; Huckle & Sterling, 1996; Nathe, 2000;

⁶ For purpose of brevity, ‘the Academy’ will be used to refer to the complete name of the training institute.

L. Polotan-dela Cruz, Ferrer, & Pagaduan, 2010; UNISDR, 2005). It has been regarded as a key feature in disaster risk reduction and management (DRRM) as articulated in the Hyogo Framework for Action (HFA 2005-2015), a global blueprint agreed by 168 national governments in 2005 to catalyse and institutionalise a process to establish the culture of safety and resilience in and among nations and communities (UNISDR, 2005). As UNESCO explained, the role of education for disaster risk reduction (EDRR) aims to ‘develop a resilient population that is able to reduce the economic, social, and cultural impacts should a hazardous event occur,’ and ‘save lives and prevent injuries should a hazard occur’ (UNESCO Website).⁷ Further, global measures to combat poverty especially notably the United Nations MDGs when integrated in the Hyogo Framework builds a stronger foundation for disaster risk reduction and resilience building.

The purpose of this thesis, therefore, is to analyse the contribution of professional and life skills education for local government units on disaster risk reduction processes and resilience building initiatives by looking at the case of the Academy in the Province of Albay. While Albay has been recognised as a model in DRR, it would be worthy to evaluate the process the training module has gone through in terms of its development and preparation to make sure that it is useful and accessible to the public. The capacities gained by the participants and the changes in their personal behaviour and in their workplace policy and programmes as a result of the training are also determined in this thesis. Finally, the thesis was able to identify barriers and opportunities in its programme implementation in order to evaluate whether these have affected the Academy in terms of achieving its set goals and its eventual expansion to other risk areas in the Philippines that will carry out the innovative practices that are proven effective in Albay.

⁷ Another role of EDRR as pointed out by UNESCO is to prevent interruptions to the provision of education, or ensure its swift resumption in the event of interruption.

1.2 Conceptual Framework

In Section 1.2.1, the themes of hazards, disasters, risks, vulnerability, and resilience are discussed. In Section 1.2.2, the concept of Education for Disaster Risk Reduction (EDRR) is explained to highlight its role in DRR and resilience building. The discussion on the innovation concept is described in Section 1.2.3 to articulate its function in the formulation of education and training programmes. Meanwhile in Section 1.2.4, the themes of attitude, behaviour, and behaviour change is discussed to describe the reinforcing concepts that lead to change. Lastly, in Section 1.2.4, organisational behaviour is discussed to describe the interactions between the organisation and the individuals in organisational settings.

1.2.1 Hazards, Disasters, Risks, Vulnerability, and Resilience

The appreciation of disaster risk reduction and management initiatives should be contextualised in a manner by which concepts of hazards, risks, vulnerability and resilience are understood. These four concepts are so closely linked together that one usually uses these interchangeably despite their distinct characterisations. It is therefore imperative to define these concepts in the context of disasters.

To begin with, **hazard** as defined by Alexander (2007) is an extreme geophysical event that is capable of causing a disaster. He further explained that a natural hazard like typhoons may transform into disasters that lead to massive loss of lives and livelihood. The causal relationship of hazards and disasters are further explained by Tobin and Montz (1997) who argued that the former represent the potential occurrence of extreme natural events, or likelihood to cause severe adverse effects, while the latter result from actual hazard events. Plainly speaking, a hazard is a threat not the actual event (Paul, 2011).

Disaster, on the other hand, is defined as threats to people and their welfare (Paul, 2011) that lead to loss of lives and livelihood. In a much earlier definition of Burton and Kates (1964), however, consider disasters as abrupt shocks to the socio-

economic and environmental system of the society. The impact of disasters, therefore, may vary to different societies especially when preparation and mitigation mechanisms are weak that expose the people and the communities to risks and vulnerabilities.

Risk has been broadly defined as the ‘likelihood or probability of hazard occurrence of a certain magnitude’ or simply put as the ‘likelihood of an event occurring multiplied by the consequences of that event’ (Paul, 2011, p. 95). To be able to link the vulnerability concept to risk, Van Dissen and McVerry (1994) and Twigg (1998) defined the latter as the likelihood of hazard occurrence multiplied by vulnerability (Paul, 2011).

Vulnerability is defined by Wisner, Blaikie, Cannon, and Davis (2004) as ‘the characteristics of a person or a group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of natural hazard (an extreme natural event or process)’ (p. 11). They further argued that vulnerability involves varying magnitudes that are influenced by socio-economic status determined by class, wealth, occupation, caste, ethnicity, gender, disability and health status, age and immigration status, and the nature and extent of social networks (Wisner et al., 2004). In other words, vulnerability is defined as the ‘nexus that links the relationship that people have with their environment to social forces and institutions and the cultural values that sustain or contest them’ (Oliver-Smith, 2004, p. 10; Paul, 2011, p. 70).

Having said all these, **disaster risk** therefore is the outcome of hazards and vulnerabilities combined (World Vision International, 2009). This may be decreased however by increasing the capacity of the social-economic, political and environmental systems that will enable at-risk communities and vulnerable groups to find a better chance to confront the adverse effects of hazards.

Lastly, as a measure to address risks and vulnerabilities, **resilience** is defined as ‘the ability of social units (e.g., organizations, communities) to mitigate hazards, contain the effects of disasters when they occur, and carry out recovery activities in

ways that minimize social disruption and mitigate the effect of future disasters' (Bruneau et al., 2003; Paul, 2011, p. 87).

1.2.2 Education for Disaster Risk Reduction (EDRR)

Education and knowledge management as one of the key priority areas articulated and codified in the Hyogo Framework for Action (HFA) 2005-2015: Building Resilience of Nations and Communities to Disasters has been recognised by nations as an important feature in disaster risk reduction and resilience building especially in countries vulnerable to disasters.

As UNESCO puts it, the role of education for disaster risk reduction strategies are deemed important to 1) save lives and prevent injuries should a hazard occur, 2) prevent interruptions to the provision of education, or ensure its swift resumption in the event of an interruption, and 3) develop a resilient population that is able to reduce the economic, social and cultural impacts should a hazardous event occur (UNESCO Website). **Education for Disaster Risk Reduction (EDRR)** therefore operates under the broader framework of Education for Sustainable Development (ESD). ED RR underscores 'the relationships between the society, environment, economy, culture and their impacts' (UNESCO Website) and explains how these relationships can affect the well-being of the people.

1.2.3 Innovation

Another lens in analysing education programmes in DRR is the use of innovative approaches in its content design and practice. As Spence (2008) put it, **innovation** is defined as 'the use of new ideas, technologies or ways of doing things, in a place where, or by people for whom, they have not used before' (iBoP Asia, 2012, p. 3). Taking the case of Albay which is at a constant threat to natural hazards not to mention persisting issues on poverty; innovation becomes a useful strategy in finding solutions to confronting issues on risks and vulnerabilities and finding ways to

building resilience of communities in a manner that is effective, efficient and appropriate to the local context.

1.2.4 Attitude, Behaviour and Behaviour Change

In order to understand behaviour change, it is necessary to define individual concepts such as attitude and behaviour which are considered to be mutually reinforcing and have oftentimes overlapping definitions.

To begin with, **behaviour** as commonly defined ‘is the way in which one acts or conducts oneself, especially towards others’ (Oxford Dictionaries Website). On the other hand, **attitude** is defined as ‘a settled way of thinking or feeling about someone or something, typically one that is reflected in a person’s behaviour; mental state’ (Oxford Dictionaries Website).

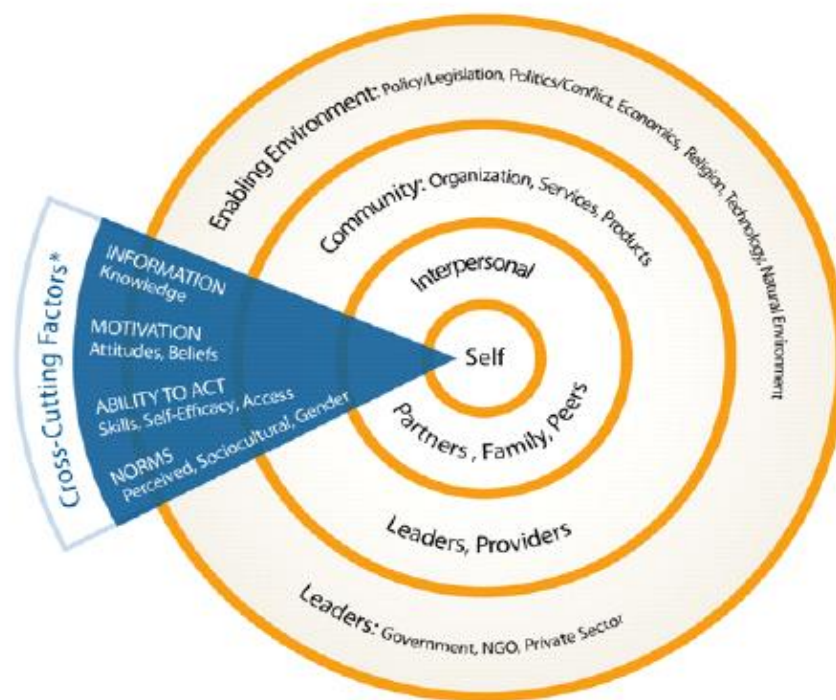
The interlocking concepts of **behaviour** and **attitude** have been argued by Lockton (2012) when he stressed that ‘that attitudes are the main determinant of behaviour, and that they precede behaviours’ (p. 1). He further argued that ‘changing minds’ will lead to ‘changing deeds’, which in some way implies that attitude change is conflated with behaviour change (Lockton, 2012).

1.2.5 Organisational Behaviour

It is also necessary to include in the analysis the organizational behaviour of the workplace where individual/personal behaviour is framed within his/her interaction with organization and vice versa. According to Moorhead and Griffin (1995) **organisational behaviour** (OB) is the ‘study of human behavior in organizational settings, how human behavior interacts with the organization, and the organization itself’ (p. 4). The political dynamics in the government, in the case of Albany for example, can be strong determinants for personal behaviour and policy changes and can therefore affect the effectiveness of programmes both in the community and provincial levels. The social structures that are in place that

implement and contribute to the education programme for disaster risk reduction in Albay will be taken in consideration so that necessary conditions in identifying opportunities and obstacles in maximising impact of the Academy's objectives is contextualised. To further illustrate this, Figure 3 below describes how changes in personal behaviour are influenced by cross-cutting factors on information and knowledge, motivation, ability to act, and social norms that are manifested from the larger environment and to self. As noted in the illustration, this may also apply in determining the policy and programme changes within the individual's workplaces as a desired outcome of the intervention such as training and education.

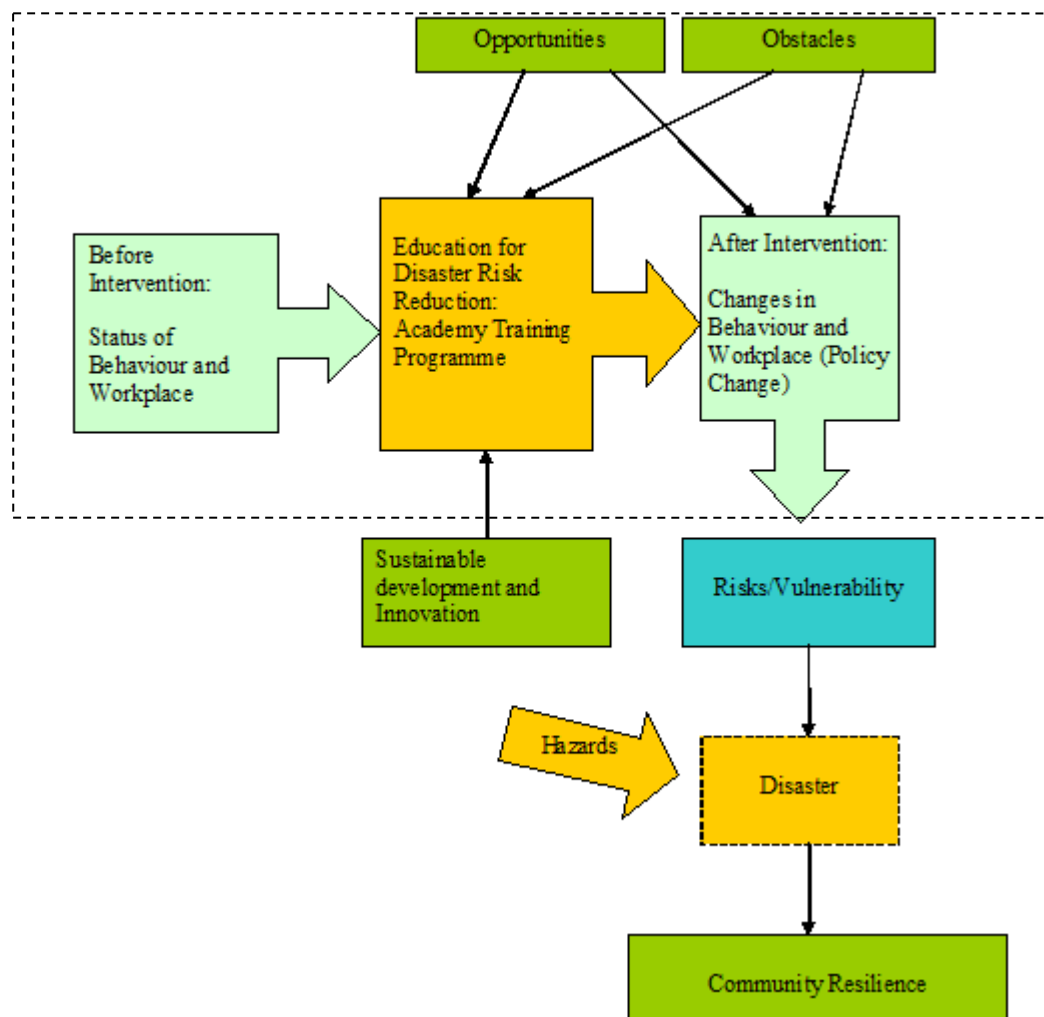
Figure 3. Socio-Ecological Model of change



Source: (Agrawal, Aruldas, & Khan, 2014, p. 6)

These factors can be further contextualised in the conceptual model presented in Figure 4 where the whole dimension of education is explained in the thesis to argue its contribution in disaster risk reduction and community resilience. It is, however, important to note that the dotted portion of the conceptual framework will only be the focus of this research as it will mostly discuss and analyse behaviour changes and policies and programme changes within the workplace of the trainees of the Academy.

Figure 4. Conceptual Model



1.3 Research Questions

Given the context and guiding principles discussed in the previous sections, this thesis is envisaged to answer the following:

Main Research Question:

How has the 'Academy' contributed to the overall disaster risk reduction processes for community resilience building in the Province of Albay, Philippines?

Research Sub-questions:

- a) How was the training programme prepared and developed in terms of its content and design?
- b) What capacity has been built in the participants from the local government units as a result of the training provided by the Academy?
- c) What changes have/have not occurred in participants' personal behaviour as a result of the Academy's training programme?
- d) What changes have/have not occurred in the work place policy and programme/s as a result of the Academy's training programme?
- e) What are the barriers to and opportunities in maximising the impact of the Academy in terms of contributing to: a) attaining the set objectives of the Academy; and b) the process of scaling up beyond its current initiatives using innovative approaches on DRR?

1.4 Research Objectives

This thesis operates under one main objective and five supporting objectives as detailed below:

Main Objective:

To assess the contribution of education to disaster risk reduction processes and resilience building initiatives in the Province of Albay, Philippines

Sub-Objectives:

- a) To identify the process by which the Albay Government has undertaken in terms of development and preparation of its education programmes;
- b) To determine the capacities gained by the participants as a result of the Academy's training programme;
- c) To determine the changes/non-change in the participants' behaviour as a result of the training programme;
- d) To determine the changes/non-change in the participants' workplace policy and programme/s as a result of the training programme; and
- e) To identify the barriers to and opportunities in achieving the Academy's set objectives and contributing to the process of scaling up its programmes beyond the Academy's current initiatives.

1.5 Hypothesis

Building the knowledge and capacities of local government officials, especially those who are at the frontline in disaster risk reduction and management, has made a significant contribution to the process of reducing disaster risks in order to enhance community resilience in Albay Province, Philippines because they were able

to change their attitude and behavior, and also affect policy and program reforms within their work places.

1.6 Research Methodology

This thesis was conducted in order to assess the contribution of education to disaster reduction and community resilience through qualitative means. To substantiate the needed data to answer the research questions and objectives of the thesis, the following sections will describe the specific qualitative approaches that were used in the research.

1.6.1 Case Study Approach

Given the definite data that the thesis requires in the field of education and disaster risk reduction, a case study approach was deployed. This approach aims to gain in-depth understanding of the importance and contribution of education to disaster risk reduction by means of looking into the particular case of the Academy's training programme. The unit of analysis of this thesis is the Climate Change Academy. To be able evaluate the effectiveness of the Academy in its education programme, the units of observation are the following: 1) the individuals who have undergone the trainings provided by the Academy, 2) the organisations/workplace to which the individuals belong to, and 3) the Academy itself. The exploratory nature of the case study will hope to understand how the Academy works and why its education and training is important in the overall agenda for resilience building of Albay.

To be able to capture the richness of data that is required to understand the training programme of the Academy and its impact to the people, the case study approach will rely on multiple sources of evidences (Yin, 2003b) as detailed below.

1.6.1.1 Semi-structured Interviews

This methodology was used when interviewing key informants regarding the Academy's history, set objectives, module development, and the institution's partnerships with other stakeholders in the province, and the observed behaviour change in the participants of the Academy's training programme. Interviews with the officers and staff of the Academy and Centre for Initiative and Research for Climate Adaptation (CIRCA) detailed out the influence of international paradigms in DRR and DRM to local interventions in reducing disaster risks. Interviews with key partner agencies were also sought to examine their levels of engagement in the Academy. Overall, 12 informants were interviewed for the thesis (refer to Appendix A).

The interviews were structured using an interview guide (refer to Appendix B) designed for the target informants. It enabled both the researcher and informants to frame the conversations around the research objectives without losing flexibility in terms of responding to emerging issues and interesting questions that might come along during the interview process.

1.6.1.2 Tracer Study/In-depth Interviews

To be able to determine the impact of the Academy in terms of the capacities gained and changes in behaviour of the participants of the training as well as changes in work place policies and programmes, a Tracer Study approach was used. This specific data collection method was used to 'systematically analyse the lasting or significant changes – positive or negative, intended or not – people's lives brought about by a given action or series of actions' (Roche, 1999, p. 21).

In-depth interviews with 11 former trainees of the Academy were conducted for the Tracer Study. The interviews were guided by a questionnaire⁸ (refer to

⁸ The questionnaire was based on the Tracer Study done by the Asia South Pacific Association for Basic and Adult Education (ASPBAE) for its training programme 'Basic Leadership and Development Course'.

Appendix C) which was designed to obtain information about their personal (including education) and professional lives, especially in relation to the perceived impact of the training to them both as members of the community and as public servants in the Province of Albay. Usually, the interview took more than an hour which indicated the willingness of the participant in the Tracer Study to share information for the research. In most cases, the interviews were done in their work places, either in the provincial government office or in the community village hall. This way, the informants were also observed while in their actual work setting.

This methodology was used to eventually evaluate whether the Academy's training programme has been effective in improving the capacities of the participants as well as creating policy changes in their field of work and practice in disaster risk reduction and management. The informants in the Tracer Study were purposively chosen using a set of criteria for selection as explained in Section 1.6.3.1. The list of informants is shown in Table 3 (refer to Appendix D as well).

Table 2. Tracer Study List of Informants

Informant No.	Training Year	Organisation/Workplace During Training Year	Position During Training Year
PGA1	2012	Provincial Government of Albay (PGA)	Local Government Operations Officer II
SB2	2012	Village Council or Sangguniang Barangay (SB) ⁹	Barangay Councilor
PGA3	2011	PGA	Assistant Chief of Office
PGA4	2013	PGA	Researcher
PGA5	2013	PGA	Project Development Officer II

⁹ The Village Council locally known as the Sangguniang Barangay is the smallest governing unit under the Local Government Units (LGUs) of the provinces in the Philippines. Council members are elected by registered voters in the community once in every three years.

SB6	2012	SB	Barangay Councilor
SB7	2012	SB and City League of Barangays	Barangay Treasurer and League Staff
SB8	2012	SB and City League of Barangays	Barangay Captain and League President
PGA9	2012	PGA	Admin Aide IV
PGA10	2012	PGA	Admin Aide IV
PGA11	2013	PGA	Supply Officer

1.6.1.3 Use of Secondary Data

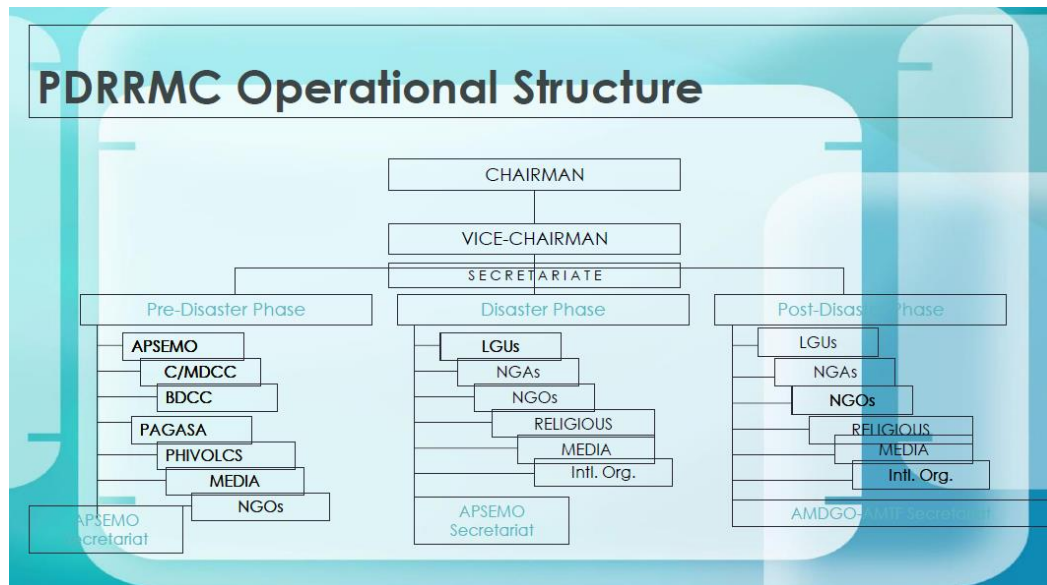
This method involved the use of secondary statistical data and figures related to disasters generated from official reports, studies, and documentation both from the international, national and provincial levels. Reports such as the Albay Disaster Risk Analysis which was done in January 2011 and data provided the Provincial Disaster Risk Reduction and Management Council (PDRRMC) and the Albay Public Safety and Emergency Management Officer (APSEMO) were extensively used in the study.

1.6.2 Sample Selection

Purposive data sampling technique was used in the Tracer Study. A participants' list of all the trainings of the Academy was obtained and reviewed. The Tracer Study was able to interview four members of the Village Council (Sangguniang Barangay) and seven members of the Provincial Government of Albay (PGA) or the Local Government Unit (LGU) of Albay. All of the participants in the study have roles to play either in the Barangay Disaster Risk Reduction and Management Committee (BDRRMC) or in the Provincial Disaster Risk Reduction and Management Council (PDRRMC). Figure 5 describes the overall structure of the PDRRMC which shows the identified roles of different stakeholders according to three phases of DRRM operations – pre-disaster (disaster risk reduction and

preparedness), disaster (response), and post-disaster (early recovery, rehabilitation, and reconstruction).

Figure 5. Provincial Disaster Risk Reduction and Management Council Structure



Source: (Escobar, 2014, p. 105) Powerpoint presentation made during the Writeshop on Formulating Guidelines in Integrating Gender in DRRM Plans, 13 June 2014, Legazpi City, Philippines, p. 105.

1.6.3 Data Collection

Guided by the conceptual framework discussed in Section 1.2, a data collection matrix (Table 3) was drawn to systematically obtain data needed to respond to the research questions. The interview guide and tracer study questionnaire were based according to this matrix. As discussed in Section 1.6.1, the methodologies used to collect data under the case study approach are documentation (secondary data review), interviews (tracer study and in-depth), and direct observation (tracer study and July 15 typhoon event) (Yin, 2003a).

Table 3. Data Collection Matrix

Indicators	Possible Evidence	Data Source
Institutional and Training Module Development		
Legal basis	Articulation of national laws and local policies and mandates in training design and modules	CIRCA, Albay Public Safety and Emergency Management Office (APSEMO), Climate Change Academy
International and national concepts in DRR and Climate Change Adaptation (CCA)	Definition of key concepts used in the training	CIRCA, APSEMO, Climate Change Academy
Political support	Institutionalisation of the Academy with support from the Provincial Government of Albay and the national government (human resources and funding)	CIRCA, APSEMO, Climate Change Academy, Governor Jose Sarte Salceda
Partnerships/Stakeholders	Historical background of DRR and CCA in Albay and the Academy which involved government institutions, academe, civil society and private sector	CIRCA, Climate Change Academy, Governor Salceda, Bicol University
Training content and design	Learning from the training is adaptable and useful to local context	CIRCA, Climate Change Academy, 11 Participants of the training

	<p>Disaster preparedness as a behaviour outcome and as a policy change and practice outcome</p> <p>Access to information through training is equitable: Who can access?</p> <p>Efficient use of resources (human, financial, time)</p>	
Innovation	Innovative approaches used in training and education	CIRCA, Climate Change Academy, 11 Participants of the training
Indicators	Possible Evidence	Data Source
Capacity Development (taking note of 4 influencing factors: Information, motivation, ability to act, and norms)		
Skills	<p>Risk communication, leadership, identification of alternative and innovative livelihoods, organisational development, capability and vulnerability assessment, survival, critical thinking, decision making</p>	11 selected participants of the training, CIRCA, Climate Change Academy
Knowledge	<p>Hazard and risk awareness (hazard mapping), learnt concepts and terms on DRR and CCA, barangay</p>	11 selected participants of the training, CIRCA, Climate Change

	contingency planning, capability and vulnerability assessment, hazard and resource mapping	Academy
Attitude	Attitude towards disaster preparedness, social preparation	11 selected participants of the training, CIRCA, Climate Change Academy
Indicators	Possible Evidence	Data Source
Change in Personal Behaviour (taking note of 4 influencing factors: Information, motivation, ability to act, and norms)		
Preparedness	Disaster preparedness, social preparation	11 selected participants of the training, CIRCA, Climate Change Academy
Responsiveness	Is responsive to needs of the vulnerable and marginalised sectors (e.g. women and children)	
Commitment	Increased commitment to role in the community	
Indicators	Possible Evidence	Data Source
Change in Work Place Policy and Programmes (Village and Provincial levels) (taking note of 4 influencing factors: Information, motivation, ability to act, and norms)		
Programme Development	Existence of resilient and innovative, and alternative livelihoods for the community people Integration of poverty reduction and sustainable	11 selected participants of the training, CIRCA, Climate Change Academy

	development programmes in DRRM planning	
Indicators	Possible Evidence	Data Source
Change in Work Place Policy and Programmes (Village and Provincial levels) (taking note of 4 influencing factors: Information, motivation, ability to act, and norms)		
Preparedness	Organised DRRM system at the community level through the Barangay DRRM Committee/Provincial DRRM Council (early warning, mass evacuation, relocation)	
Education and Training	Localised education and training programme for the community/municipalities on DRRM and CCA	
Institutional building	Institutionalisation of the Climate Change Academy, increased stakeholders in the Academy, formation of sectoral groups (e.g. youth, women, older persons, persons with disability) at the community and provincial level	
Policy Development and Implementation	Local ordinances and policies that are put in place to enhance the impact of the training	

Indicators	Possible Evidence	Data Source
Barriers and Opportunities		
Political Support	Institutional support to the Academy coming from the Provincial Government in terms of budget, human resources and infrastructure	CIRCA, Climate Change Academy, Governor Salceda, 11 selected participants of the Training
Political Dynamics	Organisational culture and practices in Climate Change Academy and the in the Village Council	
Sustainability	Links with political support and political dynamics in relation to the continuity and sustainability of DRRM plans and programmes both at the provincial and community/village level	
Innovation	Innovative practices led by the Albay government and Civil Society in DRRM	

1.6.4 Data Analysis

Content analysis of documents obtained before and during the field research was done to determine the institutional development process of the Academy. Primary data collected from field visits and interviews were processed and organised in a matrix to find meaning, patterns, and/or contradictions that have led to answering the research questions. Transcription of key interviews and translation of interviews facilitated and answered in Bicol and Filipino languages to English were done for this

thesis. Results of the Tracer Study were organised in an excel sheet and coded according to the questionnaire.

The data collection matrix described in Section 1.6.4 served as a guide in identifying the indicators that have emerged during the analysis process of the thesis.

1.6.5 Research Scope

The research was undertaken in the Province of Albay, Philippines. Legazpi City, the capital of the province, where the Academy is located represents the disaster-prone areas characterised by flooding, storm surges, landslide, and mudflow based on the Albay Disaster Risk Analysis Matrix released in 2011. While most of the interviews were done in the City of Legazpi, three participants of the tracer study came from Ligao City which has also high risk to flooding, landslide and mudflow. The location map of Albay Province is shown in Figure 6.

Figure 6. Location Map of Albay Province



Sources: (Inquirer Global Nation,

<http://globalnation.inquirer.net/files/2014/02/albay-map.jpg>; Wikimedia Website,

http://upload.wikimedia.org/wikipedia/commons/0/03/Ph_locator_map_albay.png)

1.6.6 Limitation of the Study

While the subject of analysis is the Disaster Risk Reduction (DRR) and Climate Change with two big concepts combined together, this research only focused on the concept of DRR. However, climate change as a concept was also included in the data gathering, presentation and analysis because of the overlapping application of resilience both in DRR and climate change adaptation programmes. The science behind the whole gamut of climate change (and global warming) was not included in the discussion.

While community resilience is mentioned in the over-all research question, only the contribution of education and training as a necessary condition to achieve it was analysed. It was implicit in the research that the impact on the community was not assessed in this thesis as the unit of the research are the individuals and not the community itself.

In terms of the Tracer Study, contacting possible informants identified in the participants list was a daunting task. Emails and phone calls were made to get in touch with the prospective participants to the study. The outdated contact details provided in the lists and the unwillingness of some affected the data collection process for the thesis. Due to time limitation, impact of the Academy was only analysed through information obtained from interviews conducted (11 participants of tracer study and 12 key informants). Therefore, analysis of this research can still be verified and supported by expanding the sampling base for data collection in the future.

The planned face-to-face interview with Albay Governor Joey Sarte Salceda was not made possible because of his numerous local and overseas engagements. To be able to include his views about the Academy, news reports, media interviews, speeches, and publications were reviewed as a way to offset the target interview.

In relation to physical risks to natural hazards, Typhoon Rammasun (local name: Glenda) that struck Albay and some parts of the Philippines on 15 July 2014

affected the conduct of the research. The mobility and network connectivity needed to continue with the research after the typhoon was greatly affected by damages brought by Glenda – impassable roads, lack of electricity and internet service, and unfortunately, the Academy building itself being badly damaged by the typhoon.

1.7 Ethical Issues

Actual interviews were conducted based on the willingness of the informants to participate in the study. The research was also done in cognizant of the political and social dynamics in terms of who were included in the study. Objectives of the research were shared and clarified with the concerned parties and with the interviewees, which cleared out unreasonable expectations on the study.

The anonymity of the interviewees in the impact assessment of the Academy, especially on handling sensitive data (e.g. critical to the Academy and/or certain personalities), was observed.

Another notable ethical consideration in the thesis is the sensitivity to the respondents' situation during disaster situations. While the researcher was put at the forefront of the research during the landfall of Typhoon Glenda, interview and inquiries were suspended to allow respondents and participants to the research to prepare and recover from the onslaught of the typhoon. Despite of this unfortunate event, the research was able to observe the Provincial Disaster Risk Reduction and Management Council (PDRRMC) and APSEMO before and after the impact of the typhoon.

It is also important to mention that the awareness on natural hazards due to the impacts of typhoon, the researcher was able to protect oneself during the research process and at the same time was able to impart in the preparation and recovery process before and post Glenda, respectively.

1.8 Significance of Research

This research will contribute to the broader knowledge on disaster risk reduction and management, specifically on its education principles, strategies and practices. Findings and analyses in this research hope to engage the current discourse on education for DRR, DRM and sustainable development agenda and the growing need for an education framework that responds and adapts to the local context and to the climate changing world. The context-based and demand-driven education programmes for disaster-prone communities are envisaged to analyse and address the cyclical issue of poverty and disaster particularly in poor provinces in the Philippines such as Albay. Lessons learned and best practices from the Academy's programmes will contribute to the conceptualisation and application of education models on DRR and sustainable development not only in the Philippines and in other parts of the world as well. This research also hopes to contribute in the shaping of public policy on institution-based EDRR making use of a range of innovative approaches in maximising desired behaviour and work place policy changes toward a community-based resilience building programme at a national scale.

1.9 Structure of Thesis

The overall structure of the thesis is divided into six chapters. As already discussed here, Chapter I covers the introduction part of the thesis explaining all the aspects needed to undertake data collection. In Chapter II, a set of studies and literature will be discussed to map out and identify knowledge gaps regarding the education for disaster risk reduction concept in relation to module development, behavior and attitude change as well as changes in workplace policies and practices. The next three chapters will discuss the responses on the five research sub-questions outlined in Chapter I. More specifically, Chapter III covers the discussion and analysis on training programme development [research sub-question (a)] while Chapter IV covers the discussion and analysis on capacities gained by the participants of the training as well as the changes in behavior and attitude, and in workplace policies and practices [research sub-questions (b), (c), and (d)]. In Chapter V, the

barriers and opportunities regarding the sustainability and growth of the Climate Change Academy will be discussed [research sub-question (e)]. Finally, Chapter VI will serve as the concluding chapter which will include a set of recommendations to the Academy's training programme and suggestions for future research.



CHAPTER II

LITERATURE REVIEW

Vast array of literature and previous studies revealed that education has already established a positive effect on reducing risks and vulnerabilities of peoples and communities (Asia-Pacific Cultural Centre for UNESCO (ACCU), 2011; Fazey et al., 2007; Huckle & Sterling, 1996; Nathe, 2000; L. Polotan-dela Cruz & Ferrer, 2010; UNESCO, 2005; UNISDR, 2005). Education has been regarded as a key feature in disaster risk reduction and management. The apparent rising occurrences of extreme weather conditions especially in Asia-Pacific have alarmed disaster managers in the recent years. Global agreements such as the Hyogo Framework for Action which articulated and codified the importance of education in DRR and DRM has been ratified since 2005 by many nations to serve as a guiding principle in catalysing and institutionalising a process to establish the culture of safety and resilience in and among nations and communities (UNISDR, 2005). Specific strategies, for example, to integrate poverty alleviation mechanisms such as the Millennium Development Goals (MDGs) into the DRR framework have been proven helpful in addressing structural inequalities in livelihoods, health, environment, gender, and education, among others, and certainly contribute toward sustainable development and building resilience to disasters of communities.

The following sections will discuss different sources of literature on disaster risk reduction in relation to poverty, vulnerability and education in general. To be more specific, aspects of marginalisation of the vulnerable poor in times of disasters will be discussed in Section 2.1. In Section 2.2, the role of the education and learning in resilience building and sustainable development as demonstrated by key literatures from the UN bodies, academe, and non-governmental organisations (NGOs) will be explored. To further unpack the importance of education in the disaster and poverty paradigms, Section 2.3 and 2.4 will discuss the concepts and frameworks that inform the Education for Disaster Risk Reduction (EDRR) as a powerful tool to build resilience and achieve poverty reduction in communities. In Sections 2.5 and 2.6, the

dimensions of capacity building and behaviour change will be discussed to explain the complexities of dynamics that influence behaviour and the process of change itself. Finally, in Section 2.7, key knowledge gaps from the literature review will be identified to support the objectives of the research and to eventually contribute to the broader discourse on education and DRR.

2.1 Disaster, Poverty and Vulnerability: Visibilising the Poor and the Marginalised

Disaster and poverty has a cyclical relationship when looking at the social, economic and political structures in the society. Zimmerman and Carter (2003) supported this argument by saying that disasters can push households into ‘poverty traps’ where situations on income productivity is reduced, making it impossible for households to rebuild their savings and assets (Intergovernmental Panel on Climate Change, 2012). This case is even much worse when households who are already poor bear the most impact of disasters as demonstrated by typhoon-related disasters in the Philippines. The vulnerabilities of the poor in times of disasters have been captured quite clearly by a study released by World Bank (2005) on DRR management in the Philippines:

Poverty and vulnerability to natural hazards are closely linked and mutually reinforcing. Poor and socially disadvantaged groups are usually the most vulnerable to hazards, reflecting their social, cultural, economic and political environment. Disasters, in turn, are a source of transient hardship and distress and a factor contributing to persistent poverty. (p. 13)

It has been recognised in various disaster studies that reducing human vulnerability in relation to poverty is a central element in disaster risk reduction and management paradigm. Taking the definition of Wisner et al. (2004, p. 11) on vulnerability, the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazards is a determinant of how well (or badly) people and communities confront

disasters that may come from hazards. The Philippine National Disaster Risk Reduction and Management Plan (NDRRMP) 2011-2028 expounded that poverty and adverse socio-economic conditions create greater vulnerability to the poor in times of disasters, especially those who live in river pathways and along the most hazard-prone areas. Bolin and Stanford (1999) shared this view and argued in their study on the political economy of disasters that the most vulnerable are the members of the society ‘with the fewest choices, those whose lives are constrained...by discrimination, political powerlessness, physical disability, lack of education and employment, illness, the absence of legal rights, and other historically grounded practices of domination and marginalisation’ (Paul, 2011, p. 71). This can be further contextualised when looking into the specific vulnerabilities of women, children and youth, older people, indigenous peoples, recent migrants who are systematically discriminated in the provision of disaster assistance (Blaikie, 1994; Bolin & Stanford, 1999; Cutter, Mitchell, & Scott, 2000; Paul, 2011, p. 73).

2.2 Resilience and Sustainable Development: Role of Education and Learning

Resilience as a dynamic process linked to human agency and structure that people act within is expressed in the ability of groups and people to deal with hazards, their capacity to engage with uncertainty and future changes, to adapt, cope, learn, and innovate, and to develop leadership capacity (Bohle, Etzold, & Keck, 2009; Obrist, Pfeiffer, & Henley, 2010) especially of those that are most vulnerable. In the Hyogo Framework for Action’s third key priority theme, the use of knowledge, innovation and education is highlighted in DRR in order to build a culture of safety and resilience at all levels. Resourcing grassroots women’s groups to function as information generators and communicators (organising peer learning exchanges; promoting grassroots trainers) is particularly targeted to be able to address the vulnerabilities of women but also to harness their roles in the society.

Intention for sustainability as a byproduct of resilience requires education programs that promote broad awareness, recognition and knowledge of sustainability and its implication, including attention to the subject of change itself (Huckle &

Sterling, 1996). Earlier in 1987, the Brundtland Commission in its report “Our Common Future” broadly defined sustainable development as a type of “development that meets the needs of the present without compromising the ability of future generations to meet their needs” (World Commission on Environment Development, 1987, p. 4). As further argued by UNESCO (2005) in its education programmes and advocacy, education for sustainability, which promotes the development of flexible learning abilities and dispositions across all disciplines and ages, is therefore essential to complement education about sustainability, which builds awareness, willingness, and intent. The overall discourse on education for disaster risk reduction under the broad framework of sustainable development has been integrated in the implementation of MDGs and HFA since 2000 and 2005, respectively and has gained more traction when the UN General Assembly proclaimed the UN Decade of Education for Sustainable Development (ESD) in 2012. Its emphasis on education as an indispensable element for achieving sustainable development goes beyond environmental education as it hopes to achieve human development through economic growth, social development and environmental protection. The interplay of these three pillars in ESD, however, seemed to be a daunting task to achieve as economic growth that creates further social inequalities is prioritised over social and environmental goals especially in market-based economies in developing nations. The Philippines which is a disaster-prone country and categorised under developing nations (despite having a status of a low middle income country by World Bank) registered a stable increase in economic growth since 2012 but with unchanged poverty incidence of almost 30% of the population since 2006 (National Statistical Coordination Board (NSCB), 2013). Worse, the neverending cycle of poverty and disasters especially that affects poor provinces in the Philippines like Albay proved to test even the resilience of education programmes that hope to reduce disaster risks and the sustainability of development projects in the province.

With this backdrop, education as a continuous process anchored with the science of sustainability must adapt to the emergence of new questions and changing social compacts (Folke, Hahn, Olsson, & Norberg, 2005) and conditions that bring together new challenges in disaster risk reduction and community resilience building.

To be able to achieve community resilience as Wood and Good (2004) argued, the society requires a critical mass of people who proactively engages their day to day realities. As clearly put by Kelman, Mercer, and Karlsson (2014):

Education should not be a one-way, but instead should be about education through cooperation, so that people can set and create their own pathways by combining their own knowledge and concerns with those being brought in from outside. (p. 97)

This quality is important for disaster managers and local governments in general to enable them to understand better the complex dynamics of communities and people in an equally intricate web of systems in the national and global context. This fundamental link between resilience and educational processes is important in promoting critical thinking, holistic vision, and acceptance of the diversity of values (Huckle & Sterling, 1996; UNESCO, 2005) under DRR and sustainable development paradigm. Kelman et al. (2014) further argued that ‘to ensure sustainability of livelihoods under climate change, it is necessary to use education as an exchange process to link long-term and short-term approaches at the local level, so that short-term endeavors support long-term needs’ (p. 97). The adaptability of learning process to rapid changing social contexts informs how societies change and sustain themselves in the future.

However, this has been contested by several scholars saying that adaptability by itself does not necessarily promote resilience. Diamond (2005) explained that human adaptations that have enabled technological advances and more efficient resource extraction have also resulted in many of today’s environmental social problems (Fazey et al., 2007). This environmental challenge should be addressed in the education process not only of and with the people of direct concern but with policy makers as well to carefully design development projects that addresses sustainable livelihoods and environmental protection. Adaptation measures toward resilience are therefore a political and developmental decision that engages scientific, social, environmental, and cultural systems in societies.

2.3 Education for Disaster Risk Reduction: Local Knowledge, Networks and Global Realities

Further to the discussion that links together education, sustainable development and disaster risk reduction, local initiatives in the Philippines draw from and reflect the past and current studies and discourses on Education for Disaster Risk Reduction. For example, in the 2005 Delors Report on the ‘Four Pillars of Learning: Learning to know, Learning to do, Learning to live together, Learning to be; Education for Disaster Risk Reduction (EDRR) is envisaged in the third pillar where quality of learning and education takes cognizance of its relevance to the “cognitive, moral and cultural dimensions of learning” (Tawil & Cougoureux, 2013; UNESCO, 2014, p. 2). Learning to live together as a framework in EDRR therefore is a fundamental driving force in carrying out a process where pre and post disaster initiatives are contextualised to foster peace, to respect cultural diversity and to promote environmental justice. As articulated in UNESCO’s Education for All (EFA), learning and life skills for young people and adults prepare them to the realities and challenges in life. This includes the development of capacities on critical thinking, problem solving and other social and emotional skills that are essential in people’s survival in times of disasters (Lopez-Carresi, Fordham, Wisner, Kelman, & Gaillard, 2014).

The application of these principles in EDRR has been demonstrated in local education initiative with and among out of school youth in the Province of Benguet, Philippines. The DRR Based Functional Literacy Program led by the People’s Initiative for Learning and Community Development (PILCD), an NGO based in Baguio City, Benguet, Philippines has mainstreamed topics on DRR within the Alternative Learning Systems (ALS) curriculum, a non-formal type of education in the country. The skills that the youth acquired from the programme have equipped them to become resilient and confident in confronting threats posed by natural hazards (Asia-Pacific Cultural Centre for UNESCO (ACCU), 2011).

The success of an EDRR programme not only reflects on how its curriculum design and practice was made adaptable to the local context and needs but on how partnerships are fostered with key stakeholders such as communities and local governments and institutions in the course of its conception and implementation. This has been the lesson learned of Buklod Tao, Inc. and Center for Disaster Preparedness (CDP) during the evaluation phase of the project in 2007 which suggested that closer rapport and coordination with the local government would have improved the efficacy of the DRR, livelihood and environmental management initiatives in a specific flood-prone community in Manila, Philippines (Center for Disaster Preparedness, 2008). However, it has been successful in sustaining networks with diverse groups and institutions in the community (Center for Disaster Preparedness, 2008).

These case studies in the Philippines reinforce the arguments of Fazey et al. (2007) that trust and cooperation between communities and governments or non-local institutions are important in any development projects. They further argued that the quality of partnerships of stakeholders in the project will influence how local people's knowledge and practice match or clash with advice they receive from the outside. This idea has been earlier argued by Brehm and Rahn (1997) saying that the behavioral change of individuals toward a common goal depends on the positive association between the level of trust individuals have for one another and the favorable performance of governments in terms of its accountability, flexibility, and innovation in policy making and the inclusion of stakeholders in planning processes (Fazey et al., 2007).

Despite the long history of commitments and actions in education in DRR and DRM, based on the 2009 Global Risk Assessment by UNISDR and the Views from the Frontline released by the Global Network for Disaster Reduction in 2009 and 2011, it was found out that international and national scale knowledge and the practices based on that knowledge are not 'trickling down' and penetrating local communities fast enough to achieve the Hyogo Framework for Action (HFA) goals. This has been explained by inadequate financing and technical support between local governments and communities (UNISDR, 2005). Despite these limitations, national

disaster managers and local DRR implementers were not hampered by these as they seek immediate yet innovative solutions to address the alarming issues of poverty and disasters through collaborative effort with various stakeholders in the society.

2.4 Innovative Education: Disaster Risk Reduction and Poverty Alleviation

“Innovation that reduces poverty and enables as many groups of people, especially the poor and vulnerable, to participate in decision-making, to create and actualize opportunities, and to share the benefits of development” (Romero, 2014) is the crux of Innovation for Inclusive Development.¹⁰ Knowledge generation, through systemic research on innovation in the informal sector and linkages with the formal sector is important in terms of finding ways on how to transform these marginal innovative activities into sustainable livelihoods.

An example case study under this initiative is the community enterprise and information centre that promotes eco-tourism and climate resilience that is being set up in Vietnam (iBoP Asia, 2012). Community members in this study area are mobilized to engage in joint analysis and development of action plans leading to empowerment and reduction of the inequality gap.

The inequality scenario is also apparent in the Province of Albay as persistent poverty exacerbated by disasters demonstrated the struggling socio-economic conditions of its poor population. Albay being vulnerable to climatological and geophysical hazards has been in an unending battle to solve the poverty issue through integrative strategies in achieving targets in MDGs and in the Hyogo Framework for Action.

The innovation of its education and knowledge sharing program itself hopes to substantially contribute in reducing disaster risks, alleviate poverty and achieve

¹⁰ Based from a slide presentation made by Segundo E Romero, PhD, Director of Universities and Councils Network in Innovation for Inclusive Development in South East Asia (UNIID-SEA) in a workshop organised by UNIID-SEA in Chulalongkorn University, Bangkok, Thailand, 21 April 2014.

community resilience. As demonstrated by case studies on EDRR and DRR in Benguet and Albay Province a few years before the institutionalisation of the Academy in 2011, these contributed to the broader demand for localised interventions but innovative means of finding pathways to eradicate poverty (Romero, 2014) and achieving resilience to disasters.

In another note, Rogers (1995) argued in his book “Diffusion of Innovations” that a successful innovation is adopted by successive groups across populations in a certain locality based on their openness to new ideas and willingness to experiment. In disaster risk reduction education programmes which target big populations with varying contexts, for example, Rogers’ (1995) arguments suggest that to be able to maximise the “diffusion”, the use of mixed approaches which integrates community participation, face-to-face or two-way education, social marketing (one-way persuasion) and mandatory directions is necessary. This perspective can further be explained by examining how communities can be involved in capacity building processes through the use of innovative techniques for DRR as described in the subsequent section.

2.5 Capacity Building of People and Communities

Building the capacities of local communities through education further enhances the people’s intrinsic ability to be resilient to disasters (Delica-Willison & Gaillard, 2012; Lopez-Carresi et al., 2014). As further argued by Cadag and Gaillard (2014), people ‘who are vulnerable to natural and other hazards indeed display significant capacities to face such threats and are neither victims nor helpless people in time of hardship’ (p. 269). Capacities as explained by Cadag and Gaillard (2014) refer to the set of knowledge, skills, and resources that people have access to in times of hazards and disasters.

Baker (2009) has captured this essence when he argued that the vulnerable population has the ability to reduce their vulnerability provided that reliable information is being ‘marketed’ to them so that necessary actions can be made.

Community-based disaster risk reduction and management (CBDRRM) as a demonstration of this therefore should be maximised in the DRR framework in the Philippines which ‘empowers the communities with self-developed and culturally acceptable ways of coping with crisis brought by the occurrence of natural hazards’ (Gaillard, Maceda, Stasiak, Le Berre, & Espaldon, 2009, p. 127). In this way, the inherent capacities of communities when enhanced by technical skills and scientific methods on DRR become a powerful tool that can save lives and livelihoods of the people.

To demonstrate this argument, the community hazard mapping that was done in Masantol, Pampanga, Philippines in 2008, which is considered an innovation to some extent, was an example of a participatory process that engaged both the local wisdom and scientific knowledge (Cadag & Gaillard, 2014) to DRR. As Chambers (2008) argued, ‘maps constitute a powerful tool which gives visual expression to realities which are perceived, desired, or considered useful, thus often providing means for conveying ideas beyond the realms of those who produce maps’ (Cadag & Gaillard, 2014, p. 270).

In a similar perspective, community-based DRRM also puts premium on Filipino indigenous practices of social support such as *bayanihan* (communal voluntary effort to achieve a common goal) and *damayan* (compassion) of communities (Barrameda & Barrameda, 2010) which are considered as resources that can be helpful in times when government or external support may be lacking or weak. These Filipino values have been instrumental in successful NGO-led DRR projects in Marinduque, Philippines when communities demonstrated the spirit of *bayanihan* and *alay-kapwa* (similar meaning to compassion) during sandbagging activity, a community-initiative to protect the village from effects of flooding (Magalang, 2010).

Given this backdrop, the capacity building process, therefore, does not operate in a vacuum where people and communities rely on the external inputs and intervention alone in order to gain knowledge, skills and resources that are useful and

innovative to prepare and respond to hazards and disasters, but rather builds on what the communities already have.

2.6 ‘Change as Learning’¹¹: Some Behavioural Models and Theories of Change

As a necessary condition to understand the relationship between education and behaviour change, one should refer to what Russell (2002) has argued about the two objectives of education in society: ‘instruction and training in good conduct’ (p. 37). He argued that the conception of good conduct or a positive behaviour for that matter varies with the political institutions and social traditions that are in place in communities (Russell, 2002). This argument implies that human agency or actions toward change are influenced by individual values and beliefs as well as social structures that are founded by policies and institutional norms.

While behavioural models tend to focus on specific human behaviours by understanding the underlying factors which influence them, theories of change on the other hand focus on the temporal dimension that influence behaviour change (Darnton, 2008). These perspectives on behaviour change can be seen not as opposing ideas but rather as a complementation of each other which in a sense crystallises the complex dimensions of change and behaviour combined.

This perspective has been unpacked further by Darnton (2008) when he argued that ‘behavioural models and theories of change reveal that learning is said to be fundamental to the process of change’ (p. 49). This is demonstrated by his argument that learning determines outcomes where lessons from past behaviour shape one’s expectations of future outcomes, one’s emotional reactions, habits and sense of agency (Darnton, 2008). This argument only strengthens the claims of education theorists that underscore the importance of learning processes in bringing about lasting change (Bohle et al., 2009; Darnton, 2008; Obrist et al., 2010; UNESCO, 2014).

¹¹ Borrowed from a section sub-heading in a paper written by Andrew Darnton, 2008.

Taking this further to the policy realm, Weiss (2002) argued that ‘information as a tool for eliciting desired policy outcomes’ (p. 217) is manifested in education and training programmes both in public and private initiatives, for example, in disaster risk reduction. This has been demonstrated by information campaigns that raise awareness of people on how their behaviour is connected to policy outcomes that affect everyone, and teach people the alternative skills and behaviour that lead to outcomes that policymakers intend (Weiss, 2002, p. 217). This has been demonstrated in the United States of America when policies on environmental impact assessments, health, freedom of information, to name a few, were implemented to generate a desired behaviour that is deemed beneficial to the society (Weiss, 2002).

The behavioural approach to change combined with the process-oriented theory of change therefore offer a landscape of ideas which researchers and social scientists find useful in unlocking the complexities of human behaviour. This clearly reflects the elements in which organizational behaviour theory and the socio-ecological model of change are described in the conceptual framework of this thesis.

2.7 Knowledge Gaps

While disaster risk reduction and community resilience has been widely studied in the Philippines, there are still limited researches that specifically identify the changes that have occurred both in the behaviour of the learner and into their work place/communities as a direct result of the training and education provided by an institution. The severity of impacts of super-typhoons such as Haiyan that struck the Philippines in 2013 which is considered by disaster managers as the new benchmark for DRR and DRM, raised an important question on whether current education programmes within the DRR and DRM framework need to be recalibrated in order to innovate and adapt to the changing climate and to affect desired changes in people’s behaviour and policies and programmes within their workplaces.

CHAPTER III

DEVELOPMENT OF ACADEMY'S TRAINING PROGRAMME: TOWARDS DISASTER RISK REDUCTION AND RESILIENCE

This chapter will articulate the factors that influence the preparation and development of the Academy's training programme. As a necessary condition to explain this, Section 3.1 will discuss the province's development paradigm which makes up the Albay Model. This section will also articulate the implications of the Albay Model to the guiding principles and vision regarding the development of the Academy's training programme. Following this, Section 3.2 will focus on the discussion about the Climate Change Academy particularly on its course content and design, and methodology. A discussion on ways to improve the course training modules is included in this section. Finally, Section 3.3 will provide a summary of the whole chapter and will offer a conclusion that will answer the first research sub-question 'How was the training programme prepared and develop in terms of its content and design?'

3.1 The Albay Model

Due to the recurring cycle of disasters and socio-economic deprivation in the province, the leadership of Governor Joey Salceda¹² institutionalised the adaptation strategy for Albay which integrates different approaches not only in disaster risk reduction and management (DRRM) but in the development planning and programme implementation processes as well. The combined development and DRR strategy which makes up the Albay Model includes:

- Millennium Development Goals (MDGs) as a goal for DRR ;
- Establishment of environmental and socio-economically sound policies with appropriate budget allocation for DRR and development projects;

¹² Before being elected as Governor of Albay in 2007, Salceda served as a Member of the Philippine House of Representatives (Congress) from 1998 to 2007. He also had a short stint in 2007 as Malacañang Chief of Staff under the Office of the President Gloria Macapagal-Arroyo.

- Execution of programs and projects from the provincial level down to the communities;
- Building institutions for social service delivery, research and development, and capacity building; and
- Nurturing partnerships and resource mobilisation. (Salceda, 2012a)

The double vulnerability to disasters – climatological and geophysical – of Albay as discussed in Chapter 1 heightens the risk of already vulnerable condition of the poor in Albay. This succinctly captured the social justice issue where ‘those who have less in life, have more in risks’ (Salceda, 2012a). This fundamental basis of disaster risk reduction and management initiatives in Albay currently led by Governor Joey Sarte Salceda reinforces what previous studies have underscored that reduction of human vulnerabilities such as poverty is a central element in DRRM paradigm (World Bank, 2005; IPCC, 2012; Wisner *et al.*, 2004) where education and skills training is a crucial component. In the recent typhoon (Rammasun with local name Glenda) that hit Albay in July 2014, Governor Salceda (2014) stressed that:

‘...If such lost incomes and loss of productive capacity will not be compensated by infusion of new resources or net resources transfers, it would transmogrify inevitably into higher poverty and higher malnutrition.’ (J. S. Salceda, 2014a)¹³

3.1.1 ‘Safe and shared development’

The ‘safe and shared development’ goal which contributes to the Albay Model is defined as the climate and disaster proofing of development, the achievement of the Millennium Development Goals (MDG), and the improvement of human development index (HDI) in the province (Salceda, 2012a).

¹³ [GLEND A: the social typhoon, the economic typhoon:](https://www.facebook.com/jose.salceda.92/posts/10152683614016756)
<https://www.facebook.com/jose.salceda.92/posts/10152683614016756>

The Albay Model is manifested by the implementation of the Albay in Action on Climate Change programme which was launched by Governor Joey Salceda to embed disaster risk reduction to enforce climate-proofing and disaster-proofing of development (Strengthening Climate Resilience, undated).

Under the 'safe development' goal, DRR including climate change adaptation are considered as essential elements in the economic development planning of the province (Salceda, 2012a; Lauraya Interview 17 July 2014). For example, in a resolution enacted in the province in 2011 (refer to Appendix E), areas close to the slope of the Mayon Volcano and are prone to lahar flow which can be triggered by heavy rains will receive limited investment from the government (Provincial Government of Albay, 2011). This means that 'no build zone' in this area is applied and that community people need to be relocated in a safer place (AC11 Interview 17 July 2014; GE2 Interview 11 July 2014). The comprehensive land use plan (CLUP) of the province which is integrated in Albay's economic development plan is a clear demonstration of the 'safe development' strategy being implemented at the local level (GE6 Interview 9 July 2014).

In the 'shared development' front, the MDG and HDI targets are being demonstrated by constant improvements of health and nutrition of 0-5 year old children and primary education outcomes from 1992 to 2009 and from 2005 to 2010, respectively (Salceda, 2012a; 2013). Overall, provincial targets on MDGs have already been achieved before the deadline of 2015 (J. S. Salceda, 2013), despite the chronic damages brought by typhoons that affect Albay every year.

3.1.2 'Zero Casualty' policy

Linked to the development orientation of Albay, the 'Zero Casualty' as a policy in DRR reinforces the intention of the 'safe and shared development' paradigm in terms of protecting the lives and livelihoods of the local people. To be able to avoid deaths during typhoons that may cause flooding, landslide or mudflow, for example,

the ‘Zero Casualty’ policy is enforced in the entire province with due attention to the most at-risk communities/barangays as shown in Table 4.

Table 4. Albay Disaster Risk Assessment, 2013

NAME OF CITY/ MUNICIPALITY	FLOODING					LANDSLIDE					MUDFLOW / LAHAR				
	No. of Bgy's Affected	Families Affected	30% of the Affected families	Population	30% of the population	No. of Bgy's Affected	Families Affected	100% of the Affected families	Population	100% of the population	No. of Bgy's Affected	Families Affected	40% of the Affected families	Population	40% of the population
1. TIWI	17	1,987	596	10,281	3,084	8	934	934	4,794	4,794					
2. MALINAO	26	2,991	897	14,589	4,377	12	1,874	1,874	5,547	5,547					
3. TABACO CITY	40	1,062	319	5,535	1,661	2	122	122	645	645	11	5,134	2,054	28,008	11,203
4. MALIPIOT	17	608	182	3,173	952	6	209	209	942	942	3	1,476	590	7,298	2,919
5. BACACAY	53	1,193	358	6,207	1,862	7	451	451	2,396	2,396	1	2,505	1,002	6,980	2,792
6. STO. DOMINGO	14	464	139	2,425	728	5	446	446	1,563	1,563	5	2,990	1,196	12,834	5,134
7. LEGAZPI CITY	66	16,372	4,912	84,182	25,255	10	305	305	1,611	1,611	8	5,348	2,139	23,814	9,526
8. RAPU-RAPU	33	1,392	418	7,993	2,398	5	522	522	2,643	2,643					
9. MANITO	12	958	287	5,802	1,741	13	1,063	1,063	6,376	6,376					
10. DARAGA	26	2,393	718	11,584	3,475	6	669	669	3,450	3,450	17	10,431	4,172	47,888	19,155
11. CAMALIG	23	4,604	1,381	24,105	7,232	10	822	822	4,228	4,228	7	3,220	1,288	16,075	6,430
12. GUINOBATAN	18	2,923	877	15,214	4,564	4	14	14	84	84	8	4,545	1,818	18,948	7,579
13. JOVELLAR	13	302	91	1,603	481	3	54	54	282	282					
14. LIGAO CITY	29	897	269	4,608	1,382	21	1,928	1,928	10,052	10,052	7	2,080	832	10,820	4,328
15. PIODURAN	10	1,691	507	8,799	2,640	9	134	134	699	699					
16. OAS	18	1,946	584	13,663	4,099	11	1,841	1,841	9,530	9,530					
17. POLANGUI	25	7,136	2,141	35,999	10,800	12	1,115	1,115	5,777	5,777					
18. LIBON	28	7,465	2,240	38,822	11,647	8	819	819	3,345	3,345					
TOTAL	468	56,384	16,915	294,584	88,375	152	13,322	13,322	63,964	63,964	67	37,729	15,092	172,665	69,066

Source: (J. S. Salceda, 2013)

The triple typhoons in 2006 (Milenyo in September, Reming in November as the deadliest, and Seniang in December) which triggered landslides from the slope of the Mayon Volcano left more than 600 dead and 400 more missing, and billions of pesos¹⁴ worth of destruction to infrastructure and agriculture in Albay. This disastrous event was an important reminder about the importance of Albay’s ‘Zero Casualty’ policy which is standing since 1994. To be able to maintain this goal in as much as to achieve a ‘safe and shared development’, the Provincial Disaster Risk Reduction and Management (PDRRM) Plan of Albay has been operationalising with the following guiding principles since 2007:

- To promote a proactive and not a reactive response to disasters;
- To evacuate at the early stage of the calamity instead of to rescue affected families;
- To promote an institutional rather than personal orientation;
- To promote coordination and team-work and not individual action;

¹⁴ Foreign exchange rate is approximately 1 USD = 44.5 PhP as of 10 November 2014.

- To conduct community-based disaster risk reduction programs and projects as basic input to the Regional Master Plan;
- To adopt a disaster proofing approach to development; and
- To integrate DRR in the Comprehensive Land Use Plan and promote no or selective investment in high risk zone, maximum protection in the low to moderate risk zone, and to identify safe zones as sites for new development investments. (Espinias, 2013, p. 11)

As demonstrated in mid-July of 2014 when Typhoon Glenda struck Albay, a pre-emptive evacuation of at-risk communities was declared a day before the expected landfall of the typhoon to allow ample time for the village officials and the provincial government to relocate the affected population to designated evacuation sites. This pre-emptive measure is a necessary condition in upholding the ‘Zero Casualty’ policy in the province.

This strategy captures the human rights dimension of DRR interventions during disasters which are the right to life and the right to development. This also resonates with the human security approach to development defined by the UNDP in 1994 where environmental security is set as crucial principle in protecting people from the onslaught of natural hazards and human-induced disasters. As argued by Bohle *et al.* (2009) and Obrist *et al.* (2010), resilience as a dynamic process linked to human agency is expressed in the ability of groups and people to deal with hazards, their capacity to adapt, cope, learn, and innovate, and to develop leadership capacity arising from the onslaught of disasters.

3.1.3 Building institutions: From disaster response to disaster risk reduction

Over the last 20 years, various institutions were established to carry out the DRRM programmes and to address the recurring problem of poverty in Albay. The paradigm shift from mere disaster response to disaster risk reduction is operationalised by four key institutions that make up the DRRM system in the province.

Considered as a crucial institution in the DRRM system, the Albay Public Safety and Emergency Management Office (APSEMO) was established in 1994 to serve as the permanent mechanism for preparing and responding to various types of hazards and disasters. The declaration of the International Decade for Natural Disaster Reduction (INDR) Yokohama Message in 1994 was considered contributory the institutionalisation of APSEMO as the permanent disaster risk management office (DRMO) (Espinosa, 2013). Since then, APSEMO heads the PDRRMC where the Governor sits as the chairperson.

This innovation in disaster management was later followed by the institutionalisation of the Centre for Initiatives and Research for Climate Adaptation (CIRCA) in 2008 and the Albay Millennium Development Goals Office (AMDGO)¹⁵ in 2009.

CIRCA's focus is on research, policy formulation, and information management pertaining to climate change and adaptation (CIRCA, 2013) and is also tasked to contribute on awareness building on disaster risks brought by climate change. On the other hand, the AMDGO is assigned to track the activities and programmes being implemented to achieve the MDG targets, holds important functions in the DRRM cycle in the province which include social impact assessments on DRR (and CCA), monitoring relocation sites with the Department of Social Welfare and Development, implementing nutrition and micro-financing programmes, among others (Tibig, Palmer, & Jegillos, Undated)(PGA5 Interview, 8 July 2014).

To specifically respond to the growing needs to provide training and education for the local government units (LGUs), the Climate Change Academy was created in 2011. The first of its kind in Asia, the Academy alongside CIRCA are main institutions tasked in DRR through capacity building initiatives (GE1 Interview 3 July 2014; GE3 Interview 11 June 2014).

¹⁵ The AMDGO is the reorganised form of Ayuda Albay (Help Albay) formed in 2007 to manage the cluster approach to rehabilitation post 2006 disaster (J. S. Salceda, 2011).

These four institutions with interlinked objectives and harmonised roles facilitate disaster risk reduction and climate change adaptation in Albay, as well as programmes that will initiate sustainable economic growth especially in poverty and disaster stricken communities. To plot these four in the DRRM continuum, these are assigned as follows:

- Risk Reduction (Pre-disaster phase): Climate Change Academy, CIRCA;
- Preparedness and Response (pre-disaster and disaster phase): APSEMO and Team Albay¹⁶; and
- Early Recovery, Rehabilitation and Reconstruction (post-disaster phase): AMDGO.

Building these institutions therefore fortify the fundamental principles of the Albay Model which is anchored by ‘safe and shared development’ strategy and ‘zero casualty’ goal during times of disasters.

3.1.4 Model for National Laws: DRRM and CCA

From 1994 to 2014, Albay has been successful in maintaining the zero casualty goal except in 2006 and 2011 when multiple typhoons hit the Bicol region which left Albay with numerous deaths and billion pesos of damages to infrastructure and agriculture. Due to its commendable performance in DRRM, Albay was declared as a role model of the United Nations International Strategy for Disaster Risk Reduction (UNISDR) for ‘Institutionalized and Innovative Disaster Risk Management in 2008. This recognition has further reinforced Albay’s position as a champion LGU in DRRM not only in the Philippines but in the world as well.

Two national laws on DRRM and CCA were in fact based on the Albay Model. The Republic Act (RA) 9729 or ‘The Climate Change Commission Law of

¹⁶ Team Albay is a quick response emergency group organised by Albay Governor Salceda to spearhead response, recovery and rehabilitation missions in the country during natural hazards and human-made disasters and other national emergencies.

2009’ and the RA 10121 or the ‘The Philippine DRRM Act of 2010’ are the laws that mandate the institutionalisation of a DRRM Office (aside from the DRRM Council) and the Climate Change Commission, respectively. Prior to the passing of these laws, Albay organised two national conferences on climate change resulted in “Albay 2007 Declarations” and “Manila 2009 Declarations” ‘which has become a tool for the early passage of the Climate Change Act and the creation of the Climate Change Commission which is the sole national-level policy-making body tasked to coordinate, monitor and evaluate the programs and action plans of the government relating to climate change’ (UNISDR website). Furthermore, because of the consecutive deadly typhoons that hit the Philippines in 2008, 2009 and most especially in 2010 which exposed the weak disaster management in the country, legislators had more reason to accelerate the passing of the DRRM Law.

The strong leadership of the Albay Governor Joey Salceda who is also known in the country as the ‘green economist’ and a champion of CCA and DRR along with his strong networks locally and internationally, institutionalised CIRCA in 2009 which provides technical support on research and development to APSEMO about climate change adaptation strategies. CIRCA is currently co-managing the Academy with APSEMO.

3.2 The Climate Change Academy: An innovation

3.2.1 Baseline: Education for Disaster Risk Reduction

Looking at the DRRM institutions that are already in place prior to the Academy’s establishment in 2011, the APSEMO and CIRCA have done capacity building efforts for communities and stakeholders at different levels and capacities. APSEMO as the permanent DRMO in the province facilitates the conduct of information, communication, education and mobilisation programmes to improve the community’s sense of preparedness in times of impending disasters (Espinosa, 2013) since 1994. On the other hand, CIRCA initiates research and education in mainstreaming climate change mitigation and adaptation especially in relation to

agriculture and environment with communities and other stakeholders to public consciousness. While both institutions were able to reach out to communities in terms of awareness-raising on DRR and CCA, the integration of both initiatives has yet strongly come across.

It should also be noted the important role of national government agencies such as the Philippine Institute of Volcanology and Seismology (PHIVOLCS) and the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) in terms of providing education on early warning systems and community-based warning and evacuation planning.

The contribution of the academic community such as the Bicol University, Ateneo School of Government (ASoG) and the University of the Philippines Los Baños (UPLB) and non-governmental organisations such as Oxfam Great Britain, Christian Aid and some UN agencies such as UNDP have conducted information education and communication campaigns on DRRM at varying levels (Espinas, 2013; Salceda, 2012a).

In a study conducted by (Evasco and Alejandro (2011)), the level of preparedness of 115 high risk barangays in Albay in prevention phase was evaluated as moderate in terms of disaster management orientation, formation of disaster response organisations, counter disaster planning, emergency communication system, and public education. However, the said barangays were evaluated as very poor in disaster preparedness in terms of infrastructure development to counter the impacts of hazard risks such as flooding. It was argued therefore in the study that there is a need to further increase the capacities of the communities through the institutionalisation of DRMOs at the municipal/city levels (Evasco & Alejandro, 2011).

3.2.2 Institutional Profile

Being a model in DRR and CCA and consequently because of the passage of the CCA Law, the Climate Change Academy for the LGUs in the Philippines was established and inaugurated in 2011 in Albay under the auspices mainly of CIRCA and then APSEMO. It is the first institution in the country that provides education, research, training and public awareness programmes pertaining to climate change adaptation and disaster risk reduction. It envisions for ‘a world-renowned Academy on CCA and DRR towards the development of empowered, socially-responsible and resilient communities’ (Daep powerpoint, 2014).

The Academy was created upon the initiative of the Provincial Government of Albay in partnership with the Bicol University, UN System, Agencia Española de Cooperación Internacional para el Desarrollo (AECID), the Office of the President, Climate Change Commission, University of the Philippines Los Baños, International Centre for Agroforestry, CLIM System Limited, University of Sunshine Coast - Australia, and various national government agencies such as the Department of Science and Technology, Department of Environment and Natural Resources, Department of National Defense through the Office of Civil Defense (OCD), Department of Interior and Local Government (DILG), and the Department of Agriculture (Climate Change Academy Brochure, undated). This wide array of stakeholders that worked together to establish the Academy through their technical and financial support demonstrated the strong institutional anchor that is required to carry out the needed actions for its institutionalisation process.

Apart from the CCA Law, the long history of active engagement of the Province of Albay in terms of DRR and CCA, of which the Governor has played a major role, has established a well-grounded framework and legal basis arising from the following local and international agreements as shown in Box 1.

Box 1. Legal Basis of the Climate Change Academy

- UN Framework Convention on Climate Change (UNFCCC) – as a commitment to Article 3 which stresses that ‘parties (countries) should protect the climate system for the benefit of present and future generation of humankind, on the basis of equity and in accordance with their common differentiated responsibilities and respective capabilities’;
- 2007 Albay Declaration on Climate Change Adaptation – as a support to initiate the framework for the mainstreaming of global warming concerns and the disaster risks into the national and local planning, accounting, and budgeting system and for supporting local government, private, and civil society initiatives for climate change adaptation;
- 2009 Manila Declaration – affirmation to UNFCCC which pushes for implementing scientific and innovative approaches in building communities trained in DRR as well as rehabilitation;
- The 1st LGU Summit+3islands (Luzon, Visayas, and Mindanao) and the 4th General Assembly of the League of the Philippines – carrying out of the Memorandum of Understanding with the Office of the President-Climate Change Commission and the UN Systems for the Establishment of the Academy; in accordance with the MDG Achievement Fund jointly implemented by the national government and AECID;
- Republic Act No. 9729 (CCA Law) – BU and the Provincial Government of Albay (PGA) signed an MOU to spearheading a focused competency development program for CCA and DRR management; and
- Memorandum of Agreement between the PGA and OCD designating the Academy as one of the DRRM Training Institute of the National Disaster Risk Reduction and Management Council (NDRRMC).

Source: (Climate Change Academy, Undated)

Hosted by its most robust partner the Bicol University (J. S. Salceda, 2014b), it offers training programmes for executive positions in LGUs around the country as well as public officials down to the village level with the learning goals as follows:

- Orient participants on how climate system works, with focus on large-scale features and processes that are relevant to social and individual decision-making;
- Provide a general overview of the dynamics of the environment with society and how such interaction can be modified and managed with the use of modern climate information;
- Introduce intervention techniques for climate change adaptation initiatives relevant to their context or areas of concern, and;
- Introduce plans on disaster risk reduction and management relevant to their context or areas of concern. (Climate Change Academy brochure, undated)

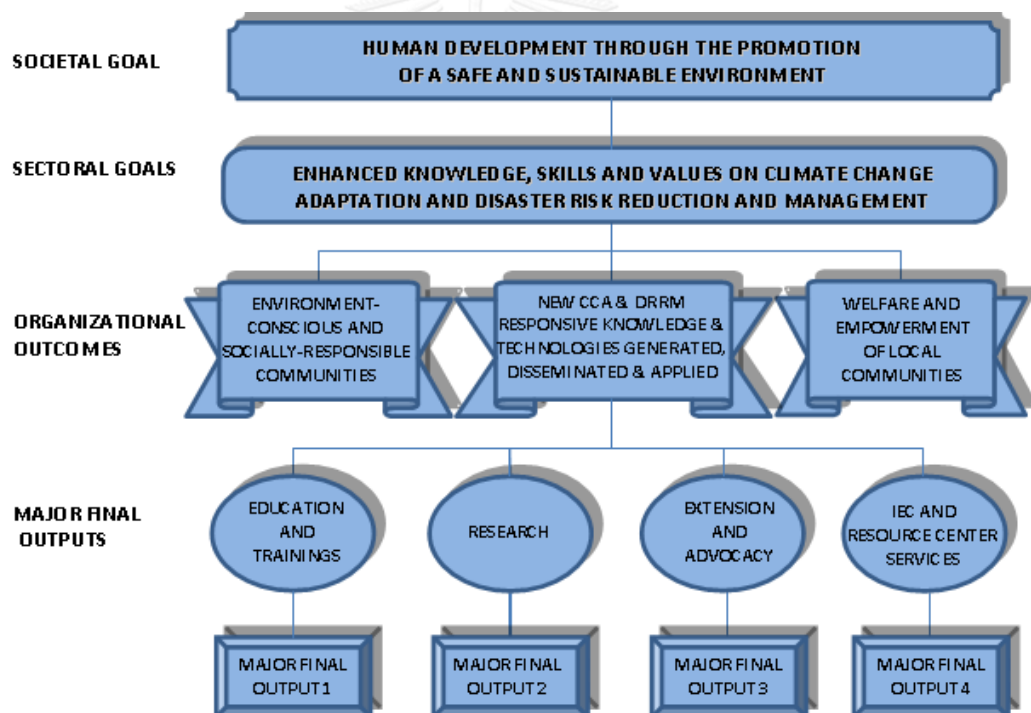
However, in a much broader perspective, the set of institutional goals of the Academy are the following:

- Develop competency programs on climate change adaptation and disaster risk reduction and management from the practice and expertise of the Provincial Government of Albay and from Academic resources of the various colleges of the Bicol University;
- Translate said competency programs into executive training programs that can be tailored to the needs of specific LGUs, government line agencies, non-government organizations, and the private sector;
- Establish a research bank on local and international cases of best practices on climate change adaptation initiatives and disaster risk reduction measures;
- Serve as a venue for international and local conferences and fora on climate change adaptation and disaster risk reduction management; and

- Establish a ‘CCA Network’ of partners and institutions involved in climate change adaptation and disaster risk reduction and management. (Climate Change Academy, Undated)

In order to achieve the set vision and goals of the Academy, Figure 7 describes the logical framework to which education and training is among the four final outputs. It is clear in the framework that the Academy’s ultimate goal is to contribute to human development by enhancing the knowledge, skills and values on DRR and CCA through education and training.

Figure 7. Climate Change Academy Logical Framework



Source: (Daep, 2014). Powerpoint Presentation format. Climate Change Academy.

While the Academy has only been running for more than two years and has only started a certificate training course in 2012, the huge demand to increase the capacities of LGUs, and disaster managers and other stakeholders especially in regions where hazard risks are a constant challenge stretch the Academy’s human

resource to accommodate requests as resource speakers in various trainings organised around the country or to provide technical inputs in local DRRM plans of LGUs. These engagements fall under the Education and Training, and the Extension Services and Advocacy programmes.

Because of its close working relationship with the Office of the Civil Defense (OCD) and APSEMO especially in the pre-disaster phase of the DRRM continuum, and to further institutionalise the functions of the Academy as a training ground for LGUs, it has now been renamed as the Climate Change Adaptation and Disaster Risk Reduction and Management Training Institute (CCADRRMTI). While the OCD serves as the Secretariat of the Provincial DRRM Council (PDRRMC), APSEMO acts as the DRRM Permanent Office in Albay. The Memorandum of Agreement signed by the OCD and Albay in March 2014 officially launched the country's first training institution, combining the Climate Change Academy and the battle-tested APSEMO. According to the governor, this transition 'further elevated the legal and technical status of the Academy... and is designated as a training institute of OCD and the NDRRMC, under RA 10121, for Southern Tagalog (Luzon), Bicol and the Visayas'¹⁷.

To date, the sustainability of the Academy's programmes are being supported both in financial and technical support coming from the Provincial Government of Albay (PGA) itself, the OCD, Bicol University, Ateneo School of Government, UNDP, and national government agencies such as the Department of Environment and Natural Resources, Department of Health, and the National Disaster Risk Reduction and Management Council (NDRRMC).

The operation of the Academy is currently being managed by 25 technical staff of the Centre for Initiatives and Research on Climate Adaptation (CIRCA) led by its executive director Cedric Daep, Ph.D., who also serves as the Chief of APSEMO and PDRRMC Executive Officer, and the Academy's Officer-in-Charge John Eugene

¹⁷ Quote lifted from a news article published by Tribune Wires at <http://www.tribune.net.ph/nation/oed-albay-establish-philippinecca-drrm-training-institute>, accessed on 5 July 2014.

Escobar, the Statistician in APSEMO. Because of the strong involvement of APSEMO through its chief, modules developed from 2012 trainings and onwards were patterned from APSEMO's training materials, with inputs from CIRCA (GE Interview 3 July 2014).

3.2.3 The Training Course: Education for Disaster Risk Reduction

The specific training course that will be mainly referred to as the subject for analysis is the 'Disaster Risk Reduction and Management and Climate Change Adaptation Training' which was organised in seven batches from mid-2012 to early 2013 in Albay. The four-day certificate training course¹⁸ was envisaged to provide professional and technical training and education for managers and professionals working in national government agencies, LGUs including the village councils, and non-governmental organisations (NGOs) who have a track record in working with LGUs in Southern Luzon including the Bicol Region and the Visayas.

3.2.3.1 Course Content: 'education for disaster preparedness'

The content of the course is divided into themes per day: 1) Understanding Disaster Risk; 2) Approaches, Principles and Laws in DRR and CCA; 3) Engaging Stakeholders; and 4) Ways forward and Field Visit (Climate Change Academy, 2012, 2013).

Feedback from 11 informants in the Tracer Study indicates that the content and design of the training have provided the context, information and updates on DRR needed for their work. Ten out of 11 revealed that their recall of topics range from 50 to 80 per cent of the whole topics discussed from the time of training. Interestingly, all the informants shared that the first day of the training which covers a range of topics under 'Understanding Disaster Risk' was the most remembered and most

¹⁸ Participants who completed the training will be given a certificate from the Academy which is a 3-unit credit in a post graduate programme on MA in Public Administration major in Emergency Health and Disaster Management being offered in Bicol University Graduate School.

significant to their roles either in the Provincial Government of Albay (PGA) or in the Sangguniang Barangay (SB). All informants also expressed that this theme is necessary in order to achieve the ‘Zero Casualty’ goal of Albay. Individual recollections of topics that fall under this theme were:

- Disaster and disaster management (Interviewees SB2, PGA3, SB6, SB7, SB8, PGA10, and PGA11);
- Capacity and vulnerability assessment (Interviewees SB2, PGA4, and PGA10);
- Types of disasters and hazards (Interviewees SB2 and PGA9);
- Concepts of DRR and CCA (Interviewees PGA3, SB7, and SB8);
- Hazard mapping (Interviewees PGA4, SB6),
- Weather related hazards (Interviewees PGA5, PGA9); and
- Early warning systems and evacuation (Interviewees PGA1 and PGA11).

The basic terms and concepts used in the training programme which are the foundations for disaster risk reduction programmes in Albay are presented in Box 2.

Box 2. Basic Training Concepts and Terminologies Used

Hazards are rare or extreme events in the natural or human-made environment that adversely affect human life, property or activity to the extent of causing a disaster (UNDP).

Exposure is the total value of elements at-risk. It is expressed as the number of human lives, and value of the properties, that can potentially be affected by hazards. Exposure is a function of the geographic location of the elements (UNDP).

Vulnerability is the propensity of things that will likely be affected by a given hazard.

Capacity is a combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster (UNISDR).

Risk is the expected losses from a given hazard to a given elements-at-risk in a given hazard (value of losses-deaths, injuries, destruction of properties). This is expressed in a formula as:

$$\text{Risk} = (\text{Hazard} \times \text{Exposure} \times \text{Vulnerability}) / \text{Capacity}.$$

Disaster is a serious disruption of the functions of a society, causing widespread human, material, or environmental losses which exceed the ability of the affected society to cope using its own resources (UNDP). This is expressed in a formula as:

$$\text{Disaster} = \text{Vulnerability} \times \text{Hazard}.$$

Source: (Escobar, 2014)Powerpoint presentation made during the Writeshop on Formulating Guidelines in Integrating Gender in DRRM Plans, 13 June 2014, Legazpi City, Philippines, pp. 8-16.

The second most popular theme as indicated by seven informants in the Tracer Study was ‘Approaches, Principles and Laws in DRR and CCA’ which was discussed on the second day of the training. Particularly, topics under this theme recalled by the informants were:

- Legal aspects in DRR and CCA (Interviewees PGA5, PGA1, and PGA9);
- Budgeting and planning (Interviewees SB6, SB7, and SB8); and
- Barangay contingency planning (Interviewees PGA11).

While recollection of the Trace Study informants under this theme was quite limited, this session intensively discussed the national and international declarations and platforms on DRRM such as the Hyogo Framework of Action (HFA), Global Assessment Report (GAR), and the United Nations Framework Convention on Climate Change (UNFCCC), and the Philippine laws on DRR and CCA. Concepts learned from the first day of the training are further understood and applied in the real setting. Examples of these are governance dimension of DRR pertaining to risk and vulnerability assessment, risk sharing, social protection, accountability, transparency and budget monitoring, among others (Climate Change Academy training brochure). This section in the training also explained the operationalisation of the mandates of

the DRRM and CCA laws especially in terms of institutionalising permanent disaster risk management office (DRMO) at the municipal/city level with appropriate personnel, structure and budget.

Lastly, only three informants shared that ‘Engaging Stakeholders’ discussed on the third day of the training was significant to their work. The need to learn about ‘local practices on DRR’ (PGA5) and the ‘roles of stakeholders’ (PGA3 and PGA1) can be correlated with their specific functions in the provincial government which actually requires reaching out to different stakeholders who are doing local initiatives in DRR and poverty reduction. This theme discussed the institutionalisation of local DRRM Council as permanent structure in cities and municipalities, with mandated permanent office and staffing, and budget.

The way in which the training content was designed reflects the basic principle of education for disaster risk reduction where communities are developed to become resilient to disasters by becoming aware of the various forms of risks and hazards, and the effects to their communities; their vulnerabilities and capacities; the support systems and mechanisms that are in place ‘to reduce the social, economic and cultural impacts should a hazard event occur’ (UNESCO Website). The training design also operationalises the Albay Model where ‘safe and shared development’ and ‘zero casualty’ are demonstrated by topics on disaster management, early warning systems and evacuations, budgeting and planning, to name a few.

3.2.3.2 Training Methodology: ‘Albay as natural laboratory’

In terms of the training approach, the Academy used participatory methods aided by interactive lectures, case presentations, group dynamics and workshops, individual reflections and exercises, and scenario building and simulations. These mixed approaches which emphasised the mentor as merely an enabler in the training and a starter of the thinking process (Climate Change Academy training brochure, 2012) clearly support what Kelman, Mercer and Karlson (2014) argued that:

‘Education should not be a one-way, but instead should be about education through cooperation, so that people can set and create their own pathways by combining their own knowledge and concerns with those being brought in from outside (p. 97).’

As reflected by the respondents in the Tracer Study, the top three most effective methods/approaches used in the training are the following (order according to preference): 1) workshop/groupwork/brainstorming; 2) lecture and powerpoint presentations; and 3) field exposure/visits. Other training methods noted by the informants were plenary discussion and open forum, and simulation exercises. While some speakers were effective in engaging the participants in the training through the use of experiential approaches on disasters (PGA1 Interview 10 July 2014; PGA10 Interview 1 September 2014), some speakers from the academe were not able to explain highly technical terms and concepts to the participants in such a way that is simple to understand (PGA1 Interview 10 July 2014; PGA10 Interview 1 September 2014; SB6 Interview 17 July 2014). The latter can affect the absorptive capacities of participants to learn as it limits one’s understanding about concepts that are rather easy to grasp when conveyed in simple terms.

The training design itself fosters the importance of learning exchanges between the academic sector (science/theory) and the communities (practice) themselves by bringing together resource speakers from both fields of practice in DRR (GE1 Interview 3 July 2014). The last day of the training which was dedicated to field exposure attempts to bring the lessons closer to reality.

The main pedagogical approach which the Academy is using is the ‘Albay as a natural laboratory’ (Salceda, 2012; GE1 Interview 3 July 2014). The constant threat of hazard risks in Albay as demonstrated by typhoons that hit the province every year serve as training ground for LGUs to prepare and adapt to the adverse impacts of disaster risks (GE3 Interview 11 July 2014). As Bicol University’s premise in forging partnership with the Academy, the LGUs as the ‘first on the ground’ in disaster preparation, response, recovery and rehabilitation is a crucial element in providing

‘education to build resilient communities’ (AC11 Interview 17 July 2014). This principle was reflected nonetheless in the selection of participants of this training as attendees represent the LGUs from different regions, national government agencies, academic institutions and some NGOs.

However, the Albay Model in DRRM as a ‘standard’ for LGUs should be contextualised according to the local conditions and capacities of LGUs in terms of replicating this strategy to other parts of the country (GE3 Interview 9 June 2014, GE6 Interview 9 July 2014). That is why in Extension and Advocacy services of the Academy, the modules and the training design are ‘customised according to the hazard area in order to maximize the output and minimize the cost’ (GE1 Interview 3 July 2014). This process is important for disaster managers and local governments in general to enable them to understand better the complex dynamics of communities and people and one’s vulnerabilities and capacities in an equally intricate web of systems in the local and national context.

Further, in order to consolidate and expand the knowledge gained from the training course, the Academy and the APSEMO conducts follow up trainings, for example on agriculture in relation to climate change and disaster risk reduction at the provincial level and follow up meetings to discuss further the operationalisation of the DRRM plans at the village level.

3.2.3.3 Course Trainers: Pool of DRR experts and practitioners

From the interviews gathered and review of training documents of the Academy, it was found out in this thesis that a pool of trainers and practitioners are tapped regularly by the Academy to give lectures and inputs during workshops. APSEMO and CIRCA managerial and programme staff such as the executive director, officer-in-charge, planning officers, consultants are given roles in the training. Experts coming from different national agencies such as the Department of Environment and Natural Resources; PHILVOLCS, PAGASA, Climate Change Commission, among others, have been a regular part of the training pool. The

academic community comprising of the Bicol University, University of the Philippines – Los Baños and Ateneo De Manila University also provide technical support. As already discussed in Section 3.2.2.2, DRR practitioners at the local level such as NGOs, private institutions, and village councils/Sangguniang Barangay, impart valuable lessons on disaster preparedness and resilience building in the training as well.

3.2.3.4 Further improvement: ‘learning from others’

While the experience of Albay is considered as the best teacher of the Academy when its own governor declared that the ‘DRRM experiences of the province are the core learning [building] blocks of the knowledge management institution’ (Salceda, 2011, cited in Legaspi, 2011), the Academy’s and APSEMO’s chief stressed that the training modules can further be improved and developed by ‘learning from others’ (GE1 Interview 3 July 2014).

The active exposure of the training staff to national and international conferences and study tours, especially on occasions when lead trainers of the Academy are invited to give trainings in different areas in the Philippines and are requested to render support to others provinces’ DRRM strategies and plans especially those that were recently affected by strong typhoons (Mindanao and Visayas), provides an opportunity to obtain new information and strategy that may improve the training module of the Academy and the DRRM programmes in Albay in general (GE1 Interview 3 July 2014). One example that has been learned from study tours abroad was about new ideas on early warning systems for typhoons, storm surge, flood, landslide, earthquake, and lava flow (GE1 Interview 3 July 2014). The science and technology on storm water management which was also learned from an Academy staff participation in an international convention can also be maximised in order to introduce another innovation in DRR and poverty reduction especially in preparation for the dry season (GE1 Interview 3 July 2014).

The openness of the Academy to learn from others resonates with the EDRR's principle that underscores the importance of relationships within societies and communities despite having varying contexts and needs in ensuring the well-being of the people.

3.3 Summary

The integration of DRRM and CCA in the development agenda of the Provincial Government of Albay led by its visionary leader Governor Joey Salceda informs the way in which the Climate Change Academy itself was developed. The vast experiences of Albay in terms of disasters and its highly recognised expertise in DRRM through APSEMO were used in developing the Academy's education and training modules for the local government units and other stakeholders. The contribution of the academe, local and international NGOs, national government agencies and development partners have been recognised in terms of evaluating the level of capacities of LGUs and communities which served as a baseline in determining their knowledge and skills prior to the Academy.

The awareness on and adherence to national and international frameworks and policies on DRRM provide a moral high ground for Albay in terms of increasing the knowledge, skills and values of its constituency towards achieving the development targets of the province and maintaining the 'Zero Casualty' goal during the occurrence of natural hazards.

The knowledge sharing exercises that were apparent not only in the extension service of the Academy but in the training course implementation itself help improve the modules that can best serve the interest of Albay and other provinces that avail of the education and training programme of the Academy.

The mandates under the DRRM and CCA Law which have been the backbone of the need to capacitate and strengthen local communities to prepare, overcome and adapt to the impact of climate hazards and risks was a primary concern of the Province of Albay hence the establishment of the Academy.



CHAPTER IV

IMPACT OF THE ACADEMY: CAPACITIES BUILT AND CHANGES IN BEHAVIOUR, ATTITUDE AND WORKPLACE POLICIES AND PRACTICES

This chapter mainly presents the results of the Tracer Study of 11 individuals to demonstrate the impact of the Academy in terms of the capacities gained, change and non-change on behaviour and attitude, and in work place policies and practices both at the Provincial Government of Albay (PGA) and the *Sangguniang Barangay* (SB or Village Council). Specifically, this chapter will answer the following research sub-questions:

- What capacity has been built in the participants from the local government units as a result of the training provided by the Academy?;
- What changes have/have not occurred in the participants' personal behaviour as a result of the Academy's training programme?, and
- What changes have/have not occurred in the work place policy and programme/s as a result of the Academy's training programme?

To be able to cover all the research questions, this chapter is divided into five sections. In Section 4.1, on the baseline level of capacities, behaviours, and policies prior to the Academy training programme will be discussed. In Section 4.2, discussion on capacities gained and lessons learned as well as on change/non-change in personal behaviour and attitude will be covered. Section 4.3 will discuss the change/non-change in the workplace front. While reference to the conceptual framework used in this thesis will be discussed throughout the first two sections, Section 4.4 will provide more analysis on the social condition where the informants are contextualised by looking into the socio-ecological model of change and the organisational theory. Finally, Section 4.5 will provide a summary of the arguments of this chapter.

4.1 Baseline: Pre-Academy Capacities, Behaviours, and Policies

While all of the informants representing the Provincial Government of Albay (PGA) have relatively possess capacities regarding disaster risk reduction because of their respective roles that are imbedded in the DRRM system in Albay, most of the informants from the Sangguniang Barangay (SB) have gained the needed knowledge and skills for DRR from the Academy's training programme. The level of awareness on DRR of the PGA staff is also attributed to their educational background where two of the seven informants under this grouping have obtained a masters and a PhD degree on public administration with a certain focus on DRR in Bicol University. Apart from the competencies gained in higher education, four PGA staff and one SB officer have undergone other trainings sponsored by the provincial government and Bicol University prior to the Academy's training programme. Two informants acquired capacities on Community-Based Disaster Risk Reduction and Management (CBDRRM), one on Local Climate Change Action Plan, one on 'Capacity Strengthening of 5 Provincial Governments and State Universities in Integrating Climate Change Adaptation and Disaster Risk Reduction', one on health emergency management, and another one on organic agriculture.

While there is an apparent advanced training acquired by those working in the PGA, the SB officials benefit from community briefings and trainings on hazard and risk mapping, early warning and evacuation protocols in relation to 'Zero Casualty' policy, disaster resiliency building organised by APSEMO, Bicol University, CIRCA, and some NGOs such as the Social Action Center of the Diocese of Legazpi, (Espinosa, 2013; J. S. Salceda, 2012). Keeping in mind the political transition and change of leadership that happens every after an election year, for example in 2010, APSEMO and CIRCA make sure to gather all newly elected SB chiefs (barangay captains) so that they will be briefed about the DRRM system that should be set up in their respective barangays (GE6 Interview 9 July 2014). Since the DRRM and CCA Laws are quite relatively new, the institutionalisation of permanent disaster risk management office in the municipal/city level that should be coordinated down to the barangays is still in a work in progress. The apparent capacities gained and the

institutional arrangement established at the provincial therefore have yet to cascade at the cities/municipalities and barangay level, where DRR activities are evaluated as bordering to mere disaster response with very little disaster preparedness and post-disaster activities (Espinias, 2013).

Looking into the local arrangements and level of capacities which demonstrated notable performance of Albay regarding the 'Zero Casualty' goal in times of hazard risks prior to the Academy's training programme reflect an overall disaster preparedness of the local people. While Albay is already considered as a model in DRRM, there is still much to understand about what constitutes disaster preparedness in the context of the PGA and SB officials being evaluated in this thesis. As the sections that follow in this chapter will unpack disaster preparedness as key behaviour change as a result of the training programme, the capacities on knowledge, skills and attitude that precede change will be understood as well.

4.2 Gained capacities and application of lessons learned toward behaviour and attitude change

The development of capacities on critical thinking, problem solving and other social and emotional skills that is essential in people's survival in times of disasters (Lopez-Carresi *et al.*, 2014) has been assessed by the results of the Tracer Study.

4.2.1 Knowledge building and skills development

To demonstrate this, Table 5 and Table 6 will provide the summary results of the knowledge and skills gained as a result of the training programme which will be explained in greater detail in the sections that follow in this chapter.

Table 5. Results of Tracer Study on Knowledge Gained

Knowledge Gained	Frequency
Hazard and risk awareness	11
Contingency planning	10
Hazard and resource mapping	10
Concepts and terms on DRR and CCA	9
Capability and vulnerability assessment	7
Planning and budgeting	4
Early warning system	3
Alternative livelihood	2
Response and rehabilitation process	2
Environmental protection	1
Energy conservation	1
Gender in DRR	1
Networking	1

Note: Summarised results of Tracer Study questionnaire and interviews.

Table 6. Results of Tracer Study on Skills Learned

Skills Learned	Frequency
Risk communication	9
Survival	9
Decision making	9
Leadership	8
Identification of alternative livelihoods	8
Critical thinking	7
Organisational development and management	7
Capability and vulnerability assessment	6
Hazard and risk mapping	4
Contingency planning	3

Planning and budgeting	4
Early warning system	1
Adaptation	1
Barangay engagement	1

Note: Summarised results of Tracer Study questionnaire and interviews

4.2.1.1 Awareness and skills on hazards, risk, vulnerability and capability

As the data suggest in Table 5, increased awareness on hazards, risks, vulnerability, and capability are the most learned knowledge from the training attended. Based from the power point presentation materials used for the training, multiple hazards such as typhoons, tsunami/storm surge, flooding, and lava/mud flow, among others, that pose risk to the province were used as examples to describe the concepts explained.

This set of learning is crucial as these four concepts define what disaster is in the context of Albay and that these inform policies and practice on how disaster risk reduction can be done in communities. For example, the case of the 2006 Typhoon Reming disaster was an unforgettable experience for the entire population of Albay because it showed how vulnerable the province is during extreme geophysical and climatological events such as volcanic eruption followed by prolonged raining and typhoons. As one informant remembered on that fateful day in 2006:

‘The villages were not prepared enough during the Typhoon Reming maybe because of the events unfolded too fast. As far as I can remember, people were too shocked to know the massive deaths caused by the Mayon landslide.’
(Kulang ang preparasyon kan mga barangay kaitung Reming siguro dahil siguro sunod-sunod kaitu ang pangyayari. Nagerumduman ko, natulala ang mga tawo kan kadaklan na nagkagaradan dahil sa landslide hale sa Mayon)
 (SB6 Interview 17 July 2014)

Another informant felt that Typhoon Reming caught the Province of Albay off guard:

‘The people were helpless during the disaster because of lack of preparations.’
(Dae handa ang Albayanos, mayong naginibo ang barangay kaitung kasagsagan na kan delubyo.) (SB7 Interview 9 August 2014)

Naturally, all of the informants of the Tracer Study refer to the 2006 disaster as a reminder that Albay’s ‘Zero Casualty’ goal is important in protecting the lives of the people.

The skills that follow (shown in Table 6) reflect the actions needed for the top most lessons learned of the informants. These are skills on risk communication, survival, decision making, leadership, managing organisations, identification of alternative livelihoods, critical thinking and organisational management. For first responders to disasters like the members of the Barangay Disaster Risk Reduction and Management Committee (BDRRMC), these skills sets are necessary in order to plan and carry out programmes on disaster risk reduction, response, and reconstruction and rehabilitation required by the Provincial Government of Albay in line with the ‘Zero Casualty’ goal.

The first three skills mentioned reinforce each other as the need for survival (personal and community) is preceded by sound decision making and the timely communication of risks through early warning system (discussed in 4.1.1.3). For example in the case of the July 2014 Typhoon Glenda, the barangays/villages were able to prepare in advance by activating all the systems for pre-disaster, disaster, and post-disaster phases (SB2 Interview 8 July 2014, SB6 Interview 17 July 2014, SB7 Interview 9 August 2014). This was particularly observed in one BDRRMC in Legazpi City (where two informants rendered volunteer services) visited for the thesis data collection immediately after the typhoon. To demonstrate this, an informant shared that:

‘Equipment such as flashlight, emergency lamps and food needed for relief good packs were already prepared in the barangay hall before Typhoon Glenda hit. All village security forces and barangay health workers were in stand-by for needed assistance.’ (*Nakahanda ang mga ilaw, flashlight, pagkaon para sa relief goods sa barangay hall bago pa man ang pagtama ki bagyong Glenda. Nakahanda man ang mga barangay tanod asin mga barangay health worker para sa pag-akuder sa mga tawo.*) (SB6 Interview 17 July 2014)

While hazard and risk awareness was the most learned topic in the training, only four out of 11 informants indicated hazard and risk mapping as an acquired skill. This can be explained by looking at the particular workplace context of the four informants. It was found out that these four represent the Sangguniang Barangay (SB) where skills mentioned are necessary to undertake appropriate DRRM planning in their respective communities. As underscored by Governor Salceda, ‘Risk mapping is a common resource to all phases of DRR-risk mitigation, preparedness, damage assessment, response, relief and recovery’ (J. S. Salceda, 2013, p. 26).

In relation to this, six informants indicated that skills and capability and vulnerability assessment were enhanced because of the training. This skill is part of a continuing process where people and organisations identify not only the hazards and risks but the vulnerabilities and capacities of the population affected in the communities (Escobar, 2014, p. 22). However, only two from the barangay front indicated this particular skill as an outcome of the training.

4.2.1.2 Contingency planning and budget literacy

Planning and budgeting as crucial components of the legal aspects of DRRM are among the field of learning that was identified in the training. All informants representing the *Sangguniang Barangay* (SB) expressed that to be able to perform their duties in the BDRRMC, they need to understand the concepts (i.e., disaster risks and hazards) and locate these in their own communities, and consequently plan and

appropriate budget for this through the calamity fund¹⁹ of the LGU's internal revenue allotment (IRA). As a former barangay official in a city in Albay explained:

‘Before the training of the Climate Change Academy, there was no proper system in terms of the release of the calamity fund during typhoons. The training gave me proper skills and knowledge in terms of proper budget appropriation and spending through the workshops that we did in the training.’ *(Dati, daeng sistema ki pag-release kan calamity fund kapag may minaabot na bagyo. Pagkatapos kaitung training kan Climate Change Academy sa paagi kang budget planning na piggibo mi duman, aram mi na kung paano gastuson ang budget kan samuyang barangay.)* (SB7 Interview 9 August 2014)

According to the DRRM Law, the allocation for the local DRRM fund should not be less than five per cent of the estimated revenue from regular sources (i.e. IRA) which 30 per cent for pre-disaster and 70 per cent for post-disaster activities should be appropriated and spent by the BDRRMC. In the provincial level, DRRM and CCA programmes where the ‘Zero Casualty’ policy is implemented is being allocated nine per cent of the annual budget which is above the minimum mandated share (Salceda, 2012).

This crucial learning from the point of view of the barangay official coming from a city that is vulnerable to flooding, landslide, mud flow has been supported by another officer from a barangay in another municipality which has the same risks said:

‘Now we know that the calamity fund of the barangay should be allocated accordingly according to the 30% for quick response and 70% for preparations breakdown.’ *(Ngunyan aram mi na ang breakdown kan calamity fund iyu ini: 30% para sa Quick Response tapos 70% para sa prerasyon.)* (SB6 Interview 17 July 2014)

¹⁹ Calamity fund is the term commonly used for DRRM fund in the Philippines.

The planning and budgeting process as explained and done during the workshop session in the training have provided or further improved their knowledge and skills in disaster preparedness in the barangay. Necessary tools such as the 'barangay disaster-readiness checklist' (refer to Appendix F) and the 'barangay disaster readiness profile' (refer to Appendix G) guided the participants in applying the learning from the training, especially when they come back to their communities to function in the BDRRMC (PGA1 Interview 10 July 2014). This acquired or enhanced skill will make use of the awareness of hazards, risks, and capabilities of the communities that are mapped out during the training. These forms are prepared by the village chief, secretary, and the treasurer and are standard procedures to be accomplished by all village councils in the country in order to comply with the Department of the Interior and Local Government's mandate in implementing the DRRM law.

Based from the hazard, risk and resource information done by the BDRRMC, a contingency plan is drawn. It is a plan organised by the BDRRMC which specifies the tasks and responses according to hazard assigned to members of the committee. A sample contingency plan is presented in Appendix H. While ten people declared that contingency planning is a core learning in the training, only three from the barangay front indicated it as a skill learned as a result of the training. It should be noted however that two of the three informants have strong recollections about the 2006 disaster and therefore might have influenced their judgement toward the skill acquired. The other informant who has a strong role in the organisation of BDRRMC volunteers and disaster management teams in the community elected can be argued as a strong demonstration of the skill in contingency planning.

4.2.1.3 Early warning systems and evacuation

Since the institutionalisation of APSEMO in 1994 and thereafter the implementation of the 'Zero Casualty' goal in Albay, early warning systems and evacuation is already a standard procedure in the province in times of natural hazards such as typhoons and volcanic eruptions. APSEMO as the lead agency in disaster

preparedness coordinates all warning communication protocols through ‘Infoboards’ transmitted to village officials who are provided with mobile phone SIM packs by the Albay government and who then communicate to their constituents thereafter. The ‘Infoboards’ coming from APSEMO makes use of technology such as a computer software that sends messages to registered mobile phone users (i.e., BDRRMC and local people) for weather bulletins and disaster risk warnings. Community-based warning system such as rainfall monitors is also present in the villages. BDRRMC members were also trained by APSEMO on early warning systems even before the establishment of the Academy. Due to the strong implementation of the ‘Zero Casualty’ policy in Albay, pre-emptive evacuation which is declared every time a disaster risk is looming is a learned and abided procedure since the establishment of APSEMO.

Given this information, knowledge and skills regarding early warning and evacuation was indicated a low learning in the Tracer Study. It should also worthy to note in this analysis that ‘Zero Casualty’ policy was indicated as a low lesson learned but all throughout the interviews, all informants expressed the importance of the policy in disaster risk reduction efforts in Albay.

4.2.2 Indigenous and scientific knowledge

Indigenous or local knowledge of predicting hazards that can lead to disasters as explained by science was considered helpful in practical knowledge and skills enhancement. Some of the examples that were shared in the Tracer Study and interviews are the following:

- ‘Calmness before the storm’ means that the ‘area is in the eye of the storm’ (PGA1 Interview 10 July 2014);
- ‘When wild animals (bores, snakes) come down from Mayon Volcano, it is abnormal and will erupt soon’ means that ‘emission of white steam plumes, rockfall events, edifice inflation from (January 2012) baseline are signs of increased volcanic activity’ (PGA9 Interview 1 September 2014); and

- ‘When ants start to build houses in higher places, there will be flooding’ means that there is soil saturation due to impending flood (PGA9 Interview 1 September 2014).

The Academy that serves as a platform for ‘conversations and interactions between the local people and the science people’ about (signs of) disasters are being integrated in the learning process (AC11 Interview 17 July 2014).

It was observed during the Provincial Disaster Risk Reduction and Management Council (PDRRMC) meeting held a day before Typhoon Glenda made landfall on 15 July 2014 that there was a conscious effort in explaining (especially to the media people present in the meeting) the Council’s memorandum in putting the whole province in ‘Pre-emptive evacuation status’ even when the weather does not show any signs of the typhoon yet. The Academy’s executive director, and at that time the executive officer of PDRRMC, next in line to the Governor, explained that this phenomenon is already understood by the people of Albay and even follow the council’s instruction without hesitation. As the Governor of Albay Joey Salceda quipped during the meeting, ‘the hotter and humid the weather is, the more atmospheric pressure is building up, which means the more dangerous the typhoon coming is’. In more scientific terms this can be explained as: ‘The eye is the location of the storm's minimum barometric pressure: the area where the atmospheric pressure at sea level is the lowest’ (PGA9 Interview 1 September 2014). This is a clear demonstration of how scientific and indigenous knowledge is being used and communicated in Albay.

4.2.3 Experiential learning

Arguably, the informants in the Tracer Study who were one way or another been part or currently part in their work functions as the first responders to disasters felt that the training enhanced their knowledge and skills in DRRM. The practicality of the content of the training modules which drew heavily on experiences in disaster especially in the workshop activities as expressed by all the trainees interviewed

resonates with what one has reflected about the training as ‘learning by doing’ exercise (SB2 Interview 8 July 2014, SB7 Interview 27 August 2014).

The experiential aspect of learning in the Academy supports what Schank, Berman, and Macpherson (1999) argued that the most important goal of the theory ‘learning by doing’ is to ‘foster skill development and learning of factual information in the context of how it will be used’ (Boyd, Garff, McConkie, Roos, & Yandell, 2014). This has been manifested in the training design where lectures are combined with groupwork and workshops (e.g., hazard and vulnerability mapping).

As one respondent shared, the experiential and practical approach used in the training made it easier for the participants to understand the rather technical topics in DRR and CCA (PGA1 Interview 10 July 2014). For example, in terms of practical survival tips in overcoming disaster risks which were shared during the training were notably remembered as an important knowledge in DRR, that is:

‘To be able to avoid damage to your house during a strong typhoon, we have to open a window where the wind is coming to avoid a vacuum that will cause too much pressure inside the house and lead to breaking of window panes.’
(Practical ways of surviving typhoons...kun pano mo daw su house mo bubuksan ang mga bintana ta nganing dae magkaparasa ang mga salming. We have to open the side kun haen ang paros ta nganing dae magkaigwa ki vacuum na magsabog.) (PGA1 Interview 10 July 2014)

Another practical knowledge that was shared during the training was the way to deal with lightning and thunder storms which could pose risks to the local people. This insight has been an important learning for an informant and said:

‘To be able to know how near or far are you from the lightning, the number of thunder will be able to tell you. If there is a three-second gap between the lightning and the thunder that means you are three kilometres away from the lightning. So if the lightning and thunder come at the same time then you are

just within the one kilometre zone where you can be struck by a lightning!’
(Sabi sa training, pag nagkikil-at daa, magbilang ka. Kun pira na second pag nagdalugdog, kada kil-at katumbas saro na kilometro. So kung three seconds an gap kan kil-at sa dalugdog, ibig sabihon tulo na kilometro ka kaharayo sa kil-at. Kun nagsabay an dalugdog nan kil-at, maghanap ka na sin sisirungan ta nasa one kilometre zone na pwede kang tamaan!) (PGA1 Interview 10 July 2014)

However, while all informants felt that the training has provided knowledge and practical skills that are useful to their work and personal survival, all interviewed from the Provincial Government of Albay (PGA) group except for one expressed that the impact of the training should also consider the already strong DRRM ‘training’ of the local people through yearly typhoons especially to those who are in public office. As one informant said:

‘The Albay people already know about DRRM so the training is only a review to them *(Luto na ang mga Albayanos kaya review na lang sainda ang training)*’ (PGA 1 Interview 10 July 2014).

However the same informant explained that the repetition of knowledge reinforces skills and values that are crucial for successful DRRM. Another respondent further stressed that:

‘Even before the training of the Academy, I have attended the first batch of training on emergency paramedics for the Albay Health Emergency Management System (AHEMS) done by the government and the Bicol University so I have a basic understanding about disasters and hazards, but the training broadens my knowledge and skills’ (PGA10 Interview 5 September 2014).

4.2.4 Behaviour change: Disaster preparedness

Given the lessons learned and the application of these in everyday life, it is not a surprising result that disaster preparedness is the overall outcome for behaviour change among the 11 informants of the Tracer Study. It is however important to analyse further what factors influence this change in personal behaviour. Table 7 details the behaviour change recorded in the study which is arranged according to the attributes that were most felt by the informants with corresponding manifestations of these.

Table 7. Results of Tracer Study on Behaviour Change

Observed Changes	Frequency/ Informants	Manifestation
Sense of preparation	11: All	<ul style="list-style-type: none"> • Personal management in household during disasters • Enhanced adaptive capacity during interruptions on basic services such as water, electricity, communication • Risk mitigation regarding economic losses • Alertness to hazards especially typhoons (remembering Typhoon Reming disaster in 2006) • Community preparation through appropriate budgeting for DRRM • Adherence to ‘Zero Casualty’ Goal through awareness on evacuation protocols • Enhance training on emergency paramedics

Confidence on role in the government or in the community	10: PGA1, SB2, PGA3, PGA4, PGA5, SB6, SB7, SB8, PGA9, PGA11	<ul style="list-style-type: none"> • Proper appropriation of budget on DRRM programmes in the barangay • Awareness on laws and policies on DRR and CCA • Awareness in role in DRRM especially on specific functions of Barangay Treasurer in planning and budgeting (procurement of calamity goods)
Change in belief about disaster/s	9: PGA1, SB2, PGA3, PGA4, PGA5, SB6, SB7, SB8, PGA9	<ul style="list-style-type: none"> • Avoidance to disasters can be done • Change from Filipino fatalistic trait as ‘bahala na’ (it is up to God) attitude • From reactive to proactive approach to disasters • From disaster as a way of life to culture of safety
Responsiveness to needs of the vulnerable and marginalised	6: PGA1, SB2, PGA3, PGA5, PGA9, PGA11	<ul style="list-style-type: none"> • Integration of women-led livelihood projects in DRRM • Integration of ideas on climate resilient crops in agriculture programmes for poverty reduction • Prioritisation of women, children and elderly during evacuation procedures
Resilience	2: SB2, PGA5	<ul style="list-style-type: none"> • Integration of women-led livelihood projects in DRRM • Integration of ideas on climate resilient crops in agriculture programmes for poverty reduction
Concern to environment	1: PGA3	<ul style="list-style-type: none"> • Energy conservation in household and workplace • Recycling

Motivation to learn and do more	1: PGA3	<ul style="list-style-type: none"> Contributed to producing information and education campaign materials on climate change with focus on adaptive agriculture Writing a book on DRRM specifically on high risk zones of Albay
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Note: Summary of results of the Tracer Study and individual interviews

4.2.4.1 Influencing factors of behaviour change

As articulated in this section, achieving the desired change in people's behaviour would require understanding of the array of attitudes and external factors that influence ordinary people (Monaghan, 2012, p. 31). This can further be argued by using the socio-ecological model of change which explains the complex interplay of personal, cultural, and environmental factors that influence the desired behaviour change according to cross-cutting factors of information, motivation, ability to act, and norms will attempt to describe the results of the Tracer Study. Table 8 tends to summarise the capacities gained by the respondents based on the four cross-cutting factors mentioned.

Table 8. Capacities Gained According to 4 Cross-cutting Factors in the Socio-Ecological Model of Change

Factors	Capacities Gained
Information and Knowledge	<ul style="list-style-type: none"> Hazard and risk awareness Contingency planning Hazard and resource mapping Concepts and terms on DRR and CCA Capability and vulnerability assessment Planning and budgeting

	<ul style="list-style-type: none"> • Early warning system
Factors	Capacities Gained
Motivation (Attitudes and Beliefs)	<ul style="list-style-type: none"> • Change of beliefs in disasters: Can be mitigated and avoided • Confidence on role in the government/DRRMC • Resilience • Needs of the vulnerable • Sense of preparation • Gender sensitivity • Environmental concern • Learning by doing
Ability to Act (Skills, Efficacy and Access)	<ul style="list-style-type: none"> • Risk communication • Survival • Decision making • Leadership • Alternative livelihoods identification • Organizational development and management • Critical thinking • Capability and vulnerability assessment • Planning and budgeting • Early warning system • Hazard and risk mapping • Adaptation • Engagement with barangay
Norms (Perceived, organizational, socio-cultural)	<ul style="list-style-type: none"> • Zero Casualty goal • Culture of safety • Indigenous knowledge

	<ul style="list-style-type: none"> • Learning by doing • Accountability of public officials in times of disasters • Competitiveness • Sense of recognition in DRRM
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Note: Summary of results of Tracer Study questionnaire and individual interviews

As presented in the Table 8, it can be argued that capacities built according to the four factors in the matrix somehow overlap and relate with each other as skills are linked with the knowledge gained, same way with norms, either perceived or organizational, relate to motivations of the individual within the system in which he/she interacts with. This obvious interrelationship can be further explained by what Brehm and Rahn (1997) who argued that behaviour change toward a common goal depends on the positive association between the level of trust of individuals have for one another and the favorable performance of governments in terms of accountability, flexibility, and innovation in policy making and the inclusion of stakeholders in planning processes (cited in Fazey *et al.*, 2007).

In this case, the success of the Albay Model combined with the proven leadership of the Governor and the DRRM institutions that rally behind this serve as a gravitational force toward desired behaviour change. This in effect creates socio-cultural norms that encourage positive behaviour change toward successful disaster risk reduction. These norms often point to how these are described by Governor Salceda (2010, 2012a, 2013, 2014) as the ‘culture of safety in Albay’ in his public speeches and interviews and by the Academy and APSEMO chief who defined ‘DRR as a way of life’ (Daep, 2008, p. 11). This philosophy has been standing to support the developmental and DRR targets of Albay.

The next section under this narrative will further explain the interaction between human agency and the environment at large that influence changes in the workplace.

4.3 Change in Workplace policy and practice

Assessing the direct impact of the Academy in terms of change in workplace policy and practice should be understood in terms of the different contexts of the informants in the Tracer Study. As already discussed in Section 4.1, the personal disposition of the respondents as well as the environment that provides spaces of interaction contribute, one way or another, in the attainment of desired changes.

4.3.1 Work history and experiences from previous disasters

The results of the study show that six out of seven PGA officers have been working with their respective workplaces for more than four years prior to the training. In the community front, two out of four SB officials have been serving their communities in different capacities prior to the 2012 training. The lessons learned and capacities gained from the training can be attributed to the years of incubation of knowledge and information attached to the organizational mandates in achieving the goals of the Province of Albay, particularly the 'Zero Casualty' that has been standing since 1994. However, all claimed that the training served as a comprehensive input to their work, while three out of seven respondents coming from the PGA felt that it served as a review of what they already know but with further updates on climate related hazards and new approaches to DRRM. Table 9 captures the work history of the respondents in the Tracer Study.

Table 9. Work History of Tracer Study Informants

Informant No./Code	Organisation/ Workplace During Training Year	Position During Training Year	Current Organisation and Position
PGA1	Provincial Government of Albay (PGA) and Local Government Unit (LGU)	Local Government Operations Officer II	- same -
SB2	Sangguniang Barangay (SB) in Legazpi City	Barangay Councilor	SB in Legazpi City, Barangay Councilor; Legazpi City League of Barangays, Staff assisting another barangay in the same city; and Safety Officer of a hardware and heavy equipment company
PGA3	PGA	Assistant Chief of Office on Human Resources	- same -
PGA4	PGA	Researcher	- same -
PGA5	PGA	Project Development Officer II on poverty reduction	- same -
SB6	SB in the Municipality of Malinao	Barangay Councilor	Legazpi City League of Barangays, Staff, and Private Business Employee

SB7	SB in Ligao City	Barangay Treasurer	City Government of Ligao, Legislative Staff
SB8	SB in Ligao City and League of Barangays, Ligao City	Barangay Captain and League President	City Government of Ligao, Elected official
PGA9	PGA	Admin Aide IV on disaster risk reduction	Planning Officer II
PGA10	PGA	Admin Aide IV on health	- same -
PGA11	PGA	Supply Officer	- same -

Note: Summary of results of Tracer Study questionnaire and individual interviews

4.3.2 No significant change of staff roles in PGA positions

Given the organised DRRM systems that are in place at the provincial level discussed in Section 3.1.3, it is not surprising to know that there are no significant changes in the staff roles under the PGA except for the fact that one has been promoted to a higher position because of the training attended. It was revealed however that the change in position was only ceremonial as the staff has been doing the roles assigned attached to this position long before the promotion (PGA9 Interview 1 September 2014).

It should be noted however that despite their positions which some seem to be unrelated to DRRM, such as Administrative Aide and Supply Officer, the Tracer Study was able to inquire about their main task/s and their most significant contribution in their work in DRRM observed after the training. Table 10 describes these ‘changes’ and contributions among the informants of the study.

Table 10. Workplace Changes/Contributions of Tracer Study Informants

Organisation, Position and Main Role During the Training	Most significant contribution and workplace practice change
1. PGA/LGU of Ligao City, Local Government Operations Officer II: Assists in <i>barangay</i> operations	<ul style="list-style-type: none"> • Application of Barangay Disaster-Readiness Checklist and Barangay Disaster Readiness Profile in the communities
2. SB in Legazpi City, Barangay Councilor: Environmental Protection Committee Chair in Barangay Disaster Risk Reduction and Management Council (BDRRMC)	<ul style="list-style-type: none"> • Resource information transfer to members of the BDRRMC • Organization of the BDRRMC
3. PGA, Assistant Chief of Office	<ul style="list-style-type: none"> • Inclusion of DRR and CCA in Human Resource and Management office staff trainings; information sharing
4. PGA, Researcher	<ul style="list-style-type: none"> • Research in and formulation of information, education and communication (IEC) materials of the Academy
5. PGA, Project Development Officer II	<ul style="list-style-type: none"> • Integration of gender and development (GAD) in DRR programmes, i.e. women led livelihood projects for poverty reduction • Information sharing among colleagues in office
6. SB in the Municipality of Malinao; <i>Barangay</i> Councilor: Member of BDRRMC; Chair of Senior Citizen	<ul style="list-style-type: none"> • Contribution to ‘Zero Casualty’ goal of Albay

Committee, Member of Committee on Barangay Affairs	
7. SB in Ligao City; <i>Barangay</i> Treasurer	<ul style="list-style-type: none"> • Appropriate planning and budgeting for BDRRMC
8. SB in Ligao City; <i>Barangay</i> Captain	<ul style="list-style-type: none"> • Appropriate planning and budgeting for BDRRMC
9. PGA, Admin Aid IV: Overall support to DRRM operations	<ul style="list-style-type: none"> • Supervision of PDRRMC and APSEMO advisories on warning information about impending threats • Advise and recommendation to PDRRMC Chair concerning disaster prevention and control
10. PGA, Admin Aid IV: Assists in medical missions, training of emergency paramedics	<ul style="list-style-type: none"> • Formulation of capacity building on disaster management strategy in the hospital setting
11. PGA, Supply Officer: Oversees the technical operations of the office	<ul style="list-style-type: none"> • Support to trainings conducted by the Academy

Note: Summary of results of Tracer Study questionnaire and individual interviews

Despite the non-change in official staff roles and designations of most of informants under the PGA grouping, it is a desirable demonstration of initiative to translate what they have learned from the Academy to action, however small this is.

4.3.3 Changes in barangay operations

Another factor that affects the achievement of the desired change is the issue of political discontinuity. As expressed by a staff in the Academy, the Academy's determination to train all the LGUs especially the barangay officials might go in vein as periodic elections hamper the smooth continuity of transfer of knowledge and

skills, like what happened in the last midyear national and barangay elections in May 2013 and October 2013, respectively. However, the training continues and the Academy and APSEMO organised follow up meetings with the barangays (GE3 Interview 11 July 2014).

At the barangay level, however, changes in the workplace were registered soon after the training was conducted in 2012. Three out of the four respondents who held positions in their communities at the time of the training, expressed that the most significant change that were made as a result of the training was the establishment of a BDRRMC which includes the appropriate planning and budgeting as prescribed in the DRRM Law. The system that was put in place made the barangays, in some way, less dependent to the city or municipal council in times of calamities because the barangays are more disaster prepared in terms of, for example, procuring early warning equipment and setting up communication systems and assigning evacuation centres before the typhoon season comes (SB7 Interview 9 August 2014). Another important change in the workplace is the organization of volunteers in the BDRRMC that beefed up the human resource of a particular committee especially during disasters (SB2 Interview 8 July 2014). All of these changes were intended to contribute to the 'Zero Casualty' goal of Albay.

Putting in context these two levels of local governance in Albay, one can see the interplay of different factors that contribute to human agency toward change. The four cross-cutting factors discussed in Section 4.1 that intervene in the web of systems from the self to the larger arena that is the community have facilitated the establishment of a more disaster prepared *barangay* council members. The awareness provided by the Academy and as well as the strong mandate coming from the municipal and provincial governments strengthened the 'motivation to do more in DRRM' (GE1 Interview 3 July 2014).

4.4 'Zero Casualty' goal as an anchor for organisational interaction

The results of the Tracer Study indicate that the knowledge and skills learned from the training have contributed to the overall disaster risk reduction (DRR) strategy of Albay.

The theme that cuts across the education for DRR (EDRR) programmes in the Province of Albay is the 'Zero Casualty' strategy which has been proven effective and lauded for 19 years except in 2006 and 2011 when multiple hazards struck the province. The directness of the message regarding the value and the preservation of lives of the people of Albay combined with the fearless and visionary governance style of Governor Salceda transformed the strategy into a strong anchor toward successful DRR programmes in the province. In effect the Albay 'Zero Casualty' is both a strategy and an outcome.

4.4.1 As a policy strategy and an outcome

As argued by Weiss (2002), 'information as a tool for eliciting desired policy outcomes' (p. 217) has been manifested in education and training of the Climate Change Academy. The result of the Tracer Study demonstrated this argument that raising awareness of the people eventually leads to policy outcomes that are beneficial both to the government and the population at large (Weiss, 2002) is important in DRRM. Clearly, the 'Zero Casualty' goal of Albay is not only an outcome but also a catalyst for behaviour change.

All of the informants in this thesis, especially those in the Tracer Study mentioned the 'Zero Casualty' as a rallying point for learning and action.

In the training programme mentioned in Section 3.2, the content of the training module discussed about the various elements and procedures toward achieving this. It was previously mentioned that early warning and evacuation are crucial and that by drumbeating this strategy to the people of Albay for several years since the fatal 2006

Mayon landslide, ‘people don’t need to be told to be evacuated because they follow the policy by heart and that they don’t want the 2006 tragedy to happen again in the future’ (PGA 1 Interview 10 July 2014).

4.4.2 APSEMO as main implementer

The 2006 disaster in Albay have reinforced the APSEMO by looking at the data (Figure 8) below that attested to the effectiveness of the institution from 1994-2010. The combined efforts of APSEMO and the Academy in raising the awareness of the people and building the sense of ownership to the goal of the province as it maintains the ‘Zero Casualty’ status from 2012 middle of 2014.

One example of the local DRR reinforcement is the case of Ligao City where an ordinance has been legislated regarding pre-emptive evacuation of all residents located in hazard areas (PGA1 Interview 10 July 2014). The accountability of the *Sangguniang Barangay* and the Barangay Disaster Risk Reduction and Management Committee (BDRRMC) in the evacuation procedures is put in the line when disasters strike, which reflects the level of awareness of its constituents regarding local policies in DRRM and their willingness to support the provincial goal of ‘Zero Casualty’.

Figure 8. Major Disaster Events in Albay Province, 1994-2010

Major Disaster Events in Albay Province 1994-2010: Zero Casualty in 16 years except 2006				
Calamities	Date	Classification	Casualty	Damage Cost
1. Typhoon Rosing	Nov. 3, 1995	Destructive	ZERO	P 1.7 B
2. Typhoon Loleng	Nov. 2, 1008	Destructive	ZERO	7.1 B
3. Mayon Eruption	Feb. 2000	Explosive	ZERO	284 M
4. Mayon Eruption	June 2001	Explosive	ZERO	300 M
5. Mayon Eruption	July 2006	Explosive	ZERO	50.5 M
6. Typhoon Milenyo	Sept. 27 2006	Destructive	14 dead	1.3 B
7. Typhoon Reming	Nov. 30, 2006	Destructive	604 dead 419 missing	3.7 B
8. Typhoon Mina, Lando and Nonoy	Nov. 2007	Destructive	ZERO	
9. TEF, Monsoon Rains	Feb. 2008	Destructive	ZERO	127 M
10. Typhoon Dante	April 2009	Destructive	ZERO	
11. Typhoon Ondoy	Sep. 2009	Destructive	ZERO	
12. Typhoon Peping	Oct. 2009	Destructive	ZERO	
13. Mayon Eruption	Dec. 14, 2009 - Jan. 2, 2010	Explosive	ZERO	

Source: (J. S. Salceda, 2012)

4.4.3 Commitment and sense of ownership

The success of the Albay Model as demonstrated by the innovative policy on 'Zero Casualty' has been continuously recognized by the people of Albay and in fact was recently lauded by the Philippine President Benigno Aquino III in his State of the Nation Address speech in July 2014, days after Typhoon Rammasun (Glenda) ravaged the Bicol region.

In local practice, it was found out in this research that four of the respondents in the Tracer Study have contributed through their roles to the national awards that were given for exemplars in DRRM, namely:

- Barangay Oro Site, Legazpi City: Gawad Kalasag 2013 National Awardee for Best BDRRMC in Urban Category, and

- Ligao City, Albay: Recipient of the Seal of Good Local Governance (SGLG)²⁰ for 2014 awarded by the Department of the Interior and Local Government (DILG) for LGUs that are compliant to the following criteria: 1) good financial housekeeping; 2) disaster preparedness; 3) social protection for the vulnerable; 4) business-friendliness and competitiveness; 5) peace and order; and 6) environmental management.

The policy on ‘Zero Casualty’ and the quality of the DRRM plan which barangays and municipalities follow and implement are clear demonstrations of how disaster risk reduction as a developmental strategy is understood and seriously taken up by concerned parties. This in effect indicates the commitment and sense of ownership of the people in Albay in terms of addressing the multiple challenges of the province regarding disaster risks.

4.5 Summary

Based on the accounts of the informants of the Tracer Study, it can be argued that the capacities gained described in this chapter pertain to enhanced knowledge on disaster risks and disaster risk reduction. The development of skills on disaster preparation such as risk communication, decision making, planning and budgeting were the strongest attributes in the informants’ functioning in their workplace especially in the Sangguniang Barangay. While results of the Tracer Study argued that disaster preparedness was an observed change in behaviour in all of the informants, there was an insignificant change in the PGA workplace front observed. However, change in workplace practices in relation to disaster preparedness in the village councils was observed as a positive outcome of the training. This can be explained by the capacities gained by the SB officials on the DRRM and CCA law which mandate the institutionalisation of DRRM plans with appropriate structure and budgeting.

²⁰ SGLG is formerly known as the Seal of Good Housekeeping which is a mechanism to assess the financial housekeeping of LGUs in relation to the principles of transparency and accountability in local governance.

The impact of the Academy on the training participants' learning and changes in attitude and behaviour however should be viewed along with the training participants' experiences on disasters and their indigenous knowledge as well as the DRRM system that is being institutionalised from the provincial level down to the villages in the Province of Albay.



CHAPTER V

GROWTH AND SUSTAINABILITY OF THE ACADEMY: BARRIERS AND OPPORTUNITIES

In this chapter, the status of the Climate Change Academy's growth and sustainability will be discussed in relation to the barriers and opportunities affecting its programme implementation. The research sub-question that will be addressed in this chapter is: 'What are the barriers to and opportunities in maximising the impact of the Academy in terms of contributing to: a) attaining the set objectives of the Academy; and b) the process of scaling up beyond its current initiatives using innovative approaches on DRR?'

The discussion in this chapter is divided into two sections. Section 5.1 will discuss the barriers and opportunities in relation to the Academy's objectives and the process of scaling up as stated in the research question. A summary of the arguments will be discussed in Section 5.2.

5.1 Barriers and Opportunities

5.1.1 Institutional development: building partnerships

Recently transformed into the Climate Change Adaptation and Disaster Risk Reduction and Management Training Institute (CCADRRMTI), the Academy was put in a better grounding in terms of its role in capacitating the Local Government Units (LGUs) not only in Albay but in other provinces in the country. The signed memorandum of agreement with the Office of the Civil Defense (OCD) in March 2014 provided opportunity for the Academy to receive funds for the training programmes that will be implemented in the future. While funds of the Academy are generally derived from the provincial budget of Albay, this additional opportunity is seen as a factor that 'is strengthening the Academy' (GE1 Interview 3 July 2014). Its

training programme was officially scaled up to particularly cover other provinces in Southern Tagalog, Bicol and the Visayas²¹.

The current partnerships with other national agencies, international organisations, and academic institutions also provide access to funding opportunities for trainings as well as on technical resources such as training experts and equipment. For example, the Academy's strong partnership with the Bicol University (BU) is being demonstrated by its generous donation of one of the buildings in the campus as the office and training venue of the Academy. Further, office equipment and facilities were provided by the UNDP, UN, the Spanish Government through AECID and other international donors (GE1 Interview 3 July 2014).

The continuing success of the Albay Model in DRR and the active networking strategies of the Academy and Governor Salceda serve as a huge opportunity in terms of sustaining the current operations of the training institute and also contribute to the institutional growth of the Academy. As Governor Salceda argued, 'the Albay Model is about partnerships...if you want to make the Albay Model sustainable, it is about its openness to partnerships' (Salceda's speech, 14 July 2014).

5.1.2 Staff tenure, security, and development

While there is a promising future for the strengthening of the Academy itself through its robust networking strategy, the financing aspect of its operations is considered as its greatest barrier in the Academy's mandate and plans (GE1 Interview 3 July 2014, GE3 Interview 11 July 2014, GC8 Interview 8 July 2014). The biggest contributor of this deficit is the weak technical staffing of the Academy because of the lack of permanency/tenure of most of its staff (GE1 Interview 3 July 2014, GE3 Interview 11 July 2014, GC8 Interview 8 July 2014). Some staff that have key roles in the training programmes are working with the Academy as 'Job Orders' or in

²¹ Southern Tagalog provinces include Batangas, Laguna and Cavite. Bicol region includes Albay, Sorsogon, Camarines Sur, Camarines Norte, Masbate and Catanduanes. Provinces in the Visayas are: Aklan, Antique, Capiz, Guimaras, Iloilo, Negros Occidental, Bohol, Cebu, Negros Oriental, Siquijor, Biliran, Leyte, Southern Leyte, Eastern Samar, Northern Samar, and Samar.

contractual basis (GE1 Interview 3 July 2014, GE3 Interview 11 July 2014, GC8 Interview 8 July 2014, PGA5 Interview 8 July 2014, PGA11 Interview 18 June 2014). This sustainability issue in terms of human resources in the Academy will become a serious threat in its operations during political transitions, for example, should the new governor being elected in 2016 changes the staff because of trust issues (GE1 Interview 3 July 2014). To be able to ensure the continuous operations of the Academy, 'it must be operated by permanent staff so that permanent training and technical must be there' (GE1 Interview 3 July 2014).

Due to these limitations in human resource and technical capacity in the Academy, it is understandable to know that other aspects of work of the institution such as research and module development are compromised (GE3 Interview 11 July 2014). Further, the downpour of local and national engagements of the Academy staff to render extension services on DRR training and education makes it difficult for the staff to allocate and focus on other important matters (GE3 Interview 11 July 2014).

It was also revealed that the Academy does not have appointed or hired personnel specifically for the training institute. The programmes are being operated and sustained by the Provincial Government of Albay (PGA) through permanent staff members of APSEMO (GE1 Interview 3 July 2014). It was argued that to be able to smoothen the operations of and provide permanent staffing for the Academy without requiring huge resources for its (independent) institutionalisation, absorbing its functions of the Academy as one division in APSEMO is an easy option. In effect, this serves as an opportunity for the Academy (GE1 Interview 3 July 2014).

5.1.3 Political transitions and discontinuity of learning at the village level

Another threat that affects the achievement of the goals of the Academy is the political transitions that are regularly faced by the Sangguniang Barangay (SB) during regular elections of the LGUs (GE3 Interview 11 July 2014). While it is very common in Philippine politics especially at the municipal and provincial level for an elected

official to hold his or her office for more than one term²², SBs have relatively higher turnover of leadership during elections. This scenario is a challenge for the Academy's goal to capacitate the villages through the SB (GE3 Interview 11 July 2014).

‘If we want to genuinely train all the 720 barangays in Albay, *dae mo pa mauubos ito ta maaabutan na naman ki election*’ (you will not be able to do so because the election will outrun you) (GE3 Interview 11 July 2014).

This view has also been shared by two informants from the Sangguniang Barangay (SB2 Interview 8 July 2014, SB6 Interview 17 July 2014) and added that the political dynamics in the council might influence the continuity and transfer of learning on DRR. It was revealed in the Tracer Study that organisational politics hamper the full operationalisation of DRRM plans especially in terms of transfer knowledge to new village council members.

‘If the newly elected members of the Sangguniang Barangay come from different political parties and therefore might not go along well in the process, what will happen then is that the officers will be in a waiting mode on who will take the first move.’ (*Kun magkakaiba ang pinaghalean na partido kan mga nanggarana sa eleksyon, may tendensiya na maghaharalatan ang mga opisyal kun sisay ang maenot na magheru para sa barangay.*) (SB2 Interview 8 July 2014)

5.1.4 DRR as a career track

Another opportunity seen in scaling up the lessons learned from the Academy is the academic partnership with the Bicol University. The completion of the training course offered by the Academy is given a 3-unit credit in the master's programme in Public Administration (Major in Emergency Health and Disaster Risk Management) in BU. This, in a way, encourages the participants in the trainings to pursue higher

²² Elected Sangguniang Barangay officials serve the community for three years in one term.

education in and a career on DRR. This initiative is in congruence with the Governor's campaign to increase DRR career professionals in Albay (Salceda, 2012a). However, this opportunity might seem limited to some as it will require resources to engage in higher learning. Some informants feel that the training duration of the course is not enough to be able to internalise all the topics that were given especially that the field exposure was only done in less than a day (SB2 Interview 8 July 2014, PGA5 Interview 8 July 2014).

5.1.5 Governor Salceda and the 'Zero Casualty' policy

While it is a looming reality for Governor Salceda's end of term in 2016, gains from the DRR programmes in Albay will not go in vain (GE12 Interview 31 July 2014, SB7 Interview 9 August 2014, PGA5 Interview 8 July 2014). The 'Zero Casualty' which has been maintained for 16 out of 19 years since it was first enforced in 1994 (before Salceda was elected in 2007) is a strong anchor for the training participants to continue what they are expected for in their specific work either at the provincial or at the barangay level. Governor Salceda who is known as the 'green economist' and currently serves as the Co-Chair of the Board of the UN Green Climate Fund will remain a strong advocate for DRR and climate change adaptation in Albay and a champion of the Climate Change Academy. The Governor was also awarded as the 'Champion' of the United Nations 'Making Cities Resilient' campaign and a recipient of the UNISDR Sasakawa Award²³ in 2011. These positions which are based from his impeccable track record on DRR and CCA especially on innovative practices will remain as an opportunity for the Academy to grow.

²³ UN Sasakawa Award for Disaster Risk Reduction is an award given to an individual or institutions that have taken active efforts in reducing disaster risks in their communities and advocates for disaster risk reduction (<http://www.unisdr.org/we/campaign/sasakawa>).

5.1.6 Climate change and disaster risks: Typhoon Glenda

As the province is regularly hit by strong typhoons and its growth has been stunted by the constant beating of disasters, this poses as a serious concern in the Academy's operations. In fact, the Academy's building was badly destroyed by Typhoon Glenda that struck Albay in July 2014. As observed after the typhoon, the whole upper floor of the building was totally damaged by the strong winds and heavy rain brought by typhoon Glenda, leaving most of the parts of the building and office facilities unusable for almost a month. Documents, electronic equipment, and all publications kept in the library were destroyed by the typhoon.

Certainly, the operations of the Academy were affected by this unfortunate event and had to postpone the scheduled training course of CCA and DRR for the agriculture sector. While it was ironic to see that the training institution itself was not able to secure its facilities from the wrath of the typhoon, it was also considered as an opportunity for the Academy to reinforce the building structure through funding support from the province and other external sources.

5.1.7 Pilot project on engaging children and youth for DRR

As part of its continuing effort to innovate and engage all stakeholders in DRR and CCA, the Academy is developing a training programme designed for young people. A DRR-CCA Summer Camp for Children is targeted to be piloted around April or May 2015 in Albay to be able to get the children involved at an early age (GE1 Interview 3 July 2014). The module preparation for the summer camp will be done in partnership with teachers. Further, a similar project is on the way which will involve youth organisations in Albay (GE3 Interview 11 July 2014). This innovative strategy that aims to reach out to the children and youth sector is consistent with the principles of the Education for Disaster Risk Reduction (EDRR) and the Hyogo Framework for Action (HFA) which bring attention to the needs of the most vulnerable. These projects are believed to serve as an opportunity for the Academy to further engage with the local government units especially at the municipal level in

terms of integration of youth sensitive programmes in their DRRM plans (GE1 Interview 3 July 2014).

5.1.8 Knowledge network and cross-national learning

Given the active engagement of the Academy and its success in capacity building and knowledge sharing not only in Albay Province but in the country as well, this provides an opportunity for the Academy to be at the forefront for cross-national learning that brings together best practices and strategies toward context-based and demand-driven education for disaster risk reduction. The developmental goals of the Province of Albay which are reflected in the Academy's programmes served as a springboard to expand its training programmes that aim to integrate DRR in the climate change discourse. This will enable the Academy to strengthen its capacity toward building the resilience of communities which are most affected by climate change related disasters in Albay and in other parts of the country as well.

The current strong partnership of the Academy with local and international NGOs, academe, development agencies such as AECID and national government agencies provide funding support and learning opportunities to better plan and implement a development agenda that integrates disaster risk reduction and climate change adaptation. The academic community's involvement in mainstreaming DRR and CCA in the school curricula as spearheaded by the Bicol University and UP Los Baños sets the wheel in motion to educate children and young people in schools.

5.2 Summary

The sustainability and security issues of funding and technical capacity of human resources which affect largely the operations of the training institute influence the quality of its contribution to the attainment of the set objectives of the Academy. The political change especially at the village level also was a challenge that the Academy has to address regularly so that capacity development of community councils continues beyond elections. While the recurring cycle of disaster risks in Albay was

obviously considered as a barrier to the Academy's operations, it was also an opportunity that brought physical development to the Academy's office. The robust leadership of Governor Salceda which institutionalised innovative strategies and programmes on DRR serves as a strong leverage for harnessing opportunities for the Academy's sustainability and growth through funding and technical support from partners at the present and in the future. Despite the numerous challenges and limitations that hamper the operations of the Academy, the training institution's strong partnership with various stakeholders in DRRM and CCA provides support in its current programmes and brings more opportunities toward its further development and expansion.



CHAPTER VI

CONCLUSIONS, IMPLICATIONS, AND DIRECTIONS FOR FUTURE RESEARCH

6.1 Conclusions

The multiple hazards and disaster risks that continue to affect the social, economic, environmental, cultural, and political systems of the Province of Albay define its current development programmes where disaster risk reduction and management (DRRM) is a key component in its goal to improve and protect the lives of its people. This innovative strategy in governance makes up the Albay Model which is proven effective and is recognised in the country and in the world as well.

The history of changes and continuity in the process of institutionalization of DRRM in Albay based from its long experience on disasters has therefore shaped the kind of programmes and activities that aim to educate and raise the capacities of people on disaster risk reduction (DRR) particularly the local government units (LGUs).

The first in the country and in Asia, the Climate Change Academy which was established in 2011 to respond to the increasing challenges regarding disaster risks brought by climate change was a solid manifestation of Albay's strong leadership in DRR and climate change adaptation (CCA) education as mandated by Philippine laws and international declarations such as the Hyogo Framework for Action. The robust leadership of Governor Joey Salceda alongside with the local executives of the Albay Public Safety and Emergency Management Office (APSEMO) and the Centre for Initiatives and Research for Climate Adaptation (CIRCA), and network partners such as the academic community, national agencies, non-governmental organisations, and the international community, provided much needed support to and guidance in the institutionalisation process of the Climate Change Academy in Albay.

The Academy's heuristic approach in its education and training programme, guided by the core principles of the Albay Model, maximised the expertise of both the academic/scientific community and local practitioners on DRR and CCA. The awareness of the Academy as an organisation on the cultural and social dimensions of DRR recognised the different factors that have influenced the training design and learning outcomes toward desired changes in behaviour and, to some extent, changes in workplace policy and practice.

The interplay of different factors on knowledge and information, skills, motivation, and norms present in the society influenced the establishment or the strengthening of the desired changes as a result of the education training programme. The human agencies that determine the changes identified in this thesis have been guided by the overall value system in the province that prioritises the safety of the people during impending disasters. The 'Zero Casualty' strategy and the 'safe and shared development' framework that serve as the overarching principles of Albay inform the overall direction of the disaster risk reduction and management (DRRM) initiatives, particularly in building the capacities of people.

Likewise, the personal experiences and stories of the people on recurring natural hazards and disaster risks in Albay notably expressed by the informants of this thesis form the lessons learned of the people toward disaster risk reduction. The 2006 disaster triggered by Typhoon Reming which brought despair and devastation to the people remains a strong reminder on the importance of disaster risk reduction measures that are systematically put in place from the provincial level down to the communities. The education and training component of the Albay's DRRM programmes serve as the basic foundation for disaster preparation and mitigation.

The built capacities of the participants of the training as demonstrated by the results of the Tracer Study indicate a wide range of response on knowledge and skills development notably on key elements of disaster paradigm – hazard, risk, vulnerability and capability. The enhanced knowledge on these areas of learning has been applied into practice as demonstrated by informants coming from the Barangay

Disaster Risk Reduction and Management Committee (BDRRMC). Crucial application of this at the village level is the improved planning and implementation of DRRM plans at the barangay level. The overall awareness on DRR has therefore systematised disaster preparedness as a key behaviour change among the informants of the Tracer Study and as a key workplace policy and practice change at the barangay level. Despite the lack of significant change present at the workplace policy and practice at the Provincial Government level does not mean that there is no positive impact done as a result of the Academy's training programme. Since the staff employed at the Provincial Government of Albay have already roles to play as detailed in their work functions did not stop them from doing more and contributing to the overall objective for DRR in Albay, especially in maintaining the 'Zero Casualty' goal set in the province for the last 19 years.

While the results of the study demonstrated positive behavioural and attitude change regarding disaster preparedness premised by increased knowledge and skills on disaster risk reduction and increased 'motivation to do more' in the workplace in Albay, it would be necessary to expand this study in order to test these findings in a larger data sample and perhaps capture an even larger context that hopes to analyse the changes to other participants coming from other provinces in the country.

In conclusion, the establishment of the Academy as the training institution that undertakes capacity building activities for the LGUs has contributed to the further institutionalisation of the DRRM systems mandated by the law from the provincial to the village level. This in effect has contributed to the overall disaster risk reduction process for community resilience building in Albay.

6.2 Implications to Global Agenda Setting on Resilience Building

The lessons learned from the experience of the Climate Change Academy can be used to contribute to the larger debate on education for sustainable development and can bring important insights regarding resilience building especially in the round up of the Hyogo Framework for Action (HFA) in 2015. The agenda setting needed in

HFA post-2015 should likewise be discussed in relation to the targets set in the UN Millennium Development Goals (MDG) and the Education for All (EFA) that are also concluding in 2015.

The implications of the Academy's experience to the post-2015 development framework on resilience building, education, and poverty reduction that has been an ongoing discourse among stakeholders around the world are identified as the following:

- a) Education and training programmes for local government units especially the communities should be backed up both by legislative and executive policy measures to be able to ensure the localisation and sustainability of DRR education at the grassroots level toward resilience and sustainable development;
- b) Initiatives on education for disaster risk reduction should be context-based and demand-driven to cater to the varying social, cultural, environmental, political and economic systems of the communities;
- c) The need to integrate disaster risk reduction and climate change adaptation in development plans and agenda (e.g. poverty reduction) should be the core guiding principle for building resilient communities;
- d) Build and expand partnerships with various stakeholders such as the academic/scientific community, local and international NGOs, development partners, private institutions to overcome barriers to development and to further enhance opportunities for expansion and innovation; and
- e) Establish a network of community practitioners and experts on DRRM (and CCA) that provides the platform for exchanges on lessons learned, best practices, and different knowledge systems on DRRM and facilitates information sharing across the globe with due attention to the most at-risk and vulnerable to disasters.

6.3 Directions for Future Research

The range of findings discussed in this thesis which were mainly focused on the Academy's training programme development and implementation and its impact on personal behaviour and workplace policy and practice provided insights on other aspects that will further offer meaningful analysis on the training institution's view for programme development. To be able to generate new insights and findings about the Academy's programmes in particular and the disaster risk reduction efforts in the Province of Albay in general, this thesis proposes a set of directions for future research which is discussed below in detail.

6.3.1 Gender and Disaster Risk Reduction

In broad terms, the gender dimension in disaster risk reduction (DRR) and climate change adaptation (CCA) is considered as an important aspect in ensuring that DRR and CCA programmes are developed and implemented in such a way that is inclusive to all genders and sensitive to the different social, economic, cultural, political and environmental contexts of communities. Women's vulnerability to poverty and disasters (Von Kotze, 1996; UNISDR, 2008; Paul, 2011) warrants for a gender-sensitive approach to DRR and CCA.

While the findings of this thesis did not strongly highlight the gender dimension in the Academy's training programme, it would not automatically mean that gender was not part of the Academy's domain of action. It is then essential to explain this further so that better understanding can be made on how Academy's vision, mission and objectives cater the needs of both men and women, young and old. Therefore, the research questions that can be considered for future research under this theme are:

- a) How does the Academy challenge the gender vulnerability issue in terms of its training module development and design?
- b) What measures does the Academy undertake to ensure that its programmes are gender sensitive?

6.3.2 Indigenous and Local Knowledge

Building on some of the key findings regarding the application of local and scientific knowledge in understanding disaster risks toward effective disaster risk reduction as expressed by the Tracer Study informants in this thesis, it would be interesting to probe on this further by focusing more on this theme in relation to training programme development and design. As demonstrated by the positive impact of the Academy's training course on the 11 informants who participated in the study, it can be argued that the training has been effective in increasing their knowledge and awareness on hazards and disaster risk by using experiential techniques on learning. However, the process on how both indigenous/local and scientific knowledge are systematically integrated in the training module design in order to reduce community vulnerability to hazards and disaster risks is still unknown at this point. Therefore, the proposed research questions under this theme are:

- a) How were indigenous/local and scientific knowledge systems integrated and manifested in the training programme and practice?
- b) How were local communities and other stakeholders involved in ensuring that local knowledge systems are integrated with the scientific knowledge base toward reducing vulnerabilities and disaster risks of communities?

6.3.3 Further Institutionalisation of the Academy

A sizable part of the findings of this thesis pertains to the challenges and opportunities that the Academy is facing in its institutionalisation process. While the Academy's contribution to the overall disaster risk reduction and resilience building of the province has been made apparent through the positive outcomes of the training course, the challenge to maintain and even surpass the impacts made should be taken into consideration to evaluate future steps that will further strengthen the Academy. It has been made clear that the institutionalisation of the Academy itself was initiated by the Albay Governor, Salceda, with strong support from key actors in different DRRM institutions and that the institutionalisation process might be influenced by political

dynamics such as the imminent leadership change in 2016. It is therefore crucial to assess the institutional strategy of the Academy in this regard by asking the following research question:

- a) What is the degree of the Academy's current institutionalisation process toward institutional resilience in the face of leadership change and resource limitation?

Taking in consideration the findings of this thesis, these three themes for future research will provide a new set of insights and analyses that will help fully evaluate the Climate Change Academy and perhaps offer some recommendations for its further improvement in its operations and its permanent institutionalisation as an organisation. This can also be used as an input to future policy-making on disaster risk reduction in the Philippines and can serve as a springboard for transnational learning with other countries affected by climate-related hazards and development challenges such as poverty and other forms of vulnerability.

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APPENDICES



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

APPENDIX A

List of Informants

Code	Interview Date	Location	Type of Informant
GE1	3 June 2014 & 3 July 2014	Legazpi City, Albay	Government Employee
GE2	5 June 2014 & 17 July 2014	Legazpi City, Albay	Government Employee
GE3	9 June 2014 & 11 July 2014	Legazpi City, Albay	Government Employee
GE4	16 June 2014	Legazpi City, Albay	Government Employee
AC5	23 June 2014	Legazpi City, Albay	Academe
GE6	3 June 2014 & 9 July 2014	Legazpi City, Albay	Government Employee
GO7	8 July 2014	Legazpi City, Albay	Government Official
GC8	8 July 2014	Legazpi City, Albay	Government Consultant
BV9	11 July 2014	Legazpi City, Albay	Barangay Volunteer
AC10	16 July 2014 & 17 July 2014	Legazpi City, Albay	Academe
AC11	17 July 2014	Legazpi City, Albay	Academe
GE12	31 July 2014 & 27 August 2014	Legazpi City, Albay	Government Employee

APPENDIX B

Interview Guide

1. It was lauded in the literature that the Climate Change Academy is the first and only in the Philippines and in South East Asia that provides training and education to local government units, among others. Can you please tell me how the Academy was developed and established taking into consideration the following aspects?
 - a. Legal bases and national/international frameworks
 - b. Political and institutional support from the government, civil society, academe, private sector, and others
 - c. Curriculum/module development
 - d. Innovative practices
2. What does the Academy hope to achieve in terms of capacity development of the participants of the training and in policy development and implementation of DRR and CCA in the province especially in communities?
3. In the various trainings that you have conducted for the LGUs, what are the changes that can be observed among the participants in terms of:
 - a. Behaviour and
 - b. Workplace programmes and policies?
4. What is the current status of the Academy? Are there changes that were made along the way?
 - a. Organisational functions
 - b. Resources
 - c. Partnerships/Stakeholders
 - d. Training and education (module development, staff development, research)
5. What do you think are the barriers and opportunities in maximising the impact of the Academy in terms of contributing to:
 - a. Attaining the set objectives of the Academy, and
 - b. The broader agenda on poverty reduction and sustainable development particularly in addressing the vulnerabilities of the poor and the marginalised sectors in hazard risk communities (i.e. women)?
6. Any recommendations that you are considering to improve the role and functions of the Academy in DRRM and CCA in Albay?

Thank You!

APPENDIX C

Tracer Study Questionnaire

Participants of the Training provided by the Climate Change Academy
(Mga lumahok sa Pagsasanay na pinamunuan ng Climate Change Academy)

1. Few Basic Information about you (Ilang pangunahing impormasyon tungkol sa iyo)	
1.1	Name/Pangalan (Optional/Opsyonal)
1.2	Gender/Kasarian Male/Lalaki: <input type="checkbox"/> Female/Babae: <input type="checkbox"/>
1.3	Age/Edad (in years/sa taon)
1.4	Barangay/Municipality (Munisipyo)
1.5	Year Attended the Training of the Academy/Taon nang lumahok sa pagsasanay
2. Information regarding your profession and association with the Academy (Impormasyon tungkol sa iyong propesyon/trabaho at iyong kaugnayan sa Academy)	
2.1	Highest Educational Qualification/Pinakamataas na Antas na inabot sa Edukasyon:
2.2	Present Organisation/Kasalukuyang Organisasyon:
2.3	Present Designation & Role/Kasalukuyang Posisyon at Katungkulan:
2.4	Organisation during Academy Training Year/Organisasyon nang sumailalim sa pagsasanay

2.5	Designation & Role during the Academy Training Year/Posisyon at Katungkulan nang sumailalim sa pagsasanay	
2.6	Organisation before the Academy Training Programme/Organisasyon bago sumailalim sa pagsasanay sa Academy:	
2.7	Designation and Role before the Academy Training Programme/Posisyon at Katungkulan bago sumailalim sa pagsasanay sa Academy:	

About the Training/Tungkol sa Pagsasanay

3	Please rate the Academy Training Programme as per the different parameters listed below. While rating you may consider the development objectives of the Academy. Please check the appropriate box. (Tasahin ang iba't ibang aspeto ng pagsasanay na ginawa ng Academy. Maaaring balikan ang pangkaunlarang layunin ng Academy sa kaniyang programa. I-tsek ang nararapat na kahon para rito.)			
	Aspects/Aspeto	Very Satisfactory/ Napakahusay	Satisfactory/ Mahusay	Unsatisfactory/ Hindi Mahusay
	Selection Process /Paraan ng pagpili			
	Duration (No. of days of training)/Tagal ng pagsasanay (bilang ng araw)			
	Quality of content/Kalidad ng nilalaman ng pagsasanay			
	Reference/resource material (pinagkunang impormasyon)			
	Training			

	Methodology/P araan ng pagsasanay			
	Quality of Faculty/Kalida d ng mga Nagsanay			
	Logistics (Venue, Stay Arrangement)/ Lugar, hotel)			
	Comments on other aspects not specified above/Komento/puna sa mga iba pang aspeto na hindi nabanggit:			
4	How much of the key topics covered in the Academy do you recall? (Gaano karaming paksa ang iyong naaalala mula sa pagsasanay?)		i. 80-100% ii. 50-80% iii. Below 50%/50% pababa	
5	List 3 topics/modules you found most useful to you and your work (Maglista ng 3 paksa/modyul na sa tingin mo ay kapaki-pakinabang sa iyo at sa iyong trabaho)			
	1			
	2			
	3			
6	Please list top 3 training methods (learning processes) found most useful during the Training. (Maglista ng 3 metodolohiya o paraan ng pagsasanay na sa tingin mo ay kapaki-pakinabang sa gawain.)			
	1			
	2			
	3			



	<p>pangangasiwa ng organisasyon) ___ identification of alternative and innovative livelihoods (pagtukoy sa mga alternatibo at makabagong uri ng kabuhayan) ___ capability and vulnerability assessment (pagtatasa sa kapabalidad at kahinaan) ___ survival (kaligtasan ng buhay) ___ critical thinking (pagiging mapanuri) ___ decision making (pagpapasya) ___ others (iba pa):</p> <hr/> <p>Attitude/Saloobin: ___ change of belief on disasters (pagbabago sa paniniwala hinggil sa sakuna) ___ confidence on role in the government/DRRM (tiwala sa sarili na magampanan ang katungkulan) ___ responsiveness to needs of the vulnerable and marginalised sectors (mabilis na pagtugon sa pangangailangan ng mahihirap at mardiyinalisadong sector) ___ sense of preparation in times of calamities/disasters (kahandaan sa sakuna) ___ others (iba pa):</p> <hr/>	
9	<p>Do you feel your organisation provided you ample support and opportunities to apply your learning from the Training? (Sa tingin mo ba ay nabigyan ka ng karampatang suporta at pagkakataon ng iyong organisasyon upang magamit ang iyong natutunan mula sa pagsasanay?)</p>	<p>i. Yes/Oo ii. No/Hindi</p>
9 a	<p>If no, what could have helped you to better apply your learning? (Kung hindi, ano ang maaaring nakatulong sa iyo upang mas nagamit mo ang iyong natutunan sa pagsasanay?)</p>	
9 b	<p>If yes, please explain this. (Kung oo, magbigay ng paliwanag.)</p>	
10	<p>After participating in the Training, do you feel</p>	<p>i. Yes/Oo ii. No/Hindi</p>

	any difference in your contribution to the Disaster Risk Reduction and Management activities and programmes of the Province of Albay? (May pagkakaiba ba sa iyong kontribusyon sa mga programa at gawain sa DRRM ng Albay pagkatapos nang ikaw ay dumalo sa pagsasanay?)	
10 a	If Yes, please elaborate your role in those activities. (Kung oo, pakipaliwanag ang iyong papel sa mga gawain at programa.)	
10 b	If No, please explain why this is so. (Kung hindi, magbigay ng paliwanag.)	
11	What has been your significant contribution in your work on DRR and DRM? (Ano ang iyong mahalagang kontribusyon sa iyong trabaho na may kaugnayan sa DRR at DRM?)	
12	<p>What do you think are the barriers and opportunities in maximising the impact of the Academy in terms of contributing to: (Anu-ano ang mga balakid at oportunidad upang mas higit na makapagbigay kontribusyon sa:)</p> <p>a) attaining the Academy's set objectives of the training (pagkamit sa mga layunin ng Academy)</p> <p>b) scaling up (pagpapalawak ng Academy)</p>	

13	Have you attended any other training programme (by the Academy or other institutions)? (Nakadalo ka ba ng iba pang pagsasanay ng Academy o ng iba pang mga organisasyon?)	i. Yes/Oo ii. No/Hindi
If yes, please specify the training/s. (Kung oo, pakilista ang mga ito.)		

Suggestions/ Recommendations

14	Your suggestions/recommendations on various aspects of the Academy: (Mga mungkahi sa iba't ibang aspeto ng Academy:)	
	Aspects of Academy/Aspetto ng Academy	Suggestions/ Recommendations/Mungkahi
	Process (selection, training design, delivery, etc.) (Proseso sa pagpili, disenyo ng pagsasanay, metodolohiya)	
	Content (module,	

	curriculum, resources, etc.) (Laman ng modyul, mga pinagkunan ng datos)	
	Duration (Lawig/haba ng pagsasanay)	
	Reputation/reognition (Reputasyon/Pagkilala)	
	Financial feasibility (if it is not fully funded program) (Pinansya)	
	Any other (Ibapa)	

To be filled up by the interviewer/Pupunan ng tagapanayam ang bahaging ito:

Date of Interview/Petsa ng Panayam: _____

Time of Interview/Oras ng Panayam: _____

Place of Interview/Lugar ng Panayam: _____

Interviewer/Tagapanayam: _____

Comments/Komentaryo: _____


APPENDIX D

List of Tracer Study Informants

Code	Interview Date	Location	Type of Informant/Workplace
1	10 July 2014	Ligao City, Albay	Provincial Government of Albay employee (PGA)
2	8 July 2014	Legazpi City, Albay	Member of Village Council or Sangguniang Barangay (SB)
3	13 June 2014 & 9 July 2014	Legazpi City, Albay	PGA employee
4	10 July 2014	Legazpi City, Albay	PGA employee
5	13 June 2014 & 8 July 2014	Legazpi City, Albay	PGA employee
6	17 July 2014	Legazpi City, Albay	SB Member
7	10 July 2014 & 9 August 2014	Ligao City, Albay (follow up through email)	SB Member
8	9 August 2014	Ligao City, Albay	SB Member
9	17 July 2014 & 1 September 2014	Legazpi City, Albay Bangkok, Thailand (follow up through email)	PGA employee
10	10 July 2014 & 5 September 2014	Legazpi City, Albay Bangkok, Thailand (follow up through phone call)	PGA employee
11	18 June 2014	Legazpi City, Albay	PGA employee

APPENDIX E

Sample of Local Ordinance: Limited Investment on Hazard Prone Areas in Albay



Republic of the Philippines
PROVINCE OF ALBAY
 Legazpi City

Office of the Sangguniang Panlalawigan

EXCERPTS FROM THE MINUTES OF THE 24th REGULAR SESSION OF THE SANGGUNIANG PANLALAWIGAN NG ALBAY HELD AT THE SESSION HALL, PROVINCIAL CAPITOL, LEGAZPI CITY, ON JANUARY 4, 2011.

PRESENT:

<p>HON. HAROLD O. IMPERIAL, Hon. Neil L. Montallana, Hon. Ralph A. Andes, Hon. Irineo T. Sales, Jr., Hon. Ramon S. Alsua, Hon. Job B. Belen, Hon. Herbert S. Borja, Hon. Baby Glenda O. Bongao, Hon. Arnold S. Embestro, Hon. Richard Venancio Fernando V. Ziga, Hon. Ma. Socorro L. Sambitan, Hon. Joseph Philip L. Lee, Hon. Raymond Adrian E. Salceda,</p>	<p>Vice Governor & Presiding Officer, Senior Board Member, Board Member, <i>Floor Leader</i>, Board Member, <i>Asst. Floor Leader</i>, Board Member, Board Member, Board Member, Board Member, Board Member, Board Member, Board Member, <i>PCL Rep.</i>, Board Member, <i>ABC Rep.</i>, Board Member, <i>SK Rep.</i></p>
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ON OFFICIAL BUSINESS:

Hon. Niño B. Imperial, Board Member, Manito, Albay.

RESOLUTION NO. 2011-03

ESTABLISHING LIMITED INVESTMENT IN THE PROVINCE OF ALBAY ON AREAS PRONE TO LAHAR, BASED ON THE STUDY CONDUCTED BY PHILIPPINE INSTITUTE OF VOLCANOLOGY AND SEISMOLOGY (PHIVOLCS).

AUTHOR: HON. ARNOLD S. EMBESTRO

WHEREAS, the province of Albay had been affected by abnormal weather condition such as typhoons, inter tropical convergence zone, tail end of cold front, monsoon rains that causes severe rain in the province;

WHEREAS, heavy intense rain can trigger lahar flow along the major river channel at the slope of Mayon Volcano that pose risk to the population and properties in the areas threatened by lahar flow;

WHEREAS, the PHIVOLCS had conducted Lahar Hazards Assessment of critical barangays at the slope of Mayon Volcano as bases for decision making for disaster avoidance;

WHEREAS, in support to the Disaster Risk Reduction program of the province, there is a need to establish limited investment on areas identified as High-Risk areas for lahar;

NOW, THEREFORE, on motion, severally seconded by Hons. Ralph Andes, Ramon Alsua, and Irineo Sales, Jr., be it

APPENDIX F

Barangay Disaster-Readiness Checklist

Province of _____
City/Municipality of _____
BARANGAY _____

BARANGAY DISASTER-READINESS CHECKLIST

A. GENERAL INFORMATION

Region: _____

Name of Punong Barangay: _____		Contact No. _____						
Total Population _____	Source: _____	NSO _____	RBI _____					
Total No. of Families _____								
EXPOSURE TO HAZARD								
Please check all that apply:								
<input type="checkbox"/> Typhoon	<input type="checkbox"/> Tsunami	<input type="checkbox"/> Others: Please specify _____						
<input type="checkbox"/> Flood	<input type="checkbox"/> Volcanic Eruption							
<input type="checkbox"/> Landslide	<input type="checkbox"/> Lahar							
<input type="checkbox"/> Earthquake								
NUMBER OF POPULATION AT RISK:								
HAZARD	POPULATION AT RISK	NO. OF		NO. OF	INFANT/	ELDERLY	PREGNANT	PERSON WITH
		M	F	FAMILIES	CHILDREN			DISABILITIES
					(% YRS. BELOW)			(PWDs)
Typhoon								
Flood								
Landslide								
Earthquake								
Tsunami								
Volcanic Eruption								
Lahar								
Others								

B. DISASTER-PREPAREDNESS INDICATORS

INDICATORS	Yes	No	REMARKS/DETAILS
I. ORGANIZATIONAL REQUISITES			
1. Organization of Barangay DRRM Committee (BDRRMC)			
1.1 BDRRMC in accordance to RA 10121			State the reason why there is no BDRRMC.
1.2 BDRRMC supported with EO or Sangguniang Barangay Ordinance			
1.3 BDRRMC includes at least two (2) CSO representatives			

1.4 BDRRMC conducts meeting			
2. Barangay DRRM Plan	YES	NO	
2.1 BDRRM Plan formulated			
2.2 BDRRM Plan submitted to the Sangguniang Barangay through the Barangay Development Council (BDC)			
2.3 BDRRM Plan incorporated to the Barangay Development Plan or BDP			
2.4 BDRRM Plan integrated in the Annual Investment Program or AIP			
2.5 BDRRM Plan displayed in conspicuous places			Display Areas: 1. Barangay Hall 2. Others:
3. Funding	YES	NO	How much?
3.1 BDRRM Fund allocated (at least 5% of regular sources)			
3.2 Quick Response Fund (QRF) allocated (at least 30% of BDRRM Fund)			P
3.3 Other sources of funds that could be tapped in times of disaster?			
3.4 BDRRM Fund submitted to COA, copy furnished the regional director of the OCD and the Local Government Operations Officer of the DILG (Section 12c (24) of RA 10121)			
II. RISK ASSESSMENT AND EARLY WARNING	YES	NO	DETAILS
1. Contingency Planning			
1.1 Local risk map available			
1.2 Contingency plan prepared			Specify for what hazard: <input type="checkbox"/> Typhoon <input checked="" type="checkbox"/> Flood <input type="checkbox"/> Landslide <input type="checkbox"/> Earthquake <input type="checkbox"/> Tsunami <input type="checkbox"/> Volcanic Eruption <input type="checkbox"/> Others
1.3 Contingency plan posted in conspicuous places			Display Areas: 1. Barangay Hall 2. Others:
1.4 Drills conducted to test the Contingency Plan			Drills on :
1.5 Disaster-related signages, markers and directional signs displayed in strategic locations			Display Areas: 1. Barangay Hall 2. Others:
2. Early Warning System (EWS)	YES	NO	REMARKS
2.1 Early warning system established			Specify for what hazard: <input type="checkbox"/> Typhoon <input type="checkbox"/> Flood <input checked="" type="checkbox"/> Landslide

			<input type="checkbox"/> Earthquake <input type="checkbox"/> Tsunami <input type="checkbox"/> Volcanic Eruption <input type="checkbox"/> Others
2.2 EWS linked to the higher LGUs/DRRMCs			
2.3. Community is aware of the system and how it operates			
III. PUBLIC INFORMATION AND EDUCATION INITIATIVES	YES	NO	REMARKS
1. There are related disaster information in the barangay in the form of posters, flyers, newsletters, pamphlets, geo-hazard maps and the like.			
2. Basic information about floods, landslides, earthquakes, tsunamis and other types of natural calamity are disseminated to enhance people's awareness on disaster preparedness			
3. Local CSOs conducted fora or orientations on disaster preparedness			
4. The barangay has conducted fora or orientations with barangay residents on matters to include the role of barangay in the PDRRM Act			
IV. PREPAREDNESS FOR EFFECTIVE RESPONSE AND EARLY RECOVERY	YES	NO	REMARKS
1. Barangay Operations Center			
1.1 Barangay Operation Center established			
1.2 Activated and manned in times of disaster			
1.3 Hotline available to receive emergency calls			
1.4 Database maintained for the following: <input type="checkbox"/> Human resources <input type="checkbox"/> Equipment <input type="checkbox"/> Directories <input type="checkbox"/> Location of critical infrastructure and their capacities			
2. Evacuation Center			
2.1 Designated Evacuation Center/s available			Specify: <input type="checkbox"/> Barangay Hall <input type="checkbox"/> School/Day Care Center <input type="checkbox"/> Multi-purpose Halls <input type="checkbox"/> Church/chapel <input type="checkbox"/> Gymnasium/Covered Court <input type="checkbox"/> Others
2.2 Evacuation centers adequate to accommodate population at risk			Indicate the capacity of the designated evacuation centers: <input type="checkbox"/> Barangay Hall: _____ <input type="checkbox"/> School/Day Care Center: _____ <input type="checkbox"/> Multi-purpose Halls _____ <input type="checkbox"/> Church/chapel _____ <input type="checkbox"/> Gymnasium/Covered Court _____ <input type="checkbox"/> Others _____ TOTAL CAPACITY: _____

<p>2.3 Barangay capable of making available basic necessities and facilities at the evacuation center with the support of higher LGUs, partners and others</p>			<p>2.3.1 Basic Necessities: <input type="checkbox"/> Food supply <input type="checkbox"/> Potable water <input type="checkbox"/> Medicine kits <input type="checkbox"/> Sleeping mats <input type="checkbox"/> Blankets <input type="checkbox"/> Pillows <input type="checkbox"/> Others: _____</p> <p>2.3.2 Basic Facilities <input type="checkbox"/> Powers supply <input type="checkbox"/> Kitchen/cooking area <input type="checkbox"/> Sanitary Toilet <input type="checkbox"/> Waste Disposal <input type="checkbox"/> Mobile Communication System</p>
<p>2.4 The barangay has a bodega to accommodate the basic materials, supplies and equipment needed for disaster</p>			
<p>2.5 There are volunteers that could be tapped to assist in the evacuation center</p>			
<p>2.6 System in place for the security of evacuees.</p>			
<p>3. Mobilization of Barangay Emergency Response Teams (BERTs)</p>	<p>YES</p>	<p>NO</p>	<p>REMARKS</p>
<p>3.1 BERT organized</p>			
<p>3.2 BERTs have undergone trainings</p>			<p>Specify the trainings attended:</p>
<p>3.3 There are accredited community disaster volunteers (ACDVs)</p>			
<p>3.4 There are other institutions (higher LDRRMOs, NGOs, CSOs, POs and private sectors) helping the barangay in times of calamity</p>			<p>Indicate type of assistance provided: _____ _____</p>
<p>3.5 There are collaborative undertakings with nearby barangay</p>			
<p>3.6 There is a transportation facility available for use by the search and rescue teams or ACDVs</p>			
<p>3.7 There are emergency equipment available at the barangay</p>			<p>Specify type of equipment: _____ _____</p>

Prepared by: _____
 Barangay Secretary

Noted by: _____
 Punong Barangay

Date Accomplished: _____

APPENDIX G

Barangay Disaster-Readiness Profile

Republic of the Philippines
 Department of the Interior and Local Government
 NATIONAL BARANGAY OPERATIONS OFFICE
BARANGAY DISASTER READINESS PROFILE

Barangay : _____ Municipality : _____
 Province : _____ Region : _____

A. GENERAL INFORMATION

1. Population

Total Population _____ Source : __ NSO __ RBI Total No. of Families : _____

2. Exposure to Hazard

Hazards	Population at Risk			Total No. of Families	Number of Persons by Vulnerable Group			
	M	F	Total		Children/ Infant (6 yrs old & below)	Elderly	Pregnant	Person with Disabilities (PWDs)
Multi-Hazard								
Typhoon								
Flood								
Landslide								
Earthquake								
Tsunami								
Volcanic Eruption								
Lahar								
Others: _____								

B. DISASTER-PREPAREDNESS INDICATORS

I. Organization of Barangay DRRM Committee (BDRRMC)

Exec Order/SB Ordinance No. _____

LIST OF BDRRMC

	Name	Position/Designation	Contact Numbers
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

6. _____
 7. _____

2. Barangay DRRM Plan

BDRRM Plan was adopted by the SB on _____.

3. Funding

PARTICULARS	AMOUNT
At least 5% of Regular Sources	
Quick Response Fund (QRF) allocated (at least 30% of BDRRM Fund	
Other Sources of Funds that could be Tapped	
TOTAL	

II. RISK ASSESSMENT AND EARLY WARNING

1. Contingency Planning

PARTICULAR	AVAILABLE
Local Risk Map	
Contingency Plan Prepared	
• Multi-Hazard	
• Typhoon	
• Flood	
• Landslide	
• Earthquake	
• Tsunami	
• Volcanic Eruption	

2. Early Warning System (EWS)

a. EWS

Hazard/s	Describe the Alert System
• Multi-Hazard	
• Typhoon	
• Flood	
• Landslide	
• Earthquake	
• Tsunami	
• Volcanic Eruption	

b. Drills

Hazard/s	Conducted
• Multi-Hazard	
• Typhoon	
• Flood	

• Landslide	
• Earthquake	
• Tsunami	
• Volcanic Eruption	

III. PUBLIC INFORMATION AND EDUCATION INITIATIVES

1. Information Materials

Hazard/s	Kinds of Info Materials		
	Posters	Flyers/Brochures/Leaflets	Comics
Multi-Hazard			
Typhoon			
Flood			
Landslide			
Earthquake			
Tsunami			
Volcanic Eruption			

2. Trainings

Type of Trainings	Sponsor / Training Providers
1.	
2.	
3.	
4.	
5.	
6.	

IV. PREPAREDNESS FOR EFFECTIVE RESPONSE AND EARLY RECOVERY

1. Barangay Operations Center

- Location : _____
- Name of Person In-charge : _____
- Hotline / Contact Number : _____

2. Evacuation Center/s

Evacuation Center 1 : _____

Person-in-Charge	
Contact Number	
Location	
Hotline/Contact Number	
Capacity (evacuees accommodation)	

<p>Basic Necessities</p> <ul style="list-style-type: none"> • Food Supply • Potable Water • Medicine Kits • Sleeping Mats • Blankets • Pillows • Others. _____ <p>Basic Facilities</p> <ul style="list-style-type: none"> • Power Supply • Kitchen/Cooking Area • Sanitary Toilet • Waste Disposal • Mobile Communication System 	
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Evacuation Center 2 : _____

<p>Person-in-Charge</p> <p>Contact Number</p> <p>Location</p> <p>Hotline/Contact Number</p> <p>Capacity (evacuees accommodation)</p> <p>Basic Necessities</p> <ul style="list-style-type: none"> • Food Supply • Potable Water • Medicine Kits • Sleeping Mats • Blankets • Pillows • Others. _____ <p>Basic Facilities</p> <ul style="list-style-type: none"> • Power Supply • Kitchen/Cooking Area • Sanitary Toilet • Waste Disposal • Mobile Communication System 	
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Evacuation Center 3 : _____

<p>Person-in-Charge</p> <p>Contact Number</p> <p>Location</p> <p>Hotline/Contact Number</p> <p>Capacity (evacuees accommodation)</p>	
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<p>Basic Necessities</p> <ul style="list-style-type: none"> • Food Supply • Potable Water • Medicine Kits • Sleeping Mats • Blankets • Pillows • Others. _____ <p>Basic Facilities</p> <ul style="list-style-type: none"> • Power Supply • Kitchen/Cooking Area • Sanitary Toilet • Waste Disposal • Mobile Communication System 	
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3. Transportation

Type	Number	Remarks

4. Barangay Emergency Response Team (BERTs) and Accredited Community Disaster Volunteers (ACDVs)

NAME	Contact Number
<p>a. BERT</p> <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 	
<p>b. ACDVs</p> <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 	
<p>c. Others: _____</p> <ol style="list-style-type: none"> 1. 2. 3. 4. 	

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APPENDIX H

Sample Contingency Plan



II.B.3.3.5.a BDRRMC ORGANIZATION

Approved Plans



ORO SITE BARANGAY DRRM CONTINGENCY PLAN

THREAT	TASKS	RESPONSE
FLOOD	Monitoring & Warning Evacuation Relief Operation Rescue & First Aid Psycho-social care Security	Warning advisory from RDRRMC/ PDRRMC-APSEMO/ CDRRMC/ PAGASA as basis for response. BDRRMO shall closely coordinate with APSEMO, CDRRMC & PAGASA. BDRRMO executes response plan.
TYPHOON	Monitoring & Warning Evacuation Relief Operation Rescue & First Aid Psycho-social care Security	Warning advisory from RDRRMC/ PDRRMC-APSEMO/ CDRRMC/ PAGASA as basis for response. BDRRMO shall closely coordinate with APSEMO, CDRRMC & PAGASA. BDRRMO executes response plan.
EARTHQUAKE	Monitoring & Warning Evacuation Relief Operation Rescue & First Aid Psycho-social care Security	Warning advisory from RDRRMC/ PDRRMC-APSEMO/ CDRRMC/ PHIVOLCS as basis for response. BDRRMO shall closely coordinate with APSEMO, CDRRMC & PHIVOLCS. BDRRMO executes response plan.
TSUNAMI	Monitoring & Warning Evacuation Rescue & First Aid Transportation Relief Operation Psycho-social care Security	Warning advisory from RDRRMC/ PDRRMC-APSEMO/ CDRRMC/ PHIVOLCS as basis for response. BDRRMO shall closely coordinate with APSEMO, CDRRMC & PHIVOLCS. BDRRMO executes response plan.
FIRE	Monitoring & Warning Evacuation Rescue & First Aid Fire Suppression Transportation Relief Operation Psycho-social care Security	Warning information from valid informant as basis for response. BDRRMO shall closely coordinate with BFP, PNP, HEMS, APSEMO, CDRRMC BDRRMO executes response plan.
VOLCANIC ERUPTION (Ash fall)	Monitoring & Warning Rescue & First Aid Transportation Psycho-social care Security	Warning advisory from RDRRMC/ PDRRMC-APSEMO/ CDRRMC/ PHIVOLCS as basis for response. BDRRMO shall closely coordinate with APSEMO, CDRRMC & PHIVOLCS. BDRRMO executes response plan.
TRAFFIC ACCIDENT	Monitoring & Warning Rescue & First Aid Transportation Security	Warning information from valid informant as basis for response. BDRRMO shall closely coordinate with PNP, HEMS, APSEMO, & CDRRMC. BDRRMO executes response plan.

APPENDIX I

Photos



Thesis Location: Albay Province, Philippines



Courtesy Meeting with Officials of Provincial Government of Albay



Community Visit



Community Visit



Provincial DRRM Summit: The Academy and APSEMO in Action



Albay Partnership Meeting for DRR and CCA



PDRRMC Meeting in preparation for Typhoon Glenda



Devastation of Typhoon Glenda to Communities



Devastation of Typhoon Glenda to Infrastructures: The Academy and Bicol University



Typhoon Glenda Damage to the Academy's building



Community Recovery after Typhoon Glenda



My Host Family and Community

VITA

Claudine Claridad Tanvir was born and raised in Naga City, Camarines and stayed in the city until the end of her elementary education. She moved with her family to the countryside in Sisigon, Matnog, Sorsogon – her father’s hometown – and finished her secondary education there. She obtained her undergraduate degree of Bachelor of Science in Social Work from the University of the Philippines, the premier state university of the country. A few months after her graduation in 2005, she was able to join the ranks of registered social workers in the Philippines.

Claudine began her career in development work when she joined the Philippine Collegian, the university paper of UP Diliman Campus, as a news writer in 2000. Her involvement in socio-cultural organisations in the university encouraged her to become involved in youth activism. These experiences the social movements strengthened her social awareness and personal dispositions in life and immensely contributed to her 10 years of working experience in advocacies such as on education, poverty reduction and youth empowerment.

She has worked with the Asia South Pacific Association for Basic and Adult Education (ASPBAE) from 2008 to 2014 and with the Global Call to Action Against Poverty (GCAP) – Philippines from 2005 to 2008. A dedicated youth advocate, she currently serves as the Chair/Adviser of the Kabataan Kontra Kahirapan (Youth Against Poverty), a youth-led nationalist organisation based in the Philippines advocating for education as a basic human right for all and as an indispensable tool against poverty and social injustice.

She has travelled to Europe, Australia and in Asia, to work with national education coalitions and organisations in national, regional, and international platforms that engage governments, international financial institutions, the UN system, private sectors and other stakeholders for social justice.

She is currently based in Bangkok, Thailand with her loving husband and with her adorable three-year old son.