

**Voices from the Mountains: Local People's Perceptions on Policies
Protecting the Karst Landscape of Bohol, the Philippines**

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“*rerum politicarum*”**

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Abstract

The main thrust of modern landscape planning is the integration of the social, economic, environmental and political dimensions. Critical to the planning procedure is the aim to balance these aspects. Faithful to the Sustainable Development principles, this study aims to investigate the important role of community participation as a strategy in landscape planning. It analyzes the dynamics of human perception in evaluating environmental policies that confront them. Certain landscapes demand a certain degree of political intervention in form of a protection mechanism so as to preserve the biodiversity, protect cultural life and maintain beauty of scenery. The karst landscape of Bohol is internationally noted of its uniqueness and diversity. Such landscape is not only famed because of its Mogotes (limestone hills) scattered across four municipalities but of its extensive cave systems, elaborate river and springs systems (which serve as an important water source of the local residents), hanging and pocket valleys. The policies protecting the Karst landscape of Bohol has been challenged by lost of livelihood of the local residents, lost of property rights and human rights violations committed by forest rangers tasked at protecting the landscape. These have instigated social unrest which aggravates the half-a-century old problem on insurgency.

The study extensively discusses the importance of collective and participative strategies in developing a socially-acceptable protection mechanism. As a social research it carefully considers local culture as a critical factor to consider in understanding the social dynamics of the locality. It evaluates local people's perception of the landscape from aesthetic (visual landscape assessment) to social, environmental and economic concern. In an attempt to have a multi-faceted view of the landscape, different methodologies have been laid out. A combination of qualitative and quantitative research methods is used to balance and check the lapses of respective approaches. The research was conducted in seven (7) municipalities. The survey was undertaken in one barangay in every municipality while the qualitative research was centered on eight (8) purposively sampled focal villages (sites). An online-internet survey and online forum discussion were likewise conducted to sift perceptions of local experts, students and academicians in the Philippines side-by-side with experts, students, academicians and residents in Europe.

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I. Chapter I

This chapter presents the overview of the entire study. It provides the initial impression to the readers on the topics being discussed in the study. It also highlights the salient features of the study thereby giving hint on its nature and kind of research. Moreover, it highlights the significance of the study, how this study could be helpful to planners, resource users and academicians.

1.1 Introduction

Nearly a century, the central part of the island province of Bohol has caught international attention to the scientific community due to its unique limestone land formation. Primary features of which are the thousand hills scattered across four municipalities, Batuan, Bilar, Carmen and Sierra Bullones. Earlier researchers who studied Karst landforms in tropical areas considered this as one of the world's first kegel karst (cone karst) environment (Ulrich, 2001).

Because of its eminent beauty and fragile environment, the government through legal instruments declared the Chocolate Hills and the Raja Sikatuna Park as protected landscapes. Through its protection, the karst landscape is given utmost focus and attention of the government so as to preserve its biodiversity and maintain its scenic beauty. (P.D. 287, P.D. 1037)

Two presidential proclamations, the Rajah Sikatuna National Park and the Chocolate Hills Natural Monument (CHNM) have been promulgated by the Philippine Congress however these have resulted to serious social resistance and unrest (Ulrich, 2001). Primary aim of both laws is to protect the natural karst landscape of the province particularly in response to deforestation, agricultural exploitation and uncontrolled quarrying. However the implementation of such protective measure has deprived local farmers and residents of their exploitation and property rights. In order to appease the farmers, tenurial instruments were provided to migrant communities living within the Karst periphery which grants them specific rights to exploit and occupy territories which have been declared protective landscapes. These exploitation and occupation rights are however closely monitored by the DENR (Department of Environment and Natural

Resources). Not only that the proclamation caused social unrest because of land conversion from private to public domain but because of the inefficiency of the DENR in processing tenurial instruments. Senga (2001) pointed out that the prolonged delay in the issuance of tenurial requirements for both indigenous communities and tenured migrants threaten the sustainability of the community-based initiatives that the protected area management project has started. Without tenurial security, park communities have less reason to be effective stewards of resources around them. Most especially that the insurgency problem has been deeply rooted in land disputes, Senga (2001) noted that social inequities, specifically those pertaining to land ownership are still essential feature of the Philippine society and remain the greatest threat to the protected areas and biodiversity in the Philippines.

Bohol's karst landscape has been extensively modified by human activity (Ulrich 1990 1991 a 1991b). Much of these modifications are influenced by agricultural activities such as the development of extensive terraces and irrigations systems. Most of the springs have been integrated into the irrigations systems.

Ulrich et. Al (2001) conducted a similar study on the karst landscape of Bohol, but still left some questions unanswered. The researcher aimed to provide a comprehensive research on the Karst Landscape which tackles all aspects relevant in protected area management. Issues like property rights, aesthetic value, culture and participation are just some of the areas which aim to enrich the topic on protected area management. Besides, Ulrich (2001) thinly discussed the natural resource planning practice of the national and local government, and less has been mentioned about the importance of decentralization.

Ulrich and others (2001) discussed the political and social dynamics of the social unrest purportedly caused by the proclamation of the Chocolate hills as a natural monument and the declaration of the Raja Sikatuna National Park as a protected landscape but did not discussed the government efforts on mediation and conflict resolution should there be any. The seemingly neglect of local participation in the formulation of the laws were one of the reasons pointed out by Ulrich (2001).

It can also be noted that the highly-centralized planning system in the Philippines practically overlooks local involvement in planning. The Local Government Code of 1991 provides avenues for public sector involvement in governance. Some national functions were already devolutionized but natural resource management still rests in the hands of the DENR. In this case where a protection mechanism poses a significant impact on the lives of the local people, the national government fails to provide a more responsive instrument that effectively hears their clamors. (Pimentel, A. 1991)

1.2 The Practice of Area Protection in the Philippines

For centuries, communities have created protection measures for places which are considered culturally and economically important. The early Filipinos practiced environmental spiritualism which considers the environment to be the cradle of their existence. Traces of this practice can still be very much observed in the current culture. Their environments were believed to be dwelling places of their dead ancestors. They often refer to their environment as “Inang Kalikasan” or Mother Nature which clearly corresponds to the GAIA theory.

The pre-colonial Filipinos started the concept of protection in a deeper and pragmatic meaning. Specific places were set aside for the spirits and some other places were maintained because of its economic value. There was no private property ownership and tribal domains were owned and maintained by the entire community. The early Filipinos established communal farms, wildlife sanctuaries, game refuges, mangrove reserves. These places of economic, agricultural, social and spiritual importance were systematically planned and organized by the early Filipinos. Contemporary “agri-cultural” practices reflect early planting techniques.

Historically, the practice was defined on the level of values and commitment to the concept of reserving areas for special purposes. Over the years, these values have been redefined. New areas have been identified with more focus on the ecosystem value to man.

The present focus is on the protection, restoration and long term on-site management of natural resources and habitats for biodiversity conservation and over-all, sustainable

ecosystem functioning. The expectation is that the ecosystem value itself will make people realize its additional importance to human health, nutrition, and a myriad of potential uses for industry and the economy in general.

The Philippine constitution guarantees the conservation and wise use of natural resources which is used as a basis for responsive legislation, administrative action and commitments to international movements in biodiversity conservation and sustainable use of resources. One such enabling legislation is Republic Act No. 7586, the NIPAS Act of 1992.

The enactment of Republic Act No. 7586 or the NIPAS Act of 1992 defines the appropriate management policies and directions for protected areas and includes the creation of a management board partly independent of direct government intervention. The management board though supposedly independent is supervised and organized by the DENR. The law provides the right opportunity and vehicle for the preparation and adoption of a protected area management plan that is expected to systematize approaches and strategies in the management and development of a protected area. This includes designating areas of sufficient geographical size to deal with whole ecosystems including local communities and landscapes upon which are dependent for their food, recreation, resources and many aspects of their livelihood.

The legal concept of protected areas has been introduced by the Americans during their occupation from 1911 to 1945. Evidence of which are the 65 protected areas established during that time. (Serote, 2004). This has increased then to over two hundred protected areas over the past fifty years.

The concepts of protection and conservation however vary slightly in meaning and application. According to Serote (2004), protection would connote prohibition "no touch, no entry" principle while conservation would imply sustainable development principles which would allow controlled and monitored exploitation

There is terminological confusion between national parks and protected areas. Before the drafting of the National Protected Areas Systems (NIPAS) Law, the term national parks and protected areas were used interchangeably. The 1987 constitution refers national parks as one of the four basic land classes of public domain together with

agricultural, forest and mineral lands. Upon the promulgation of the NIPAS law, the National Land Use Committee crafted four land use policy areas: protection, production, settlements and infrastructures.

Protection Land Use refers to the rehabilitation, conservation and management of sensitive/ critical ecosystem to preserve their integrity, to allow degraded resources to regenerate and to protect the human population from environmental hazards. Protection Land Use policy guidelines seek to achieve environmental stability and ecological integrity; ensure balance between resource use and the preservation of some education, cultural and historical significance and protect people and man-made structures from ill effects of natural hazards. The policy covers NIPAs, non-NIPAS and hazard-prone areas.

The over-all objective of protection as stated in the NIPAS law is to secure for the present and future generations the perpetual existence of native plants and animals. This general goal can be broken down into the following specific objectives.

1. To maintain sample ecosystems in their natural state.
2. To maintain ecological diversity and environmental regulation.
3. To conserve genetic resources.
4. To provide opportunities for education, research, and environmental monitoring.
5. To conserve the watershed and thereby control floods.
6. To control erosion and minimize sedimentation of rivers and other water bodies.
7. To maintain indigenous use of habitation.
8. To produce protein from wildlife.
9. To produce timber, forage, or similar extractive commodities.
10. To provide recreation and tourism services.
11. To protect sites and objects of cultural, historical or archaeological heritage.
12. To protect scenic beauty.
13. To maintain open options, management flexibility, and multiple use.
14. To contribute to rural development

NIPAS are completely exempted from devolution. The management of such areas is the responsibility of the Protected Area Management Board (PAMB) headed by the regional

director of the DENR. The only means of participation of Local Government Units in the management of protected areas is their required membership of the board. It must be noted that protected areas are normally large areas which could cover several local government territories. Equally important is the membership of village captains of respective barangays (villages) in each component municipalities and non-government organizations operating within the locality. In actual practice, however, the planning and management of protected areas is done completely apart from that of the local government unit that has territorial jurisdiction over the site. The highly centralized protected areas management system in the Philippines is not consistent with international treaties and covenants which considers decentralization as an important aspect in protected area management. This conflict between the national government and the local government units over the control in protected areas hampers a meaningful and productive implementation

.

1.3 What is Karst?

Ford, (1989) defines Karst as a landscape with topographic depressions such as sinkholes and caves, shaped by the dissolution of a layer or layers of soluble bedrock, usually carbonate rock such as limestone or dolomite.(www.speleogenesis.info) This landscape features underground streams and aquifers which supply the wells and springs that communities' use for their drinking water.

According to Satkunas (2006), it is estimated that "karst landscapes occupy up to 10% of the Earth's land surface, and that as much as a quarter of the world's population is supplied by karst water. The karst system is sensitive to many environmental factors. The presence and growth of caves may cause short-term problems, including bedrock collapse, disparities in well yields, poor groundwater quality because of lack of filtering action, instability of overlying soils, and difficulty in designing effective monitoring systems around waste facilities. Radon levels in karst groundwater tend to be high in some regions, and underground solution conduits can distribute radon unevenly throughout a particular area. (www.pgi.gov.pl)

The National Park Services in the United States further explains that “ because the great variety of subsurface voids and deposits are protected from surface weathering and disturbance, karst preserves a record of environmental change more faithfully than most other geological settings. Temperature, rainfall, nature of soil and vegetation cover, glaciation, fluvial erosion and deposition, and patterns of groundwater flow can usually be read from cave patterns and deposits. This record can be resolved on an annual scale in the case of certain fast-growing speleothems” (cave deposits). (www.nature.nps.gov/geology/monitoring/karst.pdf)

1.4 Significance of the Study

This study is foreseen to play a major role in assisting policy makers and development planners in developing an effective protected area management. This study will be helpful to farmers, forest rangers ,business people, and anyone who lives, works, or plays in karst areas so that they have a better understanding of the the karst environment and its protection policies. Additionally, the study will be useful to educators, developers, park managers, and watershed and conservation groups that they have a wider theoretical foundation of natural resource protection. Karst is an important natural resource in the province. Not only does karst contain beautiful features such as fragile cave formations, it also may hold the key to the health of an entire town or city or province by its links to drinking water.

1.5 Salient features of the study

1. A cultural research which examines values, traditions and practices of the local people which are essential to karst protection.
2. A policy research aimed at understanding the political repercussions of environmental policies of decision makers. It also discusses the effects of environmental policies to socio-economic life of the affected community.
3. A social science investigation of social behaviors and social problems which are relevant to the discussion of landscape protection.
4. An environmental science research aimed at assessing human and environment relationships in protected areas.

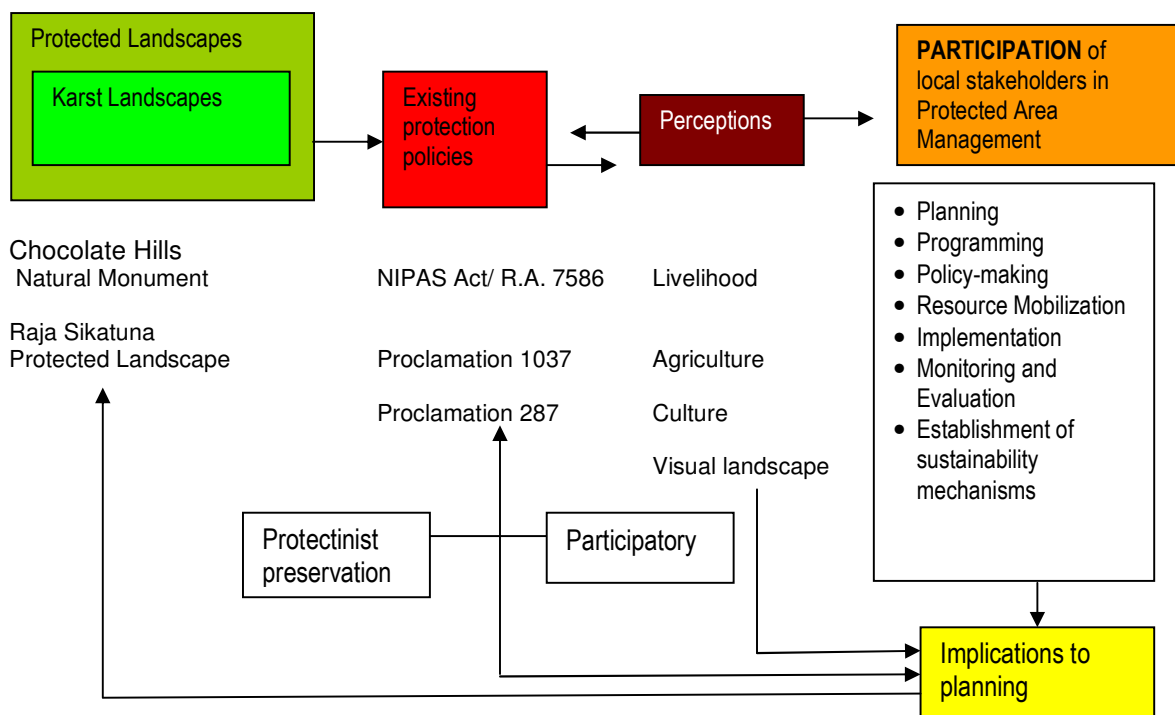
5. A study on the economic limits and regulations in a Karst area (e.g. agriculture physical infrastructure, and eco-tourism)
6. A spatial planning study on protected areas particularly karst which will eventually be a useful guide in the formulation of the comprehensive land use plan, zoning systems and other relevant applications

II. Chapter II

II.1 Theoretical Background

This chapter summarizes the concepts and theories used in the conduct of the study. It lays-out the relationships of concepts and theories to the main problem of the study. Since the study is a policy research, each theory being used in the study is corresponded with an existing local or international policy. These policies, laws and ordinances will be used as policy framework in the analysis of the study. It must be noted that each policy serve as introduction to a particular theory.

Below is the framework used in the development of the concepts and theories used in the study. It presents a holistic perception of the entire study, detailing the relationships of concepts used in the study.



Conceptual Framework

Figure 1

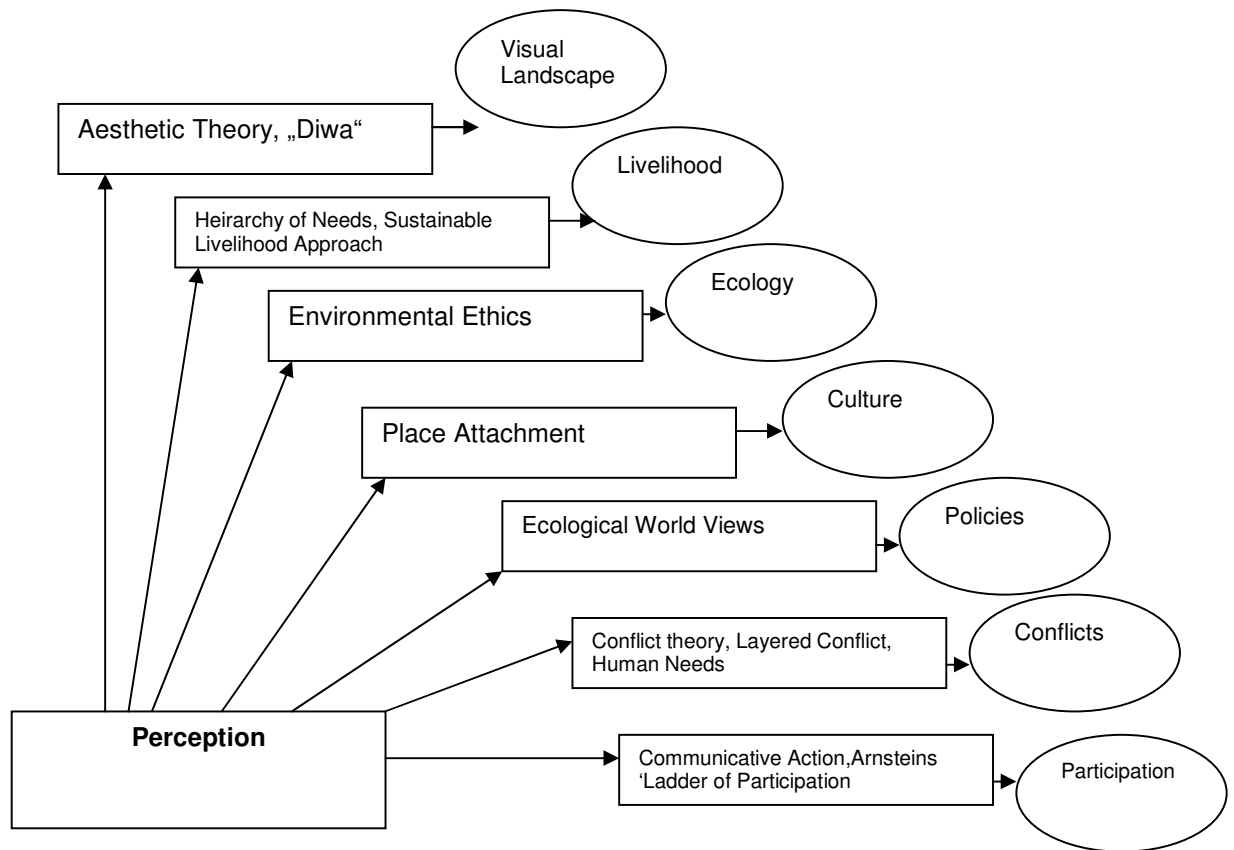


Diagram of Theories

Figure 2

The above figure shows the theories being used in different areas of perception in the research. The researcher tried to examine the topic in seven different but complementing perspectives. It is the ambitious aim of Spatial Planning to consider all areas which affects planning, and in this case of policy research, perspectives transcend from understanding visual aesthetic, livelihood, ecology, culture, policies, and conflicts through perception on local participation. Policies are crafted by policy makers through the aid of research and understanding certain issues in different dimensions. Aesthetic value of the landscape is equally important in discussing issues surrounding the landscape. Policies more often neglect the importance of understanding the aesthetic value of a place. It fails to draw the visual appreciation and deeper aesthetic meaning of

places. People's emotional attachment to their place could be affected by aesthetic quality.

Aesthetic and scenic beauty are essential in Tourism, which is a major source of livelihood for the local people.

II.1.1 Aesthetic theory

There are two theories which are used by the researcher as a guide in evaluation of people's perception on Beauty. The researcher presents a western view of Beauty, The Aesthetic Theory of Kant, and the local concept of Beauty, the Importance of "*Diwa*" (sense and spirit), according to Filipino anthropologist, F. Jocano.

The importance of aesthetic value is explicitly expressed in Section 2, paragraph (b) of Presidential Decree no. 1151, otherwise known as the Philippine Environmental Policy which assures the people of a safe, decent, healthful, productive and **aesthetic** environment. The Department of Environment and Natural Resources (DENR) however does not provide guidelines or parameters on the definition of an aesthetic environment, hence leaving the whole concept of landscape planning to an ecological understanding.

II.1.1.1 Aesthetic theory according to Kant

The Critique of Judgment of Immanuel Kant primarily discusses the careful evaluation of beauty. The main question asked by Kant is, what kind of judgement it is that makes us conclude something to be beautiful.? Kant argues that such aesthetic judgments (or 'judgments of taste') must have four key distinguishing features. (Kant, 1951) The first qualification is that it must be disinterested; meaning our judgement of beauty is free from any form of interest drawn from sensations. It is difficult to comprehend since perceptions are normally drawn from external impulses translated in a form of sensation interpreted by the brain. But according to him, beauty is objective which has some specific standards. In judging beauty, he said that pleasure must be an effect not a cause which means, we find something pleasurable because it is beautiful and not that we find something beautiful because it pleases us. According to him, it is very much important that the concept of beauty be shared with others (subjective validity). Impliedly, it can be understood that a thing can be considered beautiful according to the standards set by society. Kant highlights that a person must separate from one's personal ideals, in judging beauty. (Zangwill, 2003)

Second is that judgement behaves universally. In this context, Kant emphasized that the definition of beauty must be in conformity with others understanding of it. Beauty is a social concept, if there will be no general standards to it, how do we judge beauty? Although we may say 'beauty is in the eye of the beholder', that is not how we normally react. Though Kant also recognizes the objective validity on the judgement of beauty however it must be valid only for the contemplator alone. In assessing landscape beauty, there are certain standards which are ingrained in our consciousness, taking a major part of our culture. New study reveals that "perceived beauty" is depending on objective properties like proportion, variety and land use types. (Gruehn, Roth, 2009) The need to define beauty to be agreeable with others accentuates that beauty has distinct characteristics which is developed by society as civilization evolves. And these criteria as it evolved through time, and are objective at least in a particular culture. Though the ideals of beauty do not come from a strict concept, the universality in the judgement of beauty is existent in every culture. The judgement of beauty must depart from subjectivity or on objective facts. For example, the statement, I love this dress does not connote that everyone likes to wear that dress. Rather, the statement "the dress has laces" is not a basis of a good aesthetic judgement, since aesthetic judgements does not come from strict objective definitions. (Zangwill, 2003)

The third introduces the problem of purpose and purposiveness (also translated 'end' and 'finality'). Kant claims that the beautiful has to be understood as purposive, but without any definite purpose. In judging the purposiveness of beauty, Kant suggests that the object being judged appears to be designed with purpose, though its purpose is unknown. In the aesthetic judgement the Karst landscape of Bohol, people should depart from considering the purpose of the landscape in terms of agriculture, hydrology, etc. but always put into consideration that the landscape is purposive. (Burnham, 2005)

There are so many types of landscapes and landforms which purpose we do not know, but have earned recognition for their beautiful existence. The karst landscape of Bohol for one is a fragile environment which porous geology poses a danger to the ground water, but more than its socio-economic value, it is considered important because of its unique beauty. It is part of the experience of beautiful objects, Kant argues, that they should affect us as if they had a purpose, although no particular purpose can be found.

The fourth feature is necessity. This simply means that aesthetic judgement must be based on principles. It is an imperative requirement that critical judgement of beauty be based on concepts commonly understood by people. Unlike taste of sense where judgement of beauty is based on feeling and sensation, judgement of taste (in sense of beauty) is based on social principles agreed by the community. Necessity could be understood into two different concepts. One is, "exemplary". This primarily happens when an object is judged beautiful because it transcends beyond the concepts and principles in aesthetic judgement. Second, it is "conditioned". This connotes that the judgement of beauty is accustomed to the principles of the contemplator. (Burnham, 2005)

II.1.1.2 Understanding beauty through "diwa" according to Jocano

Diwà or spirit has been defined in academic circles as a body of internal rules governing the systematic ordering of ideas that the Filipino whether on a national, tribal or personal level employs for a conscious meaningful purpose. (Peralta, 2003) *Diwa* is also interpreted as the meaning of everything on earth. It is a faithful recognition that everything on earth has a purpose. It also connotes life, where beauty is dependent on the life it brings on the contemplator. Aesthetic judgements such as "punong-puno ng buhay" (full of life) is a common phrase to elaborate the appreciation of beauty. The concept of beauty is being moulded within the constraints of culture. "Kagandahan ng loob" (the beauty within) is commonly expressed by most locals in defining beauty. This also suggests that the Filipino appreciation of beauty is not superficial but has a deeper social meaning. Most Filipinos have a more spiritual and deeper meaning of beauty. Filipinos are more concerned of the interior rather than the facade of a house. Traditional Filipinos live in simple "bahay kubo" or Nipa Huts, adorned with a variety of ornaments and flowers at the front yard and a wide choice of vegetables at the backyard. The interior is more impressive, decorated with local handicrafts while wooden floor is always shiny, polished and scrubbed everyday. *Diwa* is basically the spirit that gives anything its meaningful beauty. *Diwà* is based on the principles of *buhay* (life) and *bisà* (inherited life force) (Jocano, 2001). Most of the people see beauty through life. A remark of a local woman on her perception on the karst landscape can be noted; "makulay" (colourful) and "puno ng buhay" (full of life). "Bisa" or inherited life force is also literally understood as impact. In this light, beauty is measured on how it affects the individual person.

Understanding the “diwa” or the meaningful existence of beauty is important in Philippine context.

Another important aspect of beauty is equilibrium. In the Filipino culture, “equilibrium” is interpreted in Tagalog as *pagkakátugmâ*, from the root word *tugmâ* meaning “assonant”, “rhyming”, or “in harmony.” In Bisaya it is translated as *kabagayan* which literally means compatibility. In his fieldwork and studies on the notion of balance in nature, Filipino anthropologist F. Landa Jocano describes *pagkakátugmâ* as the foundation of the existence of things, events and other phenomena in nature. F. Landa Jocano stressed the importance of equilibrium and balance of things. This balance of things is the primary requirement in the judgement of beauty. Filipinos are very spiritual people. They firmly believe that “Bathala’s” (God) plans are well ordered and balanced. This corresponds to a popular local proverb which states that “Orderliness is next to Godliness”. This belief on the beauty of balance can also be accounted on the Chinese Yin Yang.

To emphasize the foundation of “*pagkakátugmâ*”, the term “aesthetic” is used, to bring up the position of the one who perceives. Usually, we refer to the process of aesthetic equilibrium as “making sense of things.” Beauty only makes sense when all other criteria conforms, complements and balances with each other. A western inspired theme park cealry does not match, complement, conform nor balance the indigenous natural setting of the karst landscape. “*Pagkakatugma*” is also synonymous to the Visayan word, “*Kahapsay*” which means the order of things. Another criteria for beauty is, “*katangi-tangi*”, or unique. “*Katangi-tangi*” is an old “tagalog” word, which is commonly used in describing art forms in its unique aspect.

The concept of “diwa” shows Filipinos deep understanding of beauty which transcends from a mere physical appreciation through a divine meaning.

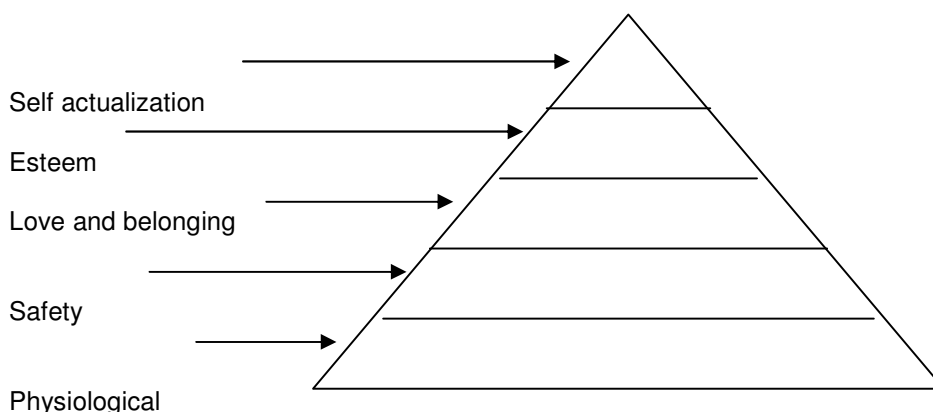
II.1.2 Livelihood Theories

Livelihood perception is analysed through psychological, economic and development theories. Theories such as Maslow's Hierarchy of Needs, Sustainable Development or Natural Capitalism are being used for this perception. The Maslow's Hierarchy of Needs is a psychological theory which explains the varying needs of human beings and this includes, safety and security and self-actualization which are very important topics in the discussion of livelihood. The Maslow hierarchy of Needs is however not only helpful in understanding perception on livelihood but, most importantly on participation which will be discussed in the later chapter.

As a development study, the Sustainable Development Principles and Sustainable Livelihood Approach were carefully considered. The theory of natural capitalism was also included to highlight environmentally friendly approaches of business enterprises which are also relevant in the discussion of livelihood.

Section 2, paragraph B of the Philippine Environmental Policy clearly mandates that it is the duty of the state to fulfill the social, economic and other requirements of the present and future Filipinos."

II.1.2.1 Maslow's Hierarchy of Needs



Maslow's Hierarchy of needs
Figure 3

The Maslow's hierarchy of needs is being used in this research to understand, the behavior of people towards participation. More importantly, it is used in analysing people's perception on livelihood. Livelihood is categorized in the second level of the pyramid, but could also be classified in the top level, if it fulfills the criteria of self actualization, when people's abilities are best utilized, and people find meaning in what they do. The theory would clarify, and differentiate what are people's needs, in different levels. Through this theory, we may understand the different perception of people on policies which directly and indirectly affects them. Since most of the respondents are below the poverty line, this theory would provide a framework in analyzing the different approaches and strategies on poverty reduction. The challenge of spatial planners is to translate opportunities into sustainable livelihood. The opportunities of this karst landscape range from tourism, indigenous materials and agriculture.

Maslow's hierarchy of needs is illustrated in the shape of a pyramid, with the largest and lowest levels of needs at the bottom, and the need for self-actualization at the top.

The lower four layers of the pyramid comprises the "deficiency needs" or "d-needs": esteem, friendship and love, security, and physical needs. If these deficiency needs are not met, the person may not act normally as a human being. Deficiency needs are basic human needs which are necessary for human survival. Socialisation, Love, Recognition and Security are some of these deficiency needs which are essential to the psychological survival of a human being. The hierarchy level of need moves upward as soon as the previous level of need is satisfied. The concepts below are being described in a descending manner.

The highest level of the pyramid is self actualization. Maslow (1943) exclaimed, "What a man can be, he must be. This forms the basis of the perceived need for self-actualization. This level explains that the highest of human needs is to realize its full potentials. Only a few people would reach this level. Talents and abilities vary from person to person. Every person has certain propensities and abilities in which he can be the best that he can. These tendencies could be genetic or environmentally influenced. According to Howard Gardner (1983), every human being has different intelligences, and their propensity is manifested through their excellence in spatial, logic, linguistics, bodily-kinesthetics, music, Interpersonal, naturalistic, and existential intelligences. Self-

actualization is only possible when a person is able to utilize his abilities to the maximum level. A person who has inclinations to logic and language may not find it meaningful to work in the field. Though this is not a general statement since there are some people, who have been the best in their respective fields, still find solace and refuge in the farms in their later lives.

Esteem- is the second highest level of hierarchy of human needs. Esteem is prerequisite of self actualization. All humans have a need to be respected. Respect is earned in society. Self-respect is however innate in every individual like dignity but could be lost through personal experiences and social circumstances. It is also influenced by family background and rearing. If a child is brought up with respect then he would grow up, learning to respect himself and others. However, esteem is earned. It is a value given by society for someone's deeds. Esteem as different from self actualization is determined by society not from the person himself that's why it overlaps with the highest level. People are respected for their deeds but sometimes, people are respected simply because of their names, their families and affinities. This is not the real esteem meant by Maslow. In philosophy, it is called *ad verecundiam*, when someone's idea is accepted based on the authority of the person making the statement and not on the idea itself. People believe and respect for example, the ideas of the local priest, not because of its content, but because of his position in the society. While some Filipinos are blind followers, this does not discount the fact that education (formal or informal) is critical to judgment. . Also known as the belonging need, esteem presents the normal human desire to be accepted and valued by others. People need to engage themselves to gain recognition and have an activity or activities that give the person a sense of contribution, to feel accepted and self-valued, be it in a profession or hobby. Maslow noted two versions of esteem needs, a lower one and a higher one. The lower one is the need for the respect of others, the need for status, recognition, fame, prestige, and attention.

The third level is belongingness and association. Men and women are social beings. "*No man is an island*" is a popular saying which perfectly describes man's need for association. People cannot live in solitary for a long time; otherwise this would create probable mental and psychological problems. This aspect of Maslow's hierarchy involves emotionally based relationships in general, such as: Friendship, Intimacy and Family.

Humans need to feel a sense of belonging and acceptance. In cultural studies, this is one of the place attachment factors which were identified. A human being needs to belong to a community where he can identify himself very well with the members of this community through their shared culture.

The fourth level is safety and security. It is human nature to secure its safety needs for his survival and continued existence. Everyone who is being threatened of his safety has the natural tendency to defend itself. This is observable in animals of lower forms. This need for safety and security extends to financial security and health. The home is a symbol for both personal emotional securities. In Philippine context, a house represents financial stability and security. An established person is someone who has a house of his own. It is a tangible manifestation of stability and a product of his hard work. In the world of work, this safety needs manifest themselves in such things as a preference for job security, grievance procedures for protecting the individual from unilateral authority, savings accounts, insurance policies, reasonable disability accommodations

The lowest of the pyramid is physiological needs. Every living creature on earth needs air, water and food for survival. These are basic physiological requirements for survival. Because this is the most important and the biggest human need, people tend to bargain other values in exchange of water and food. Some poor people in the Philippines eat food waste called "*pag pag*" which are left over food from restaurants. Notwithstanding the demoralizing effect of eating garbage, people neglect the dangers of their own health in order to fill their hungry stomach. For the most part, physiological needs are obvious—they are the literal requirements for human survival. Surprisingly, Maslow does consider sex as a physiological need. Maslow sees sexual need as basic of human survival like animals of lower forms. And for species to survive, they need to mate. Sex in this case is considered to be separate from emotional factors surrounding it.

Maslow's theory has been met by various criticisms particularly on its hierarchical order of needs, Wahba and Bridgewell (1976) found little evidence for the ranking of needs. Needs are difficult to rank since it is influenced by strong factors such as values, desires, wants and interests. And there is an element of bargaining. While values are difficult to bargain, other factors are subject to bargaining thereby making the classification and ranking difficult.

II.1.2.2 Natural Capitalism

Natural Capitalism is a business model which proposes how business enterprises could benefit from environmental protection strategies. The principles developed by Amory and Hunter Lovins and Paul Hawkins in 1999, sets out to turn sustainability into “a management goal” and “business opportunity” (Hargroves, 2003, p. 116). Considering natural resources as investment assets, it presents that natural resources be regrown and reproduced in order to sustain the business. Multi-international companies are gaining popularity because of their environmental advocacy and promotion of eco-friendly products.

In considering this model, contemporary human beings are becoming more conscious of preserving and protecting their environment. Environmentalism is being promoted in every school, institution and has been the forefront of government campaign to address problems of pollution, and scarcity of needed raw materials. Recycled products are available everywhere, and companies which are more concerned on the environment are gaining better reputation. In effect, it has become a good marketing strategy to develop their own products. This theory suggests that organizations and societies should invest in their environmental assets, and take opportunity in sustainability goals. As a livelihood model, each natural resource is given an economic value and the environment is managed like a business.

If humans are to have a sustainable relationship with the natural world, Gowdy believes that they must take a long-term view and consider solutions in a period of hundreds of years. Business companies have a big role in preserving and protecting the environment since the primary cause of environmental degradation is industrialization. In some countries, companies which have strategies to minimize the environmental impact of their production, or have projects geared toward the protection of the environment are rewarded through tax deductions. The Kyoto Protocol mandates that industrialized countries compensate their carbon dioxide emissions through environmentally friendly projects in the third world countries. However, their carbon dioxide must eventually be decreased.

The mandate on the right of the people to a balanced and healthful **ecology** in accord with the rhythm and harmony of nature is expressed in section 16, article II, Declaration

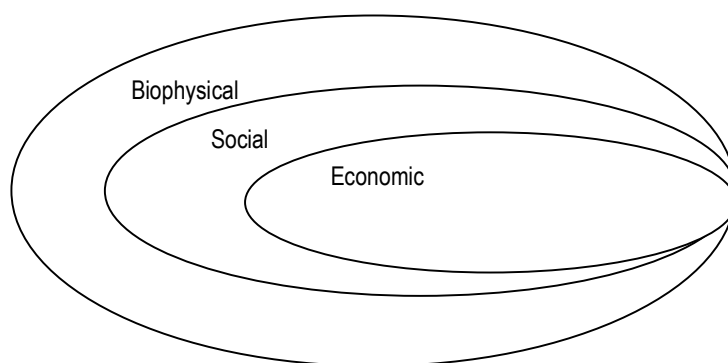
of Principles and State Policies Principles of the Constitution of the Republic of the Philippines.

II.1.2.3 Sustainable Development

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs... As such it requires the promotion of values that encourage consumption standards that are within the bounds of the ecologically possible and to which all could reasonably aspire."

(The Common Future, WCED, 1987)

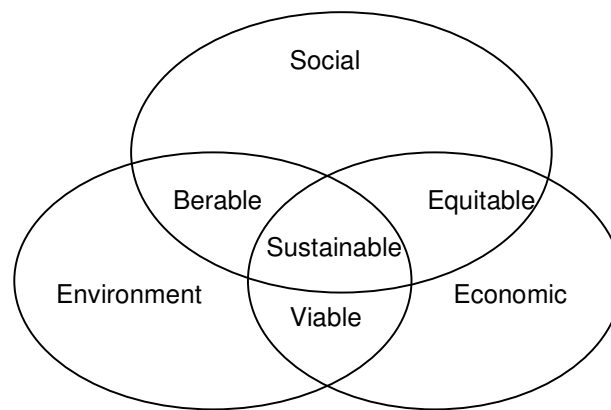
Sustainable development theory establishes the interdependent relationship of the biophysical, social and economic systems. These systems significantly define the critical role of human intervention in promoting sustainable development. The inseparable relationship between ecological, social-economic environment transgressed a high degree of symbiosis where one cannot exist without the other. It is the ambitious aim of development planning to balance this relationship. The outermost sphere, the Biophysical is the foundation of the other spheres. Through the biophysical sphere, social systems, structures and institutions are formed and created. Social relationships created through social systems shape economic structures outlining the economic sphere. In order to achieve a sustainable development, each of these spheres must be balanced and complemented with each other.



Interdependence Model

Figure 4

This interdependence is illustrated by the above figure. The economy exists entirely within society, because all elements of the human economy needs the interaction among people. On the other hand, society exists entirely within the biophysical system. It connotes society's dependence on the Biophysical system for survival. Although human activity and processes are reshaping and altering the biophysical environment at a very fast rate, society and economic systems can never exist independent of the biophysical environment. This includes the carrying capacity of ecosystem, which proposes the limits of pressure on ecosystems. In development studies, carrying capacity is greatly considered in understanding the capacity of ecosystems to carry the impact of development. .



Three Spheres Diagram

Figure 5

The most peculiar illustration of the sustainable development theory is the three-sphere diagram. It is assumed that a real sustainable development meets the criteria of the "triple bottom line" where environment, economic and social systems operate and interact on an equal basis. This model is important to establish the existence of interrelationship among the three systems. Unlike the interdependence model where it establishes a hierarchy of interdependence among the systems, this model considers each system to be equal. It implies that when one system does not function properly, it directly affects the two other systems. Since, sustainable development theory is an anthropocentric view, the role of human being as stewards in managing the environment

is suggested. It also displays the overlapping relationship of each sphere; between environment and society is “bearable”, between society and economy is “equitable”, between environment and economy is “viable”. “Bearable” must be construed in a sense that, the carrying capacity of the biophysical system must be carefully considered by the society in utilizing its finite natural resources. “Viable” must be understood in a light that is practicable on both the environment and the economy. The Kyoto Protocol provides a viable measure to manage gas emissions which are by products of economic activities. The relationship between the economy and the society must be “equitable” in a sense that it promotes more justified economic systems balancing the needs of social change and social equity.

To achieve a harmonious relationship between these "spheres" of development certain principles have to be followed within each sphere. A set of universal principles has been identified through international consensus.

It should be accepted that it is highly unlikely that all of these principles can be upheld at all times, as they may have conflicting requirements. In the theory of Multiple Criteria optimization, it is further observed that most often time decision-makers will have to make trade-offs and otherwise try to balance the different requirements to find an optimal solution for the greater good. These decisions need to be flexible and should be regularly reviewed against agreed-upon indicators, to keep the three systems in dynamic balance and ensure that no system be jeopardized or neglected.

Supporting the process of sustainable development is a set of institutional, technology, infrastructure and value system enablers. The crucial discussion on sustainable development transcends from a purely environmental issue to social, political and economic consideration.

As early as the mid 60s, concepts proposing sustainable development principles were already introduced as a model to assist under-developed countries. (DuBose et. al, 1995). The Ecologist, a scientific magazine in 1972 published an article entitled ‘The Blueprint for Survival’, suggested the concepts of Sustainability and Sustainable Development as an alternative to expansionism (Sutton, Cazalet & Grey, 2001). It must be noted that observations and concerns on carrying capacity were already realized in the 60s. The concept was later developed in a report released in 1987 by the World Commission on Environment and Development (WCED) titled ‘Our Common Future’,

which was turning point in policies and environmental discourse (Mebratu, 1998). The definition of sustainability and sustainable development stated “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Bruntland 1987, p. 43). This definition has been used widely by many development organizations and government using the principles of sustainable development as framework.

II.1.2.4 Sustainable Livelihoods Approach

Livelihood approaches are not theories which tend to explain a certain phenomena but rather are conceptual frameworks that promote people-centred development. (Hussein, 2002) These frameworks provide a comprehensive view to decision makers in analyzing social-economic conditions in developing an effective poverty reduction scheme. They are commonly responsive and participatory, and afford multidisciplinary and multilevel development interactions. Livelihood approaches puts into detail the relationship of social entities and institutions and magnifies this relationship to their livelihood strategies. It also connects the micro-cosmos of livelihood to a larger socio, economic and political context in a macro level. Livelihood approaches though focused locally, greatly considers influences from the greater and outside spheres, the larger community or the globe. Livelihood approaches have focused and clear framework which is aimed at common goal.

The complexities of poverty are minimized, controlled, and managed through established institutions and policies providing legal and logistic support. This framework acknowledges the need to reduce complexities in livelihood management through developing people-oriented livelihood policies and designing programmes and projects that address poverty issues.

The core principles underlying SL approaches are that poverty-focused development activities should be (Ashley & Carney 1999, p. 7):

- **People-centred:** sustainable poverty reduction will only be realized when planners centers on the needs of people and understand the differences among the groups of people while working with them in a manner that supports their current livelihood strategies, sustains their social environment and promotes their ability to adapt.

- **Responsive and participatory:** Local people themselves should be active actors in the identification of their problems and finding probable solutions to it. Development agents should use strategies and techniques that enable them to listen and respond to the poor.
- **Multi-level:** Poverty reduction is a complicated process which can only be achieved in a multi-level participation. It should be based on the grassroots which ensures that in the micro-level activity a development policy would be conditioned to promote an enabling environment while macro-level structures and processes encourage local empowerment and support local strengths and resources.
- **Conducted in partnership:** Partnership ensures a lasting relationship between the public and private sector. It promotes participation of all stakeholders whose critical role in local development is significant in community building.
- **Sustainable:** there are four aspects critical to sustainability - economic, institutional, social and environmental sustainability. A balance of these aspects is important for the maintenance of a holistic development strategy.
- **Dynamic:** Development planners must recognise the dynamic nature of livelihood strategies, and must be flexible in their response to people's situation.

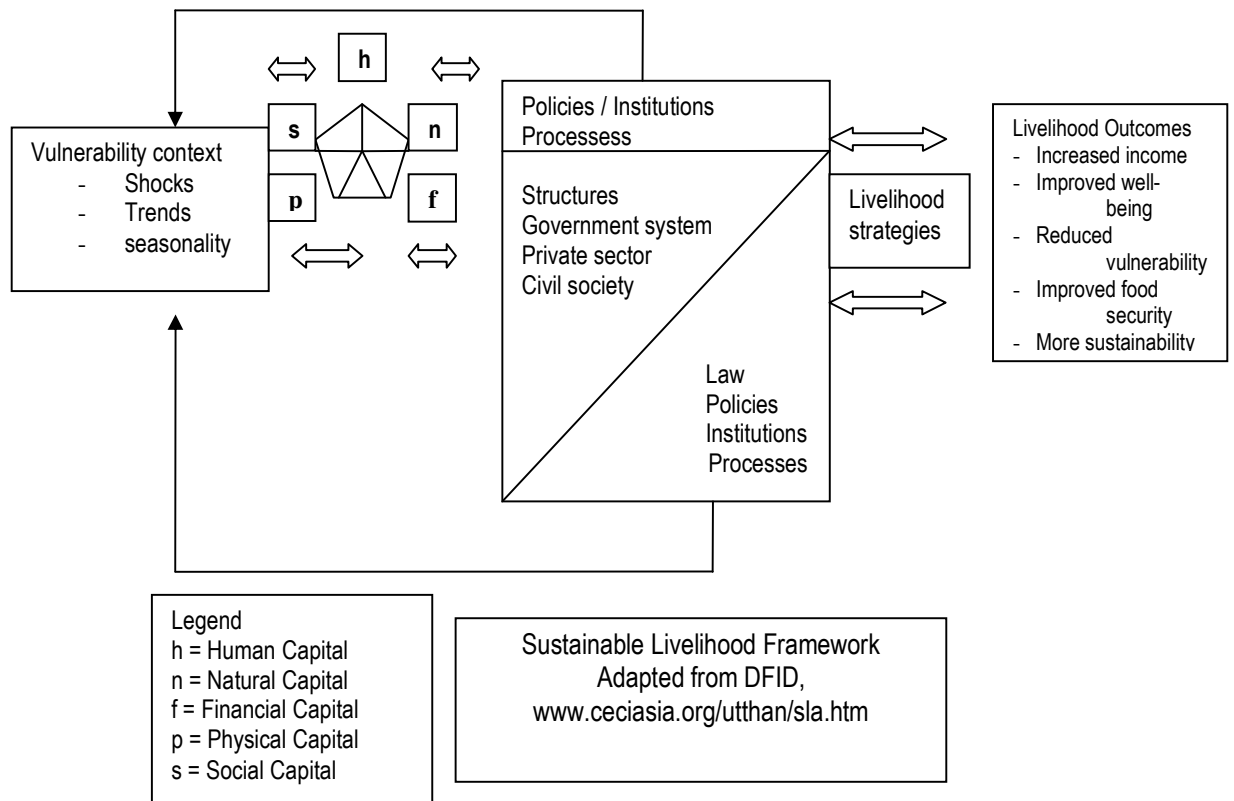


Figure 6

The sustainable livelihoods approach (SLA) developed by DFID (UK Department of International Development) considers five capital elements of development, namely human, natural, financial, physical and social capital. These capitals are represented in a balanced pentagon. Carefully considered in the SLA is the vulnerability context, which includes shocks, trends and seasonality. As a policy oriented framework, much is focused on policies, processes, institutions and structures that are existing in the community. These bounce back to the vulnerabilities in an attempt to lessen of risks and shocks in addressing poverty issues. This approach invests on the potential of the poor while carefully considering its vulnerabilities. After policies are well established, a responsive and participatory livelihood strategy follows. Consequently, it shall result into increased income, improved well-being, reduced vulnerability, improved food security, more sustainability.

Chambers and Conway (1991) defines, sustainable livelihood as a “livelihood that comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and

recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term .”

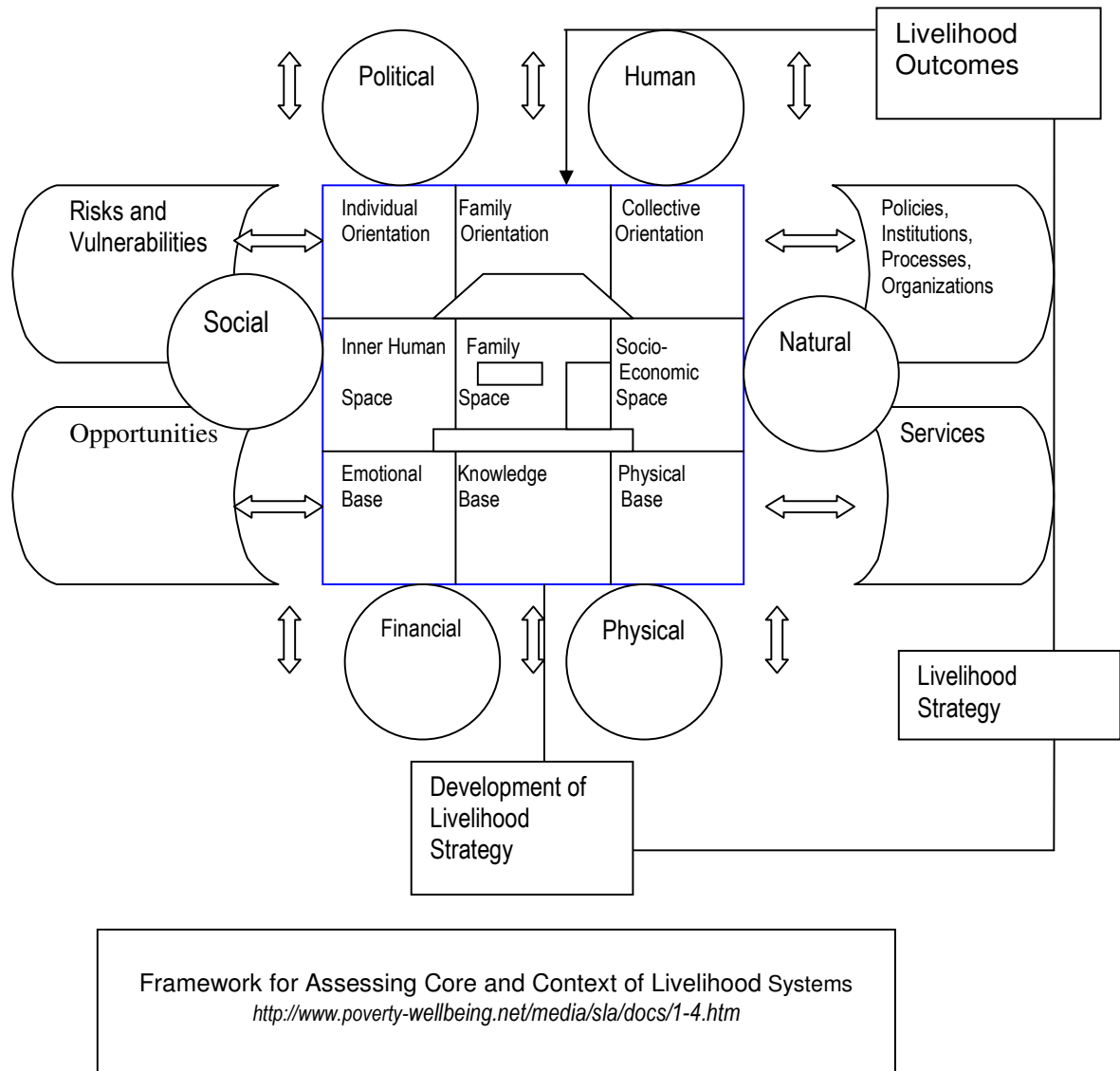


Figure 7

This livelihood model emphasizes the importance of social and physical spaces. Spaces originate from inner human space and spreads into the inter-family spaces. Social spaces are important in moulding the psychological and emotional foundation of a human being, and that includes the development of his or her world vision. Through these spaces, family orientations, emotional, knowledge and physical base are formed.

Influences from the external environment include, nature, social, political, human, financial and physical. The diagram above demonstrates a more modified sustainable livelihood framework, wherein it details the different livelihood orientation transcending from a purely individualistic view, family oriented or collectively inclined. Strengths, weaknesses Opportunities and Threats (SWOT) Analysis are impliedly considered in the framework. Through analyzing the social base, social spaces and orientation social capital of the community is thereby carefully evaluated and understood. Community strengths are strongly founded on human capital, economic base and environmental well-being while opportunities are projected on analyzing growth potentials of human, economic, and environmental capital. Threats are regarded in the consideration of the risks and vulnerabilities. Risks and vulnerabilities would include but not limited to environmental mismanagement and malpractice, non-sustainable livelihood practices, neglect of human capital development. Out of this analysis, ideas and concepts in the development of a responsive livelihood strategy may be formed thereby resulting to a clear livelihood strategy and livelihood outcomes.

People's visions and concepts of "development" are reflected in their priorities and livelihood strategies. Though end results of development is hard to measure since this is a long, daunting and continuing process, certain criteria's are important in the consideration of a sustainable livelihood development. Democratic concepts of development such as participation and empowerment cannot be neglected. More importantly, if these development processes meet the daily needs of the local people and provide a reasonable area for growth. People's participation is crucial in the formulation of the local concept of development. Community development can only be achieved when people have a common vision of development.

Poverty reduction schemes must be aimed at the "self actualization" (Maslow's hierarchy of needs) of the community. Though this is a very ambitious goal, livelihood strategies must rather focus on a higher goal than limits itself on satisfying low level needs. Through capability building activities, education and training, people could find meaning and satisfaction in their work and livelihood. Livelihood measures should at least satisfy esteem and security needs of the local people. Local people should find dignity in their work. People's values should be incorporated and carefully considered. These values are important assets that local planners could count on. Livelihood approaches must not

only consider material value in poverty reduction but family, cultural and spiritual values as well.

Empowerment, the recognition and sustainable development of capabilities of the oppressed and the marginalized, is the key element of poverty reduction. Capabilities are not passively handed over but wilfully acquired by human beings. Such as participation is an instrument of empowerment, participatory processes are critical to a genuine local empowerment.

A livelihood focus in poverty reduction means to build systematically on strengths and potentials of the poor. Livelihood approaches are designed to socially prepare the people on their path to development and that is taking into account, their emotional and psychological readiness in taking risks and threats responsibly.

Deng Xiao Peng once said, "It doesn't matter whether the cat is black or white so long as it catches mice". This also suggests the diversity of livelihood strategies that one can choose in order to achieve its goal. It is also a manifestation of rationalities guiding decision-making. (Simon 1987)

Consistent with the sustainable development principles, Ashley et al. Al (1999) defines "A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, without undermining the natural resource base" (Ashley et al 1999, p.8).

Livelihood approach provides an opportunity to better understand how culture and spirituality matters in livelihood systems. For example, it would be unimaginable for a Muslim man to be selling *lechon* (roasted pork) or for a Hindu to slaughter a cow. Spirituality, beyond its religious reference frames, forms part of inner development of livelihood. Worldviews, attitudes and goal setting, or livelihood strategies in general, are also informed by spiritual dimensions. (Baumgartner & Högger 2004)

In the following section, different schools of thought on environmental theories are discussed. This is to provide a holistic and detailed view of the development of theories in environmental studies.

It should be noted that there are theories which are similar to the theories used by Inglis (2008), in her paper "Using Human-Environment Theory To Investigate Human Valuing

in Protected Area Management. The discussions of these theories were then elaborated through examples and scenarios in Philippine context. Since the researcher is also conducting a study on protected landscape, these theories substantiated the theoretical background of the study.

II.1.3 Environmental Theories

Different theories have been used to serve as a paradigm in understanding people's attitude and perception in the environment. These theories would also include ethical foundations, school of thoughts, environmental hypothesis and different environmental world views.

II.1.3.1 Environmental Ethics

Environmental ethics, (Benson, 2000) evaluates and discusses views on the moral status attributed by humans to the living and non-living. Environmental ethics philosophers believe that everything on earth has a moral status, everything that constitutes the environment is important. Believers of this theory include animal rights activists and environmental workers.

Environmental ethics suggests that three different world view in giving moral status to living and non-living things. There are three kinds of world view; namely, anthropocentric, bio-centric and eco centric. An anthropocentric world view is primarily the moral status of the environment given by humans. It focuses on the idea of mankind's sole stewardship over the earth, highlighting his duties and responsibilities. The primary focus of this world view is humans' survival and growth at par with economic, social and environmental development. A bio-centric world view implies the moral status which is immanent to flora and fauna. Naturalists and biologists claim that the environment has a moral status on its own independent of human accordance. It centers on the value of life on earth. *Bios* is a latin word corresponding life.

A more balanced world view is the eco-centric world view. *Eco* comes from a Latin word which means a house. An eco-centric point of view thereby focuses on the moral status given to the ecosystem. An ecosystem would then suggest a –house system where every element of the house is important. Both physical and biological components play a vital role in the development of the house. Human beings, though they have an

important responsibility in the ecosystem, is only an element of the house and not the head of it. It considers the relationships of all species and non-living things within the ecosystem.

Anthropocentric view manifests a man-centered view and human domination. This world view connotes that man has the ultimate right to exploit nature. Occupation, exploitation and decision making rights rest on the hands of human beings. Bio centric view promotes an anti-human domination views, and suggests limits to growth so that flora and fauna could flourish. All life elements are important in the bio-centric view. Eco-centric view admits ecological crisis, and makes a responsive way to address the problem. It further suggest careful cohabitation of men with other species on earth – “balance of nature”, where every specie and non-living things are given equal importance in the ecosystem.

Year	Theories	Description	Orientation
1962	Social Ecology	Humans as part of nature, but possessing a second nature, a human nature, free will (place dependence)	Eco centric, Anthropocentric
1968	Tragedy of the Commons	Humans greed will consume the earth's natural resources	Anthropocentric
1969	GAIA Hypothesis	Earth as a self-regulating organism	Bio centric
1972	Deep Ecology	Interconnectedness of humans and non humans. Human spiritual and physical well-being linked to well-being of the planet	Eco centric
1972	Sustainability	The balanced relationship between the biophysical system, social system and the economic system	Eco centric
1977	Bioregionalism	Recognizes humans as part of nature. Must reconnect with their place in nature, for humans' well -being	Bio centric
1979	Eco-socialism	A socialized society knows how to establish limitations of growth by recognizing the earth's finite resources	Eco centric
1984	Biophilia Hypothesis	Humans evolved deeply interconnected with nature.	Bio centric
1992	Ecopsychology	Nature is part of self. Sense of place is beneficial to human well-being Separation can lead to suffering for both environment and humans	Eco centric
1999	Natural Capitalism	Humans should consider nature conservation and preservation as good investments.	Anthropocentric

Theories and Worldview

Adapted from Ingles, 2008

Table 1

II.1.3.2 Social Ecology (1962)

The principles of Social Ecology were evident in the writings of Murray Bookchin in 1962. Bookchin perceives humanity as part of Nature (referred to as first nature), but in possession of a second nature (human nature) which brings free will into evolutionary behaviour (Humphrey, 2000 in Ingles 2008), allowing the creative, thinking aspect of humanity to be realised. Bookchin contends that man, though part of the ecosystem, through his developed cognitive- analytical and reflective skills has the primordial responsibility to address the problems of the environment. It highlights man's relationship to nature itself, being a part of it. Social Ecology is very much related to the eco-centric view on Environmental Ethics. Theories in this school of thought accentuate the idea of man as part of nature, and the natural free will of man. In short, it considers man to be an animal, (belonging to the animal kingdom) and man as an analytical thinker as his human nature.

Man has humanistic and ethical responsibility and should address ecological crisis in a manner where he considers his first nature (being a part of nature itself).

II.1.3.3 Tragedy of the Commons (1968)

Garrett Hardin's Tragedy of the Commons thesis outlines the concept that the earth has limited resources, yet human nature in its greedy accumulation of wealth, this would lead to the collapse of the natural resource base that sustains life. This is a deficit theory where the world is seen in a negative view on man. Through this thesis, the concept of carrying capacity was developed. Communities which rely on the environment and natural resources will mostly be affected (Elliott, 1997; Hardin, 1968 in Inglis 2008). Population increase is seen as a very critical consideration in the carrying capacity of the earth's resources (Hardin, 1968 in Inglis 2008). Low (2004) implies that man's nature of selfishness and greed, could be traced through looking over the history and evolution of human kind. This theory also argues that industrialization and urbanization have hastened the damage to ecosystems.

II.1.3.4 GAIA Hypothesis (1969)

GAIA comes from an ancient Greek name for Mother Earth. Moreover, the idea of an Earth Mother is already popular among indigenous communities around the globe.

(Lovelock 1979 in Inglis 2008) The pre-colonial Philippines was once a matriarchal society because on the belief of a female goddess of the earth. Maria Makiling, a prominent figure in Philippines folklore, is a female goddess who is protecting the environment. Tribal people do pay respects to old oak trees and enormous mountains because they do believe that these have spirits. This school of thought relates nature's connection to man as maternal. As a mother, the earth provides shelter, food and comfort to humanity. British scientists, James Lovelock and Lynn Margulis proposed the GAIA Hypothesis in the 1960s which proposed that the planet and biosphere is one integrated self-regulating organism (Lovelock, 1979 in Inglis 2008). As a mother, the earth is taken separately from man. She is an organism which regulates herself. Believers in this theory suggest that though the earth may experience intense environmental degradation due to man's negligence, she can still recover from herself. In this hypothesis, they claim that the earth, though threatened by pressures of development and industrialization has the ability to regenerate and regulate itself. This imposes the idea that the earth has infinite resource, and consider it as a living organism, where all life systems on earth are connected to each other, forming the bigger organism, the earth. This theory contradicts the previous theory on the Tragedy of Commons. Some scientist argue the homeostatic and regulating attribute of the earth and contend that too much pressure, abuse of natural resources may lead to "illness" of the GAIA. (Tudge, 1998 in Inglis 2008)

The GAIA concept, considers humans, as part of this living organism. This opens up the prospect of reconnecting with the earth through the body, mind and spirit, as reflected in indigenous cultures through their songs, chants and prayers (Dunbar, 2000 in Inglis 2008).

II.1.3.5 Deep Ecology (1972)

Taylor and Zimmerman (2005 in Inglis 2008) discusses the worldview of Aldo Leopold's which exposed a world, which afforded intrinsic value to each creature operating within a complex natural system. This worldview believes that every species on earth has corresponding value of itself, independent of human valuation. Believers in this theory propose that nature's value is not accorded by men since nature existed long before men dominated the earth. This value, is not afforded by human beings, but is coexisting with the intrinsic value of human beings. According to Zimmerman (Atkinson, 1989 in

Inglis 2008), deep ecology inquires the question of place of in the natural world by understanding human relationships with the natural world. This is examined through both scientific insight into the interconnectedness of all things and through human self-realization, which is identifying with the natural world, its entire bio-system.(Zimmerman, 1998 in Inglis 2008).

II.1.3.6 Bioregionalism (1977)

Bioregionalism is a term used to describe an area defined by natural systems instead of by governments (Alexander, 1996, Berg & Dasmann, 1977 in Inglis , 2008). Peter Berg and Raymund Dasmann, in their paper "Reinhabiting California" developed this new kind of philosophy. Contradicting the popular notion that regions are political territories, proponents of this theory suggest that places must be defined according to their natural and biological attributes. These natural systems are sources of life, and are unique to a certain region. Every bioregion is unique and distinctive of its own. The province of Bohol, the locale of the study is considered a unique bioregion. Uniqueness is an important criterion in visual landscape assessment. It provides measures to differentiate landscape from each other based on categories such as endemic vegetation, and animal habitation. Almost 80 percent is a karst area, characterized by limestone hills and porous rock formations. There are several animal and plant specie which are endemic in this region. Indigenous and unique species also serve as provincial emblem, like the Philippines tarsier and the Philippine flying lemurs.

Metzner (1999) considers bioregional philosophy as decisions and control of an area left with a community charged with preserving the region, while being economically self-sufficient. The concept of migrant tenure system was derived from this view, that local people, directly living in protected landscapes could be protectors of the natural environment.

Bioregionalism recognizes humans as part of nature and that they must reconnect with their sense of place in nature, for humanity's well-being (Thayer, 2003 in Inglis 2008). Both believe that traditional communities had a closer relationship with nature and that humans must learn to understand themselves in relation to natural places (Metzner, 1999 in Inglis, 2008).

II.1.3.7 Eco-socialism (1979)

Eco-socialists believe that capitalism is the cause of environmental degradation (Pepper, 1993 in Inglis 2008). Eco-socialism believes that industrialized countries have the sole responsibility in the destruction of natural resources, and the pollution of the air, water and land. Eco-socialism focuses on human's greed and is convinced that capitalist orientation would lead to environmental degradation. Eco-socialism takes its grounds on the Kyoto Protocol where industrialized countries are to compensate environmental damages because of development and industrialization. Proponents contend that capitalism would sacrifice the environment for profit and gains. This theory views industries to be greedy, and do not take responsibility in the protection of the earth. Ecosocialism is the opposite to natural capitalism which recognizes business companies' social responsibility in protecting and promoting the welfare of the environment. Eco-socialism blames capitalism to be the root cause of environmental problems. Eco-socialist thinkers praise common agricultural systems and cooperatives as sustainable economic means in preserving nature.

Although the connection with nature as part of the self is recognized in eco-socialism, collective control within the natural limits of nature is also advocated (Mebratu, 1998 in Inglis, 2008).

II.1.3.8 Biophilia Hypothesis (1984)

Harvard Biologist, Edward Wilson use the term biophilia which etymological definition would connote love of life. Because man is a part of a larger ecosystem, he then needs to relate to other life forms (Wilson, 1984 in Inglis, 2008). Man's relationship with nature can be traced to humanity's history. Indigenous people would never leave their place, because they prefer to be nearer to nature and the environment. Complete prohibition of human settlement in protected areas has never been effective. This is because local people have developed a strong emotional relationship with nature. Opposite of Biophilia, is Biophobia, or fear or dislike of nature.

People in urban environments are losing their capacity to relate to nature (Orr 1994, in Inglis 2008). But this observation is not true at all times. Urban regions are already

planned and designed to incorporate clean and green projects, which aims to integrate nature in cities. People from the cities also escape the hectic life in the metropolis to green and idyllic countryside. People in the cities also long for fresh air, fresh food and green environments. In fact, the countryside is the best vacation place for urban people. People who have longed endured the noise, pollution and hectic life in the cities dream of retiring in idyllic countryside. Urban backyard gardening is also been introduced to cities suffering from scarcity of food. One of the favorite places to build retirement homes are country sides since older people could find peace, solace and are more connected to nature. Only a few people manifest biophobia because it is human nature to love the environment. Biophobia is only developed because of mental colonialism, that cities are better than countryside. The theory on Biophobia on the other hand suggests that people may lose its connection with the environment if he for a long period of time has no contact with nature.

Environmental Policy Making From an Environmental Ethics Perspective		
Orientation	Goals	Policy
Anthropocentric	Well-being of human progress and survival	<i>....to fulfill the social, economic and other requirements of the present and future Filipinos - paragraph B, section 2 Philippine Environmental Policy</i>
Bio centric	Well-being of animals and plants	<i>...it is hereby declared the policy of the State to secure for the Filipino people of present and future generations the perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of national park as provided for in the Constitution. – section 2, Declaration of Policy, NIPAS ACT; 1992</i>
Eco centric	Well-being o biotic community and its individuals	<i>The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature - Section16. Article II, Declaration Of Principles And State Policies Principles, The Constitution of the Republic of the Philippines) It is hereby declared a continuing policy of the State (a) to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other - Section 1. Policy. Philippine Environmental Policy</i>

Environmental Policy Making From an Environmental Ethics Perspective

Adapted from Steinmark, 2002
Table 2

In the discussion of Culture, there are several theories which proved to be helpful. Nature value was extensively discussed together with place attachment and place identity. The discussion of culture is very important in this study, because it is a significant factor to consider in formulating policies on protected landscape. The

identification and understanding of respective culture is crucial in the strategies and approaches which will later be used in the protected area management.

II.1.3.9 Nature Value

Nature values		
Intrinsic/extrinsic	instrumental	non-use
Intrinsic moral Value Extrinsic Intrinsic (subjective, objective)	Spiritual/cultural Pragmatic/Economic Functional-biological Aesthetic	Non-use (prohibition of use) Future Use (prohibition of use to replenish and regrow)

Categorization of Nature Values
Adapted from Inglis, 2008
Table 3

Valuing nature is very much important to better appreciate the existence of non-human things. There are three categories in measuring the value of nature namely; intrinsic, instrumental and non-use. Intrinsic value according to Winter, Lockwood and Morrison (2003) is nature valued for it, while instrumental value is nature valued for what it can provide for others. In the ethical understanding of the intrinsic value of nature, it is claimed that nature has a value on its own independent of human existence. The judeo-christian ideology claims that everything that exists has value, this just dependent on the degree to how it is perceived. Other beliefs system on the other hand support this value, Buddhism and Hinduism are famed for their high regard of non-human species. (McShane, 2007)

The instrumental value of nature is very well explained by Rolston. Rolston (1989) reminds that humans will always put values in nature because every human has a certain degree of interest in it. It basically differs on the degree of use and domination where value on nature is ordered. Natured is oriented on different world views, morals, and philosophies. Whether the value is accorded solely based on selfish character of man of self domination, nature has still its value. But nature has its own intrinsic value independent of human valuing. Nature behaves independent of mans activities. Without human intervention, nature could invade cities, break grounds and destroy walls. This has been proven and seen in many cities abandoned by humans like Chernobyl. The other question would be, could it be that man is the regulating mechanism of nature?

Human's perception on the value of nature varies depending upon his or her world view orientation. (Rolston, 1989) Likewise, Rolston (1989) explains that levels of values ranges from a subjective position that considering human satisfaction, to an objective position that recognises the intrinsic value of nature in its own right. Below (Figure 8) discusses the categorization of nature values used in the study. It has been adapted from Inglis, 2008 and has been considered to be useful in the study.

NATURE VALUES		WILDERNESS VALUES
Economic Value	Natural resources mixed such as petroleum together with human ingenuity Produce products that have economic value.	Market
Life Support Value	Natural resources such as atmosphere, oceans, polar ice caps and ozone layer are essential to the health of the ecosystem and therefore to human Welfare.	Life Support
Recreational Value	Natural resources used for recreation such as rock climbing and hiking are considered instrumental together with some sightseeing, which are Instruments of pleasure. However, often the recreational value is mixed.	Recreational
Scientific Value	Natural resources studied by natural scientists must be interesting enough to be known, while discovering the satisfactions in the subject matter. Valuing Science does not devalue nature.	Scientific
Aesthetic Value	Natural resources such as the mist on an alpine cliff, snowflakes and exquisite crystals, or the intricate pattern of moss on a fern may all add to the aesthetics of a climber's experience.	Aesthetic
Life Value	Natural resources such as organic living things have as much right to be there as humans. Those that cannot find these organic, aesthetic or intelligible justifications for valuing life cannot deny to it an interest value.	Intrinsic
Diversity and Unity Value	Natural resources such as ecosystems contain diversity yet are interconnected and work in natural unity without human interference.	Genetic Diversity
Stability and Spontaneity Value	Natural systems such as gravity, rain and the proliferation of plants and animals are all embedded in ordered stability and spontaneity of processes that we do not fully understand.	Intrinsic
Dialectical Value	Natural systems of nature have been the fertile ground for the development of human cultures, for without nature, humans cannot exist. The wild nature had value to the early pilgrim, explorer and settler.	Cultural Symbolisation Historical
Sacramental Value	Natural systems generate poetry, philosophy and religion. The stormy surf or the midnight sky stimulates the mind to enquiry.	Religious Character Building Therapeutic

Source: Adapted from Rolston (1989, p. 74 and p. 185-7)

Rolstons Table of Nature Values

Table 4

II.1.3.10 Place attachment

The theory of place attachment (Pruneau et al, 1999 in Inglis 2008) proposes the idea that people have conscious built relationship with their community, their culture and the

natural environment. Theorists of this thought believe that factors such as physical space, culture and nature influence a person's attachment to place. Relationships between man and non-human things are hard to measure however observable.

Attachment is the result of "emotional, cognitive, social, cultural and behavioural factors". Such as detachment is also a result of the above mentioned factors. Behaviours on the other hand are moulded by the social and physical environment. Attachment and detachment respectively are bilaterally related to behaviour. Human's relationship with places ranges from the functional purpose, where in most cases, livelihood through familial and cultural ties. In the Philippine, an obvious culture is the value of close-family ties. Some Filipino do not prefer to migrate somewhere else because of they do not want to be far away from their live ones. There is a social bond associated with space and geography. But since unemployment and poverty continues to wallow in Philippine society, the Filipinos trade in emotional bonds for their families' physiological survival. This explains the first level of Maslow's Pyramid of Needs. Hence, the theory of Maslow is correct that a person would always consider first his survival needs before anything else. However, majority of the people in this protected area are reliant to its resources. Hence, their attachment on the place could be rated on both emotional-familial and functional purpose. Tuan (1974; 1977 in Inglis 2008) defines place attachment as a space that has meaning to an individual developed through knowing the place, while Riley refers to place attachment as an "affectionate relationship between people and the landscape" (Sharpe & Ewert, 1999, p.218). The sentimental meaning of places is a strong factor to consider. Some people for example refuse to leave their place of birth because of sentimental reasons. They are attached to the place because they think that their whole clan and their family have lived there for generations. Some old people though, they are alone and most of their family members have left the place still refuse to leave, since they want to die on the place where they were born. In this case, the sentimental value is seen independent of social ties.

Broudehoux (2001 in Inglis, 2008) expands on the concept to explain that human values are structured from places, and forms the means of our cultural identity, from which we orientate ourselves to the world. Filipinos are proud of their brown colour since they relate themselves from the temperature of the place where they come from. Farmers and blue collared workers are proud of their calloused hands. All of these relate to place. A

person cannot be taken independently from his place since in his geographical and social place; social relationships, structures and cultures are developed, though nomads are obvious exemptions to this. It is quite equally perplexing to ponder whether the attachment of local people in the protected areas is actually social attachment. According to Lewicka (2005 in Inglis 2009), a strong predictor of community activity is a person's social (neighbour ties) and cultural status (cultural capital). The social capital of community activity would manifest in the Philippine context, the value of Bayanihan- the value of association. This social capital of the Filipinos is very much important in drawing the lines of development and in the formulation of strategies for poverty reduction. The cultural capital involves the norms, traditions, values and beliefs and customs ingrained within the society. This is very much important in the cultural identification of the community. Place attachment in this case could be very much related to cultural identity. People normally identify themselves according to race, the colour of their skin, the place they were born or they grew up, their parents and ancestors and the things they do collectively. But not all white people have the same culture nor do black people. A Filipino identifies himself as a Filipino because of his relationship to the country, the physical space, the Philippines. A Filipino may also identify himself as a Filipino because of cultural ties, blood relationship, here he relates himself to social space, the Philippine nation. A Filipino identifies himself as a Filipino because he cannot live a day without eating rice. Here he relates himself to the culture of the Filipinos, (cultural space). Migrant Filipino workers come home to the Philippines every year because of their longing for their own physical space, social space and cultural space. However, the author considers that neighbourhood ties and cultural capital are variables of place attachment. Neighbourhood ties (social capital) relate to the place dependant variable and to a community identity, while cultural capital relate to place identity, either emotional or symbolic. It is very much noticeable that people who move to other places form informal and informal cultural (nation-based) organizations. This explains a person's longing for association with people with the same culture. However both social capital and cultural capital relates to place attachment.

Predictors of place attachment may include age, length of residence, perceptions of a place, symbolic meanings, environmental attitudes (Jorgensen & Stedman, 2006 in Inglis 2008), physical attributes and involvement with the place (Hou, Lin & Morais, 2005 in

Inglis 2008), level of experience, motivation and evaluation of management actions (Kyle, Graefe & Manning, 2004 in Inglis 2008).

More than anything else, all planning activities and instruments are political in nature. It involves political persons and institutions like policy makers, governments and private institutions. It is both controversial and critical since some private property rights might be hit on the way on its implementation. It needs a good social study, and a good background of the political culture of the locality. Historical background is important information to acquire, if planners need to have a wider understanding of the political culture of the locality. The Philippines as a post- colonial state has a lot of pains in the past which much is carefully considered. It is might as well relevant to use Post-Colonial Theory as a political theory framework. This study further discusses the very nature of property rights, as a cause of political and social struggle in the Philippines. Impliedly, is the Conflict Theory used to understand this social struggle but not anymore elaborated. The complexities of the political and social dimension will be enlightened by these political theories and theories on property. Private property ownership and eminent domain are huge topics in the protected area policies.

...It is hereby declared a continuing policy of the State (a) to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other. (paragraph a, Section 1. Presidential Decree No. 1151, Philippine Environmental Policy)

II.1.4 Political Science Theories

Different theories in Political Science are used in developing the socio-political framework of the research. These would include: post colonial thought, conflict theories particularly on property rights and feminism, participation and needs theory and communication theory.

II.1.4.1 Post-colonial thought

Postcolonial theory emphasizes social struggle to end global capitalism. It is a theory that attempts to question the structures of domination, questioning the conditions of oppression. (Vasquez, 2009) It also expounds the hegemony of knowledge framework which has kept the local people silenced and invisible. According to this theory, social struggles are also epistemic struggles. Santos (2006) points out that there is no global social justice without the global cognitive justice. Furthermore, through post colonialism,

the *sociology of absence* is explained. 'The *sociology of absences* consists of an enquiry that aims to explain that what does not exist is in fact actively produced as non-existent...' (Santos 2006)

Post colonialism was developed from countries which were former colonies of the western world, particularly European colonial powers Britain, France, and Spain. One of the most controversial attacks of the post colonial theory is the claim on the monoculture of knowledge produced from the western world. (Vazquez, 2009) It creates a picture of a western country dictating developing countries what to do. Modern science and high culture become the sole criteria of truth and aesthetic validity. (Vasquez, 2009) This is primarily the reason why the researcher used both Kantian concepts and indigenous definition of beauty as a basis in analysis aesthetic perception. The aim of globalism is to have a borderless world, with homogenous culture, dominated by the west. The "non-existent" culture appears as ignorance and lack of culture. A Filipino eating with his bare hands would indicate lack of culture. A Filipino who worships the forest and the mountain is a pagan. A Filipino, who speaks good English, is a well cultured person. These are just some of the images of a victim of colonialism. Local and indigenous culture is non-existent. Globalization presses a great threat on national identities. The Japanese are glorifying American music, although they hardly understand it. Post colonialism demonstrates the heterogeneity of colonized places by analyzing the uneven impact of Western colonialism on different places, peoples, and cultures. History is seen as having a unique meaning and direction underpinning the ideas of progress, modernization and development. (Vazquez, 2009) The "non-existent appears to be backward, pre modern and underdeveloped. Western Modernity produces the idea of non-contemporaneity of the contemporaneous. The Western modernity insinuates that a culture which does not conform to the standards of the modern time prescribed by western modernity is backward. Very evident to this is the noticeable western colonialism in the Philippines as remnants of the American regime. People would consider someone wearing the "barot saya" the national costume of the Philippines to be backward, since it does not conforms to the ideals of western modernity. Social classification also serves to naturalize hierarchies (i.e. sexual and racial) into categories while the "non-existent appears to be naturally inferior. There is also a blatant display of formulating the concept of universality and globality.

The greater challenge of post colonialism is cultural identity of the colonized countries. It is a remaining dilemma of developing a national identity after colonial rule. The remnants of the Spanish colonization could be also being found in the Filipino language. The Filipinos at some point do encounter "identity crisis" since they were colonized by three different countries in different era. The educational system is deeply influenced by the Americans. The medium of instruction in all subjects except Filipino is English. Even Philippine History is taught in English. Filipinos feel indebted to the western world and are thankful for the knowledge they have shared with them. Administrations have changed, but politicians remain the same. Most of them tend to bend on western i.e. American policies. They are like children who are afraid to be left behind by their parents, even after a century of proclaimed freedom and independence. The western world uses this knowledge to impose their interests and perpetuate their control over previously colonized countries.

These struggles of identity most often occur in the metropolis and, ironically, with the aid of postcolonial structures of power, such as universities. Not surprisingly, many contemporary postcolonial writers reside in London, Paris, New York and Madrid.

Ownership of public lands by the state is explicitly provided for in Section 2. Article XII, National Economy and Patrimony, of the Philippine Constitution.

"All lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are owned by the State."

II.1.4.2 Conflict on Property Rights

Before the Spaniards came to the Philippines, the Philippines society was a tribal community where it has a common domain. It did not have an individual private property rights system. Everyone in the community was free to cultivate their land. The produce of the communal agricultural system was then shared by the entire community. It must be imagined that these communities are large clans whose members are related to each other. Intermarriages between tribes were also practices through fixed marriages to maintain peace among tribal communities. The colonization of Spain brought the concept of the Torrens system. The crown of Spain rewarded the colonizers with wide area of lands called "encomienda". This was the start of the landlord- tenant relationship. This is the start of social injustice, conflict and unrest.

John Locke (1690) in his *Second Treatise of Government* claims that civil society was created for the protection of property. In saying this, he relies on the etymological root of "property," Latin *proprius*, or what is one's own, including oneself (cf. French *propre*). Hence, by property he meant the ownership of one's "life, liberty, and estate." He contends that political institutions, policies and processes are established for the better protection of properties, he suggested that this is meant to be private (and non-political) interests of its constituent members.

According to Locke, the state cannot be the sole origin of property, declaring what belongs to whom. If the purpose of government is the protection of property, the latter must exist independently of the former. There would be a conflict of interest should the government be the protector and owner of a property. Contrary to this thought of Locke is the principle of Eminent Domain which came from a Latin word, *ominium eminens* (supreme lordship). This was first read in the legal treatise, *Le Jure Belli et Pacis*, written by Dutch jurist Hugo Grotius in 1625. The definition read as follows,

"... the property of subjects is under the eminent domain of the state, so that the state or he who acts for it may use and even alienate and destroy such property, not only in the case of extreme necessity, in which even private persons have a right over the property of others, but for ends of public utility, to which ends those who founded civil society must be supposed to have intended that private ends should give way. But it is to be added that when this is done the state is bound to make good the loss to those who lose their property."

In the Philippines, Eminent domain is defined as the power of the nation or a sovereign state to take, or to authorize the taking of, private property for a public use with or without the owner's consent, conditioned upon payment of just compensation. (Philippine Constitution, 1987)

The concept of eminent domain is however not very well understood in far flung barangays, where literacy is apparently lower than in cities. This is because social injustices in terms of land grabbing have been a problem since time immemorial. For these people, "eminent domain" is a government sanctioned land grabbing. The root cause of social unrest and upheaval in the Philippines is the uneven distribution of wealth, particularly of lands. There is also a wide gap between the rich and the poor. The corrupt political system which adds more misery to the lives of the people has gained more distrust from its constituency. In the conflict theory, Marx deconstructs the concept of Capitalism and contends that it would eventually fall down through tensions of the

struggling working class which demands freedom from the ruling elite. Since the colonization of Spain and the occupation of Japan and USA, the working class has fought the ruling elite, expanding its military and ideological campaign through protracted warfare. The Comprehensive Agrarian Reform Law in the Philippines aims to redistribute the land, by giving the agricultural lands to the actual tillers of the land. This was a conscious effort to appease the tenants- the working class. This was however only good in writing since the actual implementation was very poor. The ruling elite- the landowners have always a way of circumventing the law. The great irony to this is that the President, who signed the law, owned a large "hacienda". Only recently in 2011 that the Supreme Court of the Philippines releases a ruling to finally redistribute the hacienda to the tenant farmers. This has resulted in an expulsion of the Supreme Court Chief Justice. There is still a conflict of interest between social interest and implementers of law. Most of the policy makers, government executives and judicial members are owners of vast areas of lands themselves.

Properties already exist before formal governments were established. Locke argues that a full economic system could, in principle, exist within the state of nature. Property could therefore predate the existence of government, and thus society can be dedicated to the protection of property.

In his 1849 treatise, "What is Property?" Pierre Proudhon answers with "Property is theft!" In natural resources, he sees two types of property, *de jure* property (legal title) and *de facto* property (physical possession), and argues that the former is illegitimate. It is emphasized by Proudhon that in order for the property to be legitimate, it must be possessed, used and exploited by the owner himself. An agricultural land not tilled by any farmer does not have any value. More than the legal documents that one possesses, the actual toil in the development of the land is given more importance by Proudhon.

II.1.4.3 Participation Theory

There are several authors which proposed different theories on participation. In this section, conflicting and complementing theories on participation will be discussed. The human needs theory for example, is very much important in the formulation of a better bargaining agreement. The Human Needs theory is a congruent theory of Maslow's Pyramid. The Arnstein's Ladder of Participation provides both strengths and

weaknesses of participation as it recognizes in its ladder, manipulation and token participation. Lastly, the Communicative Action Theory of Habermas explains possibilities of participation in a more interpersonal, open communication.

II.1.4.4 Human Needs Theory and the Layered Conflict Model

People's participation is greatly determined by motivational factors. The human needs theory differentiates these motivations which could be both socially and politically significant. These motivations are universal in the human species (Burton, 1990.)

Certain categories are specified in this theory which serves as its basis. They are classified as needs, values and interests. Needs are things which are necessary for human and societal survival. Needs according to this theory constitutes the lowest level of the Maslow's Hierarchy, which is physiological needs. Values are those traditions ideas, habits, customs and beliefs that identify groups and ethnicity. Impliedly, values are considered in the higher level of the Maslow's Pyramid, such as belongingness and associations and esteem. Interest refers to occupational, social, political and economic aspirations of the individual. Interests could be classified in the higher levels of Maslow's Pyramid. Economic Interests for example may fulfil the Security needs while socio-political interests may realize belongingness, association, esteem or even self-actualization.

Interest can be negotiated; it is possible to trade an individual interest for a social gain (Burton 1990). But this can only be possible when an individual is directly or indirectly benefited from the trade. Understanding public interests plays an important role in developing quality communications. Policy makers must be able to determine what are the needs, values and interests of the local people and consider them carefully in planning out an effective protected area management scheme. In cases where local values are so strong most especially in places inhabited by indigenous people like protected areas, it is very hard to make a trade-off. Public policy managers who rely on interest-based approaches to communicate may find their efforts rejected when confronted with deeply held culturally defined values that are in conflict with a proposed policy or action. Some areas of the Karst landscape of Bohol have been reserved as sacred sites. Any disturbance, alteration, encroachment or intervention to these sacred sites may be perceived as sacrilegious and may trigger more resistance and violence.

The forests are believed to be dwelling places of their ancestors and environmental spirits which provide equilibrium within the ecosystem.

Positions	Political and Strategic	Rational
Interests	Desires and Wants	Rational
Values	Learned and Socialized	Non-rational
Needs	Basic and Human	Biogenetic

Layered Conflict Model

Laue 1986, Avruch and Black, 1991

Table 5

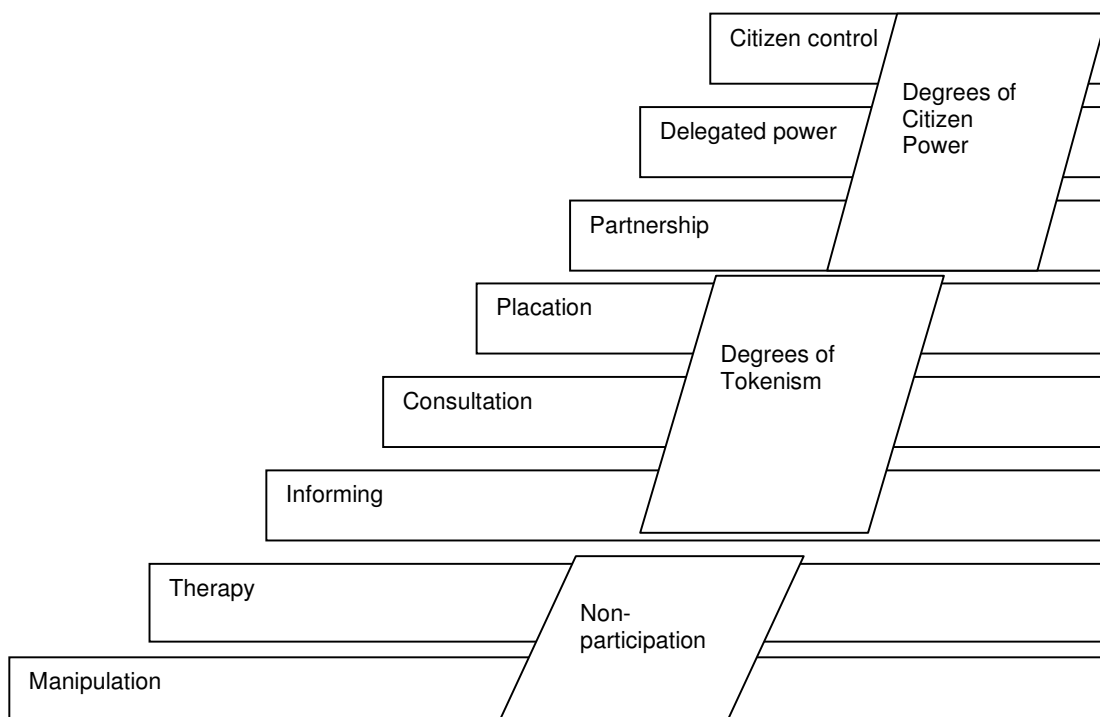
Motivations vary from person to person. Conflict though most often motivated by political reasons, are at some level, could be triggered by other factors such as culture and economy. It is important that policy makers know the root cause of conflict so as to provide an appropriate remedy. For instance, if the conflict arises from disparity of positions, it could be noted that since differences are political and strategic, this could be resolved through rational approaches. Policy makers would have a hard time rationalizing a particular plan when it comes into conflict with local values. The result is that people spiral backwards, rehashing past "injustices". Injustices in the past committed by the ruling elite, the landlords, by the corrupt government itself would always remind Filipinos, when issues like value bargaining is at stake. The government must again need to gain the trust and confidence of the people. It should show its sincerity, and fulfil its promises.

The Chocolate Hills Natural Monument before its declaration as a natural monument was a private and alienable land. Upon its declaration, all lands were converted to public lands and private property ownership was abrogated. To the local people this was an act of injustice, while on the side of the government; this is an act of protection. The main question is which value is being hurt through this process? What are the local values which are important to consider in the negotiation process. How about taking into consideration the relationship of people to their environments, its social and emotional value?

Reactions by parties at the positional and interest levels are inclined to be rational so that government and public stakeholders can use cognitive methods to sort out issues and make decisions about trade-off.

II.1.4.5 Arnstein's Ladder of Participation

Most often, when local people are enjoined to attend public consultations and public hearings, their most common complain is that important decisions have already been made by the respective agency and the purpose of the public involvement is simply to get a "rubber stamp" decision from the public. Sherry Arnsteins as early as 1969 realized that although a variety of avenues for public participation is available, those opportunities were ceremonial in nature, a "token" participation and that the public do not have direct influence over governmental decisions. In the model she developed, she illustrated the many degrees to which the public can be involved by government agencies and the corresponding degree of citizen influence on decision. (Arnstein, 1969)



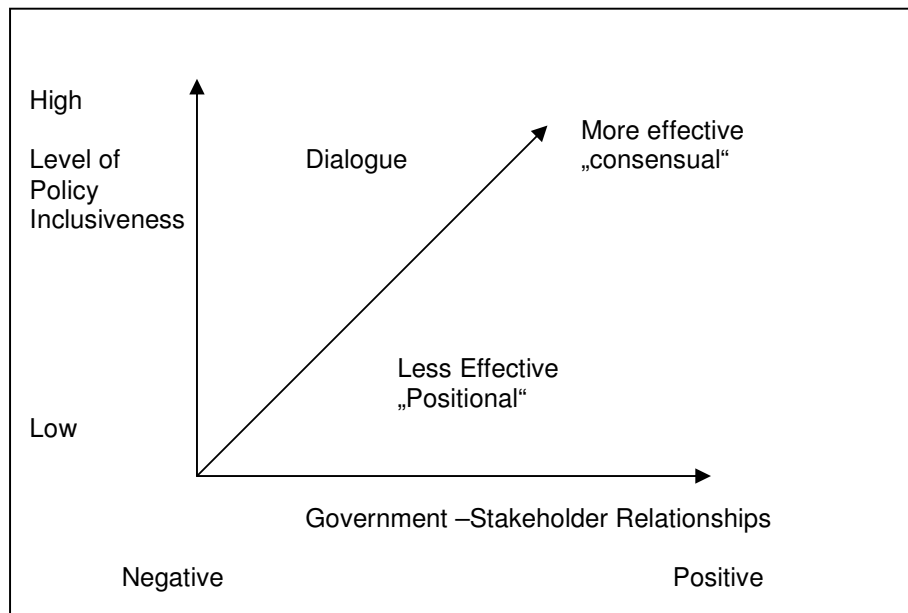
Arnstein's Ladder of Participation

Arnstein, 1969

Figure 8

It can be observed that hegemony of governmental control is explicitly being described in the ladder. Manipulation is a strategy used by some public administrators to control some committees and advisory councils. Sectoral representations are being manipulated through bogus representatives falsely representing the sector. This is indeed a mockery of the system where it aims representation from different sectors of

society. Therapy is another political maneuver of an agency where people are being subjected to a therapy under the guise of seminars or capability – building programs which actually aim to influence or even change local ideology. Therapy could also be in a form of bribery. A politician uses money to treat his bad image, giving goods and financial help to the people. The culture of dependency is being propagated by politicians who aim to stay in power for a long time. A dole-out policy is more popular than a long and tiring, empowerment policy. Informing is critical, and when information is one way, it is normally directed to the agenda of the agency. Consultations are normally being “rubber stamped” in Barangay (village) assemblies. Since most of the people come because of the required attendance, participation in barangay assemblies become “rubber stamp” or “approved without thinking”. Placation is another symbol of tokenism. Placation is to avoid any word or action that could disrupt the society or situation which is, for the moment at least, peaceful and calm. It is also a way of refraining from reliving a past issue, which could lead to a heated argument or confusion. This is a way of evading the topic, and it focuses on the good things which would add more perfume to the government. The implication here is that if a sleeping dog is awakened, it may respond by snapping or biting. As much as possible, agencies tend to cover up old stories so as not to remind the thinking public. Most government organizations and personalities have their own marketing agencies which are responsible in improving their public image, and manage whatever controversy which may destroy the image of their client. They normally do this through programs that tend to cover-up previous mess. Citizen power and real participation according to Arnstein is only achievable through partnerships where accountability is on both sides; delegated power where the local people through its Local People's Organization is given some degree of power and control in decision making and citizen control where communities are given control over certain facilities, or control over management of certain areas. Examples of citizen control over management of certain areas are the Community Based Resource Management Agreement provided under the NIPAS Act of 1992. Under the terms of the agreement, communities are given the opportunity to control the use of natural resources in their community upon the supervision of the DENR.



Policy Inclusiveness and status of relations

Warfield, 1993

Figure 9

Taking on the Arnsteins's ladder , Warfield (1993) formulated a theory that there is a positive correlation between 1) the status of government stakeholder relationships (positive or negative), 2) the degree to which diverse stakeholders are included in decision making processes, and 3) the type of dialog occurring with stakeholders (positional to consensual).

Warfield's model suggests the idea that the high the degree of dialogue, the more positive is the corresponding impact on policy inclusiveness which in effect, develops a better government and stakeholder relationship. The key element in this model is communication. The more the government reaches to the people through dialogue, the higher the level of acceptance is, the more inclusive the policy would be which would result to a better government-stakeholder relationship.

This theory accentuates the importance of dialogue in the formulation of policies. This communicative relationship should be improved in order to be more responsive to the needs of the people. Through maintaining and developing the culture of dialogue, the trust and confidence of the stakeholders representing the people in the government will also be equally improved.

II.1.4.6 Communicative Action Theory

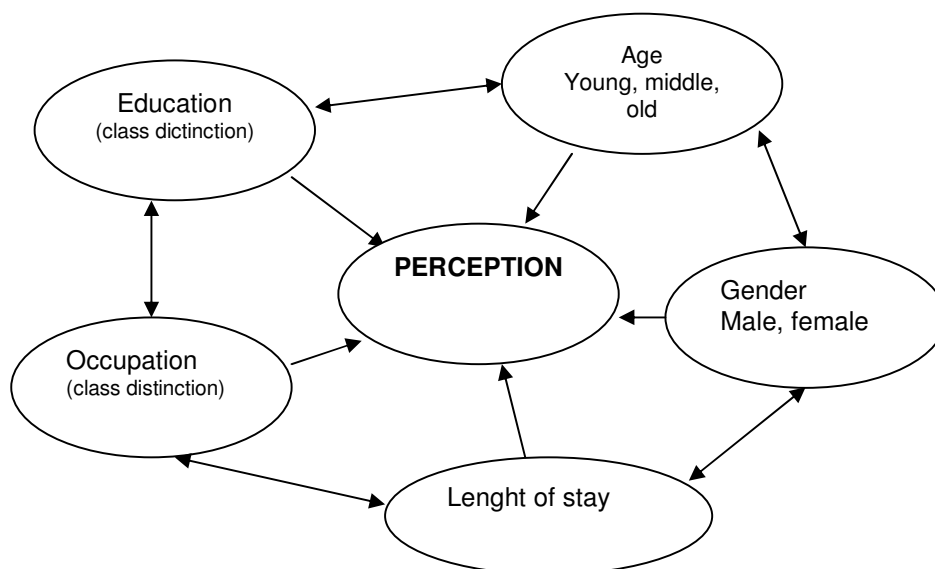
This implies interpersonal communication which is geared towards mutual understanding. The communicative theory of Habermas does not promote passive receptors but active participants and passive facilitators. Facilitators play only moderation role in communicative action theory, and aims to minimize to impose their knowledge and expertise on the local people which may influence their decision making capabilities. The local people who are the main actors do not primarily aim at their own individual success but want to harmonize their action plans with the other participants. It is theoretical basis for a view of planning that focuses on community participation, sharing of information with the public, reaching consensus through public dialogue rather than exercise of power, avoiding privileging of experts and bureaucrats, and replacing the model of the technical expert with one of the reflective planner. (Habermas, 2003) Consistent with the Communicative Action Theory is the Technology of Participation technique used by Holy Name University of the City of Tagbilaran, Philippines. This facilitation technique has been applied in many discussions, meetings, conventions in the province of Bohol. This technique requires argumentation skills of the participants. It also aims consensus, while putting aside ideas which are solitary and unpopular.

The Communicative action of Jürgen Habermas based its theory on human rationality and their capability for individuals based upon mutual deliberation and argumentation. Some critic to this theory would contest the deliberative and argumentative abilities of people. Some people have better debating skills and could better articulate their thoughts, thus defeating the main objective of participatory planning. The theory of Multiple Intelligence of Gardner proposes that human beings intelligence and abilities are expressed in eight different dimensions. Hence, ideas and thoughts of some people are not only articulated in spoken language forms. There are also power relationships in communication which must be well identified. Participants might be muted or passively agree with the ideas of other participants who have “power” and authority. Some people do not have the facility of language. It is the challenge of the planner to be creative in his approaches using different facilitation techniques which promotes more democratic discussions. Habermas promotes a consensus based approach.

Michel Foucault's objected to the idea of Habermas, of a power free discussion According to him there are pre-existing power relationship in each community.

Independent of language, power relationships are formed culturally and socially. Social structures promoting male power such as patriarchy is a major barrier in a free discussion where women's voice are considered second class or even not welcomed. The power relationship between ages, educational background or even physical appearance is also not well accounted by Habermas. Habermas does not see the individual person, and societal power-relationship, but considers a theory where everyone is capable of talking and arguing. "Jürgen Habermas subscribes to an unrealistic ideal of power-free communication. Power influenced communication is not well observed through one time consultation but through ethnography, where the researcher observes the community and their social relationships. Michel Foucault remedies this idealism by treating knowledge as power. Foucault claims that knowledge sits in local places. This local knowledge must be rediscovered and expressed to voice out local people's ideas, thoughts and opinion. The method of consultation is critical because of the existing power relationship. (McNeely, 2003)

II.1.4.7 Feminist Framework of Analysis



Intersections of differences

Framework of analysis

Figure 10

The researcher made use of the intersectionality concept as a framework of analysis to better understand social issues and concerns which confront the local people.

The concept of "intersectionality" is the interaction of multiple identities and experiences of exclusion and subordination. (Yuval-Davis 1991) Davis defines "Intersectionality" as the interaction between gender, race, and other categories of difference in individual lives, social practices, institutional arrangements, and cultural ideologies and the outcomes of these interactions in terms of power. A person cannot be separated independent from his other multiple identities. For instance, a woman's colour could not be taken independently of her gender. The challenge of analysis is to sew this multiple identities and knit them into a canvas to have a clear picture of the social milieu.

In feminist research, intersectionality provides a helpful guide in better understanding women of different identities. It refines a better understanding and differentiation of women from different walks of life. Intersectionality gives provides a helpful link of gender, class, race and other categories from each other in analyzing plight of oppressed individuals. (Zack 2007)

Intersectionality spells out the importance in relating categories such as gender, race, class etc., and uses these as factors in evaluating exclusions of women and even men. The first strand has been devoted to understanding the effects of race, class, and gender on women and men's identities, experiences, and struggles for empowerment. It has been especially concerned with the marginalization of poor women of colour within white, western feminist theory. This theory aims to avoid social labelling. For instance, black men are criminals, Filipina women are household workers while white people are racists. The goal though ambitious tries to minimize these biases through examining experiences, in relation to each identity.

The first of the Black feminist thought was written in a provocative title carrying the very main idea of intersectionality: *All Women are White, All Blacks are Men, and Some of Us Are Brave* (Hull et al, 1982).

II.2 Legal Background of the Study

As a policy study, it is important to provide a comprehensive account of laws which are relevant to the protection and preservation of protected landscapes. These laws and policies would range from a more broad and encompassing international laws and treaties through municipal laws. It is also important to consider only countries which are signatories of the respective international treaties are bound to submit to the law's tenets and provisions. This would also somehow provide a clearer picture as to how international laws and principles trickle down to municipal laws. It also draws the influence of the international community on local activities particularly the protection of natural resources.

II.2.1 International Legal Instruments

Below is the summary of the paper, International Environmental Governance: A regime for the protected areas, edited by Scanlon and Burhenne-Guilmin for the IUCN Environmental Law Program. This paper provides detailed accounts of international laws and treaties which tend to focus on the care, preservation and protection of protected areas.

II.2.1.1 Man and the Biosphere Programme (MAB)

The MAB's Biosphere Reserve concept is an important early initiative in biodiversity conservation and supports the objectives in international conventions such as the CBD, Ramsar, and the Migratory Species Convention.

Biosphere reserves comprise multiple-use areas and can be described as areas of terrestrial and coastal/marine ecosystems where, through appropriate zoning patterns and management mechanisms, the conservation of ecosystems and their biodiversity can be ensured. Three primary functions are assigned to such reserves – a conservation function, a development function and a logistic function. Each reserve typically has three zones for management purposes – a core zone that are strictly protected areas with very little human influence which are used to monitor natural changes in representative ecosystems and serve as conservation areas for biodiversity; a buffer zone being areas surrounding the core zone where only low impact activities are allowed, such as research, environmental education, and recreation; and a transition zone being the outer

zone where sustainable use of resources by local communities is encouraged and these impacts can be compared to zones of greater protection.

II.2.1.2 Stockholm Declaration

The UN Conference on the Human Environment was held in Stockholm, Sweden in 1972. Three major products of the Conference were the Stockholm Declaration on the Human Environment, an Action Plan, and the establishment of the United Nations Environment Programme (UNEP).

Although the Stockholm Declaration does not set out provisions specific to protected areas, it did, however, initiate the recognition of the need to “*protect and improve the human environment.*” There is a strong argument that Principle 3 which states “The capacity of the earth to produce vital renewable resources must be maintained and where practicable, restored or improved,” contains the seeds implicit in the concept of sustainable development.

II.2.1.3 Our Common Future

In the mid 80s, the UN asked the World Commission on Environment and Development, also known as the Brundtland Commission, to review its policies and programmes up to that point in time. The report produced under the title “Our Common Future” is often referred to as the Brundtland Commission Report. The report reinforced the principles of Stockholm and the World Charter¹ and proved to be the catalyst that brought the concept of sustainable development to the forefront of the world stage.

Our Common Future noted that historically national parks were established “somehow isolated from greater society”. It recommended the incorporation of “parks for development” and which served the dual purpose of protection for species habitats and development processes at the same time. However, the report also acknowledges that, “development patterns must be altered to make them more compatible with the preservation of the extremely valuable biological diversity of the planet.”

II.2.1.4 Rio Declaration

In 1992 the United Nations Conference on the Environment and Development (UNCED), also known as the Earth Summit, was held in Rio de Janeiro.

The Rio Declaration specified in Principle 4, which states: "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." (United Nations, 1992-C)

II.2.1.5 Agenda 21

Developed during the Earth Summit, Agenda 21 provides States with a domestic implementation handbook for introducing sustainable development into their laws and policies. Section 2, entitled "Conservation and Management of Resources for Development," contains chapters on Combating Deforestation, Managing Fragile Ecosystems, Combating Desertification and Drought, and Conservation of Biological Diversity.

It mandates that states should, in terms of the management related activities it prescribes "*establish, expand and manage, as appropriate to each national context, protected area systems that includes systems of conservation units for their environmental, social and spiritual functions and values...*" (United Nations, 1992-A)

II.2.1.6 Millennium Declaration, WSSD Political Declaration & WSSD Plan of Implementation

The so-called "Rio + 10", the World Summit on Sustainable Development (WSSD), was held in Johannesburg in late August 2002.

Part IV of the Millennium Declaration - "Protecting our Common Environment" states that "a new ethic of conservation and stewardship" is necessary and that the first steps

to do so is by reaffirming the UN's support for Agenda 21, the Kyoto Protocol and the CBD.

Part IV of the Millennium Declaration "Protecting and managing the natural resource base of economic and social development" addresses marine, wetlands and forest protection, sustainable development, and biological diversity, amongst other areas of environmental needs.

II.2.1.7 Convention on Biodiversity

The CBD sets up a comprehensive approach and concepts with respect to biodiversity conservation. It acknowledges the precautionary principle, need for in-situ conservation, scientific development and technology transfer, traditional ecological knowledge and benefit sharing and intergovernmental co-operation.

Key provisions related to protected areas:

Article 2: Definition of Term "protected areas"

The definition given to protected areas by the CBD in Article 2 is as follows:

"Protected area means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives"

This definition for protected areas is ambiguous and initiates criteria that are difficult in implementing an effective management system of protected areas and even biodiversity conservation. According to this definition, a site is considered a protected area if it is either designated or regulated and managed. The word "designated" does not in this context mean named but rather legally defined by geographic coordinates. The CBD did not specify the definitions of a protected area but rather gave a more general provision so as to give member states a free hand in identifying protected areas, so long as it is within the context of biodiversity conservation.

Article 8: In Situ Conservation

"Protected areas play a vital role in preserving biodiversity. Without protected areas, it would be difficult to maintain biodiversity at ecosystem, species and genetic levels. "

Within this Article, subsections directly relevant to protected areas require the Contracting Parties to:

"(a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;

(b) Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;

(d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;

(e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas.”

Subsections (a) and (b) recommend the concept of a system that would guide the management of protected areas of the state. Through establishing a system of protected areas, the state could effectively harmonize environmental state principles to protected areas of individual provinces.

Subsection (d) affords protection to ecosystem types and natural habitats, rather than site specific areas which are the traditional types of protected areas discussed by subsections (a) and (b). The CBD provides for use both ecosystem and site specific protection to preserve biodiversity, although, subsection (d), like (b) undermines any implied legal obligation, by the use of the word 'promote' – an indefinable requirement on the State.

Subsection (e) implicitly recognizes that the activities, which occur adjacent to protected areas, may be critical to the protected area's success. This subsection is very much important in developing a more holistic approach in the protection and management of protected areas. It must therefore be justly considered that adjacent localities of the protected areas have critical role in the promotion of biodiversity and in effective implementation of protection mechanisms.

II.2.1.8 World Heritage Convention

Key provisions related to protected areas:

Article 4

"Each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage... situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation... which it may be able to obtain."

This provision entails that States are still directly responsible for protection of any sites listed and secondly; States must do as much as their resources allow, identifying, protecting, conserving etc. It can also be further noted, that the article recommends international assistance "where appropriate", to states in the protection and conservation of their cultural and natural resources

Article 5:

"To ensure that effective and active measures are taken for the protection, conservation, and presentation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall Endeavour, in so far as possible, and as appropriate for each country..."

This article lists 5 subsections aimed at identification, research, and the establishment of administrative, financial and legal frameworks. Articles 4 and 5 explicitly provide the roles of State in terms of protection.

It is the obligation of the state to exhaust all means necessary and with utmost of its own resources to protect and conserve cultural and natural heritage sites. State's capacity and political will to effectively provide protection of a natural area will depend on its specific circumstances, such as its financial, expert resource status and developmental priorities. However, in light of each situation, a State is still required to do as much as is possible. Where necessary, if evidence is found that a State did not do all that was in its power to do, or exhibited a blatant disregard for the protection of a site, it could held in breach of this Convention.

II.2.2 Legal Framework of Philippine Environmental Policies

II.2.2.1 Philippine Constitution

Article II, Declaration of Principles and State Policies Principles

Section 16. The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

Guaranteed under the declaration of Principles and State Policies of the Philippine constitution (De Leon, 1987) is a healthful and balanced ecology. Certain concepts such as sustainable development, carrying capacity and balance of nature are just some of the theories where this environmental policy is based. The Philippine constitution as the supreme law of the land directs the state the ecological well-being of the country. Moreover, the Philippines as a signatory to various conventions and treaties on environment, is mandated to conform to these international agreements as these are ratified by Congress and are in conformity with the environmental provisions of the constitution.

Article XII, National Economy and Patrimony, Philippine Constitution

Section 2. All lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are owned by the State. With the exception of agricultural lands, all other natural resources shall not be alienated. The exploration, development, and utilization of natural resources shall be under the full control and supervision of the State.

Section 3. Lands of the public domain are classified into agricultural, forest or timber, mineral lands and national parks. Agricultural lands of the public domain may be further classified by law according to the uses to which they may be devoted. Alienable lands of the public domain shall be limited to agricultural lands.

Section 4. The Congress shall, as soon as possible, determine, by law, the specific limits of forest lands and national parks, marking clearly their boundaries on the ground. Thereafter, such forest lands and national park shall be conserved and may not be increased nor diminished, except by law. The Congress shall provide for such period as it may determine measures to prohibit logging in endangered forests and watershed areas.

Specifically provided in Section 2 of Article 12, the constitution prohibits the alienation of natural resources with the exemption of agricultural lands. Section 3 of the same article provides that “*alienable lands of the public domain shall be limited to agricultural lands.*” It is within this provision of the constitution that lands within the protected areas shall not be alienated. The change in the land use from private alienable lands to public lands normally causes a friction between the government and the respective landowners.

II.2.2.2 Presidential Decree No. 1151, Philippine Environmental Policy

Section 1. Policy. *It is hereby declared a continuing policy of the State (a) to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other, (b) to fulfil the social, economic and other requirements of present and future generations of Filipinos, and (c) to insure the attainment of an environmental quality that is conducive to a life of dignity and well-being.*

Section 2. Goal. *In pursuing this policy, it shall be the responsibility of the Government, in cooperation with concerned private organizations and entities, to use all practicable means, consistent with other essential considerations of national policy, in promoting the general welfare to the end that the Nation may (a) recognize, discharge and fulfil the responsibilities of each generation as trustee and guardian of the environment for succeeding generations, (b) assure the people of a **safe, decent, healthful, productive and aesthetic environment**, (c) encourage the widest exploitation of the environment without degrading it, or endangering human life, health and safety or creating conditions adverse to agriculture, commerce and industry, (d) preserve important historic and cultural aspects of the Philippine heritage, (e) attain a rational and orderly balance between population and resource use, and (f) improve the utilization of renewable and non-renewable resources.*

Section 3. Right to a Healthy Environment. *In furtherance of these goals and policies, the Government recognizes the right of the people to a healthful environment. It shall be the duty and responsibility of each individual to contribute to the preservation and enhancement of the Philippine environment.*

As early as 1979, the Philippines has also incorporated the principles of sustainable development in the declaration P.D. 1151 otherwise known as of the Philippine Environmentally Policy penned by the late dictator Ferdinand Marcos.(Serote,2004) The president in order to win popularity in the international arena integrated the principle of a balanced ecology as its prime governmental policy. Ironically, the government in real

practice did not honour the provisions of the policy. The massive corruption in government caused severe environmental damage. Illegal logging was rampant, and the vicious exploitation of other natural resources such as minerals and wildlife resources were proliferating.

II.2.2.3 Local Government Code of 1991

Chapter II, Book I, General Powers and Attributes of Local Government Units, Local Government Code of 1991 (Pimentel,A. 1991)

*Section 16. General Welfare.Within their respective territorial jurisdictions, local government units shall ensure and support, among other things, the preservation and enrichment of culture, promote health and safety, enhance the right of the people to a **balanced ecology**, encourage and support the development of appropriate and self-reliant scientific and technological capabilities, improve public morals, enhance economic prosperity and social justice, promote full employment among their residents, maintain peace and order, and preserve the comfort and convenience of their inhabitants.*

Explicitly expressed in the Local Government Code (Pimentel, 1991) are the same environmental policies of P.D. 1151 emphasizing on the promotion of balanced ecology.

Chapter II Article I, Intergovernmental Relations

Section 26. Duty of National Government Agencies in the Maintenance of Ecological Balance. - It shall be the duty of every national agency or government-owned or controlled corporation authorizing or involved in the planning and implementation of any project or program that may cause pollution, climatic change, depletion of non-renewable resources, loss of crop land, rangeland, or forest cover, and extinction of animal or plant species, to consult with the local government units, nongovernmental organizations, and other sectors concerned and explain the goals and objectives of the project or program, its impact upon the people and the community in terms of environmental or ecological balance, and the measures that will be undertaken to prevent or minimize the adverse effects thereof.

Chapter IV, Article I, Relations With People's and Non-Governmental Organizations

Section 36. Assistance to People's and Non-governmental Organizations. – A local government unit may, through its local chief executive and with the concurrence of the Sanggunian concerned, provide assistance, financial or otherwise, to such people's and

non-governmental organizations for economic, socially-oriented, environmental , or cultural projects to be implemented within its territorial jurisdiction.

Decentralization is a critique to development approaches that have failed to respond to the needs of the people. The top-down approach was ineffective in eradicating poverty and was considered traditional in its strategies since it perpetuated bureaucratic system of governance. Widespread dissatisfaction from the grassroots insinuated a change of developmental model, from a centralized – hierarchical to a more decentralized form of governance. The idea of decentralization smelled good to local government units since they are finally given the local autonomy that they have always longed for, but did the Local Government Code of 1991 really afforded a genuine autonomy to local government units? The decentralization process is anchored in the principles of devolution. In the Philippine's context, the term refers to "the act by which (the) national government confers power and authority upon the various local government units to perform specific functions and responsibilities" (Pimentel,A., 1991).

Republic Act 7160, otherwise known as the Local Government Code of 1991, was a move to decentralize the Philippine governmental system by giving more autonomy to local government units. This is in consonance to the provisions enshrined in the Philippine Constitution. The Act shifts powers, authority and responsibility from the national to the local governments. It is premised on the belief that effective local governance coupled with people's participation results in the empowerment of people and the improvement of their quality of life. One important and novel aspect of local governance espoused by the code is environmental management. Local Government units (LGUs) are mandated to integrate environmental aspects in local development planning, implement environmental protection programs and projects as well as enforce laws and regulations. On the other hand, the Department of Environment and Natural Resources (DENR) limited the decentralization of natural resource management responsibilities to the management of communal forests, community watersheds, and establishment of greenbelts and tree parks. It also covered approvals for minor mineral resource extraction activities such as sand and gravel quarrying. Conversely, enforcement of forest protection laws against illegal logging and other resource extraction was entirely handed over to LGUs. This is also the case for environmental management. Local government powers in environmental management were

concentrated in garbage collection and disposal, and the enforcement of environmental laws on smoke-belching and pollution.

Except for health service management and delivery, central government authorities (the DENR included) retained the vast rule-making, monitoring, standard-setting, and permitting of vital technical, legal and institutional functions. Their reluctance to relinquish power can easily be explained by the "fear of losing identity". This fear is based on the premise that central authorities provide a broader framework and therefore greater understanding of the issues and concerns affecting national policies and programs. However, the national governments are also losing grounding in understanding local issues and concerns. Though national governments flaunts of its technical and intellectual competence that gave them ipso facto prior vested rights over local initiatives, this knowledge and expertise would mean nothing since knowledge sits in localities, not in offices. Rather than developing capability building programs that would assist local governments in its implementation of protected area management responsibilities, the DENR prefers to take full control and supervision of such responsibilities, thereby underestimating local capacities for development. Shielded by institutional mandates and legislated policies, local governments exercise their devolved functions and powers 'under the review, supervision and control' of central agencies. This has further deepened the dilemma of local government units in the exercise of their autonomy.

II.2.2.4 The National Integrated Protected Areas System (NIPAS) Act of 1992

National Integrated Protected Areas Systems (NIPAS) is the classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to maintain their natural conditions to the greatest extent possible. (Serote,2004)

The rationale for the establishment of the system of integrated protected areas nationwide is stated in the declaration of the NIPAS Act:

" Cognizant of the profound impact of man's activities on all components of the natural environment particularly the effect of increasing population, resource

exploitation and industrial advancement and recognizing the critical importance of protecting and maintaining the natural biological and physical diversities of the environment notably on areas with biologically unique features to sustain human life and development, as well as plant and animal life, it is hereby declared the policy of the State to secure for the Filipino people of present and future generations the perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of national park as provided for in the Constitution.

It is hereby recognized that these areas, although distinct in features, possess common ecological values that may be incorporated into a holistic plan representative of our natural heritage; that effective administration of these areas is possible only through cooperation among national government, local government and concerned private organizations; that the use and enjoyment of these protected areas must be consistent with the principles of biological diversity and sustainable development. “

The national system of protected areas consists of two components: the initial and the additional. The initial components of the NIPAs are all areas that, prior to the affectivity of the Act on June 1, 1992, have been designated or set aside, pursuant to a law, presidential decree, presidential proclamation or executive order as national park, game refuge, bird and wildlife sanctuary, wilderness area, strict and nature reserve, watershed, mangrove reserve, fish sanctuary, natural and historical landmark, protected and managed landscape or seascape as well as identified virgin forest. As of June 2001, the PAWB-DENR has accounted for 209 sites comprising the initial component. At the same time, additional candidate sites were considered for possible inclusion into the system. The number of recommended new sites had piled up to 184 as of the same date.

NIPAS areas encompass outstandingly remarkable and biologically important public lands that are habitats of rare and endangered species of plants and animals. These also cover bio geographic zones and related ecosystems, whether terrestrial, wetland or marine.

Pursuant to RA 7586 which provides for the establishment and management of NIPAS, eight categories of protected areas are specifically defined by the NIPAS Act:

- a. National park refers to a forest reservation essentially of natural wilderness character which has been withdrawn from settlement, occupancy or any form of exploitation except in conformity with approved management plan and set aside as such exclusively to*

- conserve the area or preserve the scenery, the natural and historic objects, wild animals and plants therein and to provide enjoyment of these features in such areas*
- b. Natural monument is a relatively small area focused on protection of small features to protect or preserve nationally significant natural features on account of their special interest or unique characteristics*
 - c. Natural biotic area is an area set aside to allow the way of life of societies living in harmony with the environment to adapt to modern technology at their pace*
 - d. Natural park is a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding natural and scenic areas of national or international significance for scientific, educational and recreational use*
 - e. Protected landscapes/seascapes are areas of national significance which are characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal lifestyle and economic activity of these areas;*
 - f. Resource reserve is an extensive and relatively isolated and uninhabited area normally with difficult access designated as such to protect protected areas of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based upon appropriate knowledge and planning*
 - g. Strict nature reserve is an area possessing some outstanding ecosystem, features and/or species of flora and fauna of national scientific importance maintained to protect nature and maintain processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, education, and for the maintenance of genetic resources in a dynamic and evolutionary state;*
 - h. Wildlife sanctuary comprises an area which assures the natural conditions necessary to protect nationally significant species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulation for the perpetuation.*

Under the NIPAS Act, the following are prohibited within protected areas: a. Hunting, destroying, disturbing, or mere possession of any plants or animals or products derived there from without a permit from the Management Board; b. Dumping of any waste products detrimental to the protected area, or to the plants and animals or inhabitants therein; c. Use of any motorized equipment without a permit from the Management Board; d. Mutilating, defacing or destroying objects of natural beauty, or objects of interest to cultural communities (of scenic value); e. Damaging and leaving roads and trails in a damaged condition; f. Squatting, mineral locating, or otherwise occupying any land; g. Constructing or maintaining any kind of structure, fence or enclosures, conducting any business enterprise without a permit; h. Leaving in exposed or unsanitary conditions refuse or debris, or depositing in ground or in bodies of water; and altering, removing destroying or defacing boundary marks or signs.

II.2.2.5 The Raja Sikatuna National Park (RSNP) under Proclamation 287 of President Joseph Ejercito Estrada (Official Philippine Gazette,2000)

Most of the present RSPL was originally declared as timberland in 1928 and was incorporated into the Loboc Watershed Reforestation Project in 1953. In the 1950s, an eight-hectare Boy Scout Camp, and this was designated a National Park on 7 October 1987. In 1990 the Philippine Government also designated the adjacent 9023 hectare limestone karst area (previously designated as a public forest land) as part of the National Park under Proclamation 129 (Arco, 1998, PSDN 1999, Urich and Bliss 1992). The Park was expanded again in 1999 to cover 10485 hectares. The previous public forest lands and Boy Scout Park were accorded National Park status with the goal of boosting investment in reforestation of the area, while protecting the islands hydrological resources. (Urich and Bliss 1992).

The RSNP covers 29 barangays (villages) in the seven municipalities in Bohol namely; Batuan, Carmen, Sierra Bullones, Garcia Hernandez, Valencia, Dimiao, and Bilar. The park is considered to be the remaining forested portion of Bohol, and is one of only five old-growth forest remaining in the central Philippines. It also a home of diverse and plant and animal resources including the very rare flying lemur and the Philippine tarsier, and it is one of the ten sites earmarked for the World Bank Global Environmental Facility Integrated Protected Area System Project status (BWF 1999; Urich and Bliss, 1992). In the year 2000, the Raja Sikatuna National Park was changed to protected area status by

virtue of presidential proclamation no. 287 and later re-classifying the park as a protected landscape.

II.2.2.6 The Chocolate Hills Natural Monument (CHNM) under Proclamation no. 1037 of Pres. Fidel V. Ramos (Official Philippine Gazette, 1988)

The National Committee on Geological Sciences declared the Chocolate Hills a National Geological Monument on June 18, 1988, in recognition of its special characteristics, scientific importance, uniqueness, and high scenic value. This means that the Chocolate Hills are included among the country's protected areas. This was further emphasized upon the passing of the National Protected Areas System (NIPAS) of 1992. More protection was provided by Proclamation No. 1037 signed by then President Fidel V. Ramos upon the recommendation of the DENR on July 1, 1997 which establishes the Chocolate Hills and the areas within, around, and surrounding them located in the Municipalities of Carmen, Batuan and Sagbayan, Bilar, Valencia and Sierra Bullones, Province of Bohol as a natural monument to protect and maintain its natural beauty and to provide restraining mechanisms for inappropriate exploitation. As such, they are covered under the National Integrated Protected Areas System (NIPAS) with the Department of Environment and Natural Resources (DENR) as the lead implementing agency for its protection. Further, an amendment of Proclamation 468 dated September 26 was signed by President Gloria Macapagal Arroyo declaring the land around or in between Chocolate Hills as no longer part of the national monument during the Bohol Sandugo Celebration on July 17, 2002.

The CHNM was designated in order to conserve the landscape for its scenic beauty and tourism potential. The Natural Monument which incorporates 1776 individual mogotes or residual limestone hills, encompasses an area of 14 435 hectares. The stated objective of defining the Monument was to protect the mogotes from further exploitation by well-financed and technologically advanced quarrying corporations. In defining the area to be protected, the number of mogotes involved was clearly specified and they were mapped in relation to each other. However, and significantly, the legislated protected area extended beyond the hills themselves to encompass the surrounding plains, hence the designation of a contiguous area of over 14 000 hectares.

The problem with the CHNM is that in its initial surveying in the early half of the twentieth century, it was considered as alienable and disposable lands or lands which can be

owned privately (Government of the Philippines, 1997). Unlike the Raja Sikatuna National Park where a major part of it was already considered a natural reserve in 1928, the CHNM has spurred civil strife since most of the land within, around and surrounding the mogotes were privately owned. Specifically mentioned in Proclamation 1037: All public and private lands within, around and surrounding the hills shall not be converted to other purposes which are inconsistent with the objectives of this proclamation. The proclamation further says,.. “regardless of the existences of prior private rights, no activity of any kind including quarrying, which shall alter, mutilate, deface or destroy the hills shall be conducted.” It is these impositions, representing the abrogation of private property rights which prompted social unrest.

As defined in the National Integrated Protected Areas System, the term natural monument does not seem to fit. Operationally defined as a relatively small area focused on protection of small features to protect or preserve nationally significant natural features on account of their special interest or unique characteristics. Covering three municipalities may not be at all small. Moreover, Natural Park could have been a more fitting terminology as it is defined as a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding natural and scenic areas of national or international significance for scientific, educational and recreational use. (NIPAS Act of 1992 in Serote,2004)

II.2.2.7 The Political Administrations in the Philippines

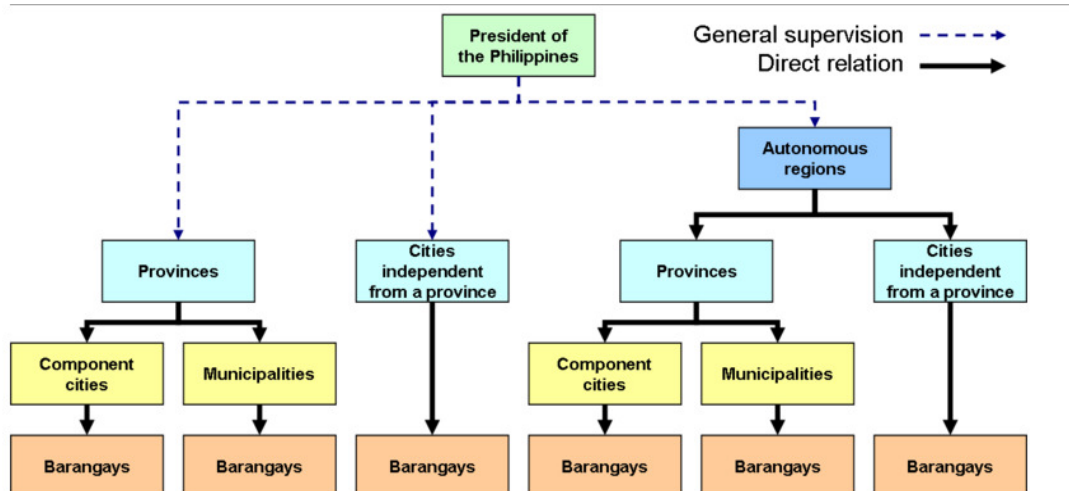


Figure 11

Political Subdivisions in the Philippines

The Philippines is a democratic and republican state. It is headed by the President as its Chief Executive. There are three branches of government, namely; the Executive Branch headed by the President; the Legislative Branch headed by the Senate President; and the Judiciary which is headed by the Chief Justice. The Legislative Branch of government has two bicameral assemblies namely; the Senate and the House of Congress. (De Leon,1987)

The Philippines is divided into different local government units:

1. Autonomous regions
 - Regular administrative regions are not elected and are considered arms of the national governments, not governments in their own right.
2. Provinces and independent cities
3. Municipalities and component cities
4. Barangays

For administrative purposes, all local government units are grouped into regions. There are thirteen regions in the Philippines and two autonomous regions. The classification of independent cities, component cities, municipalities is dependent on the population, income and geographical area of the respective political units. (Local Government Code of 1991) Other political divisions exist for the other branches of government:

1. Legislative districts for the House of Representatives
2. Judicial regions for the Regional Trial Courts.

III. Chapter III

This chapter presents the problem. It puts into detail the core questions of the research and the specifics questions which need to be addressed later on in the conclusions. It also presents the hypothesis of the study, which were treated statistically and interpreted in chapter six. It also outlines the flow of the research.

III. 1 The Problem

III.1.1 Research Question

What are the different perceptions on the karst landscape of Bohol? How do these perceptions help in shaping protection policies? What are the problems experienced in protected area management?

III.1.2 Research Problem

The protection of the Karst Landscape of Bohol has political and social impact to the lives of the local people. This has changed their way of life, their livelihood above anything. There are certain agricultural and traditional practices which are regulated because of the protection mechanism. Local people are also anxious that their private rights to their own private properties be abolished. The researcher would like to know, the perception of the local people and external playing actors as well on the policies, laws which surround the karst landscape. Moreover, it is the desire of the researcher to investigate, people's views on their landscape itself, their connection to it.

Specifically, these are the main questions being asked in the research.

- 1) What are different perceptions of the local people about the Karst Landscape of Bohol, the Philippines, in terms of;
 - 1.1 Visual Landscape Perception according to beauty, variety, uniqueness and well-being,
 - 1.2 Livelihood,
 - 1.3 Ecological Perception, Differences in Ecological World Views, Nature Values,
 - 1.4 Cultural Perception, Differences in Views on Place and Community Attachment.
- 2) What are the perceptions of the local people on policies protecting the karst landscape of Bohol and how do these affect them?

- 3) What are the problems experienced by the implementing agencies in protecting the karst landscape?
- 4) How are the local people involved in the protected area management of the karst landscape of Bohol?

III.1.3 Research Hypotheses

Hypothesis 1: There are differences in visual landscape perception among different groups for picture 1 are not significantly different across respondents with different length of stay.

Hypothesis 2: There are differences on perception on economic benefits of protection among different group.

Hypothesis 3: There are differences on ecological orientation among different groups Reduced to four dimensions such as; dimension 1- human domination, dimension 2- balance of nature, dimension 3- limits to growth and dimension 4 – ecological crisis.

Hypothesis 4: There are differences on ecological perception on different landscape features among different groups.

Hypothesis 5: There are differences on perception on nature values, place attachment

Hypothesis 6: There are differences on perception on policies on protected areas among different groups

Hypothesis 7: There are differences on perception on the perception on the different impact of protection policy to the local people among different groups

Hypothesis 8: There are differences on the perception on the mediation efforts extended by the government in resolving conflicts that arouse because of the karst protection policies among different groups.

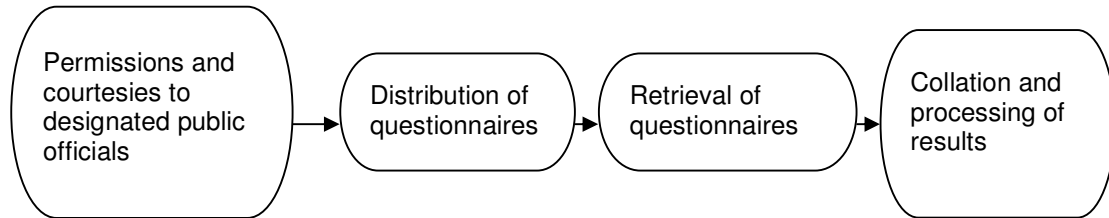
Hypothesis 9: There are differences on the involvement of the local people in protected area management among different groups.

Hypothesis 10: There are differences on the perception of the online survey respondents on Karst landscapes based on pictures presented among different groups.

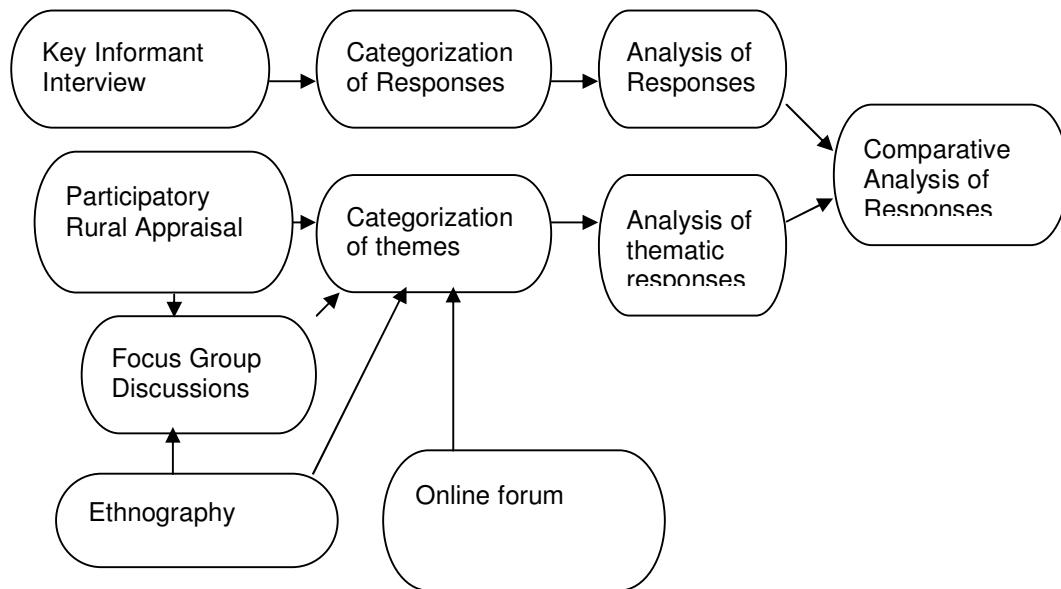
III.1.4 Research Flow

Note: Methodology is being described in the succeeding appropriate chapters.

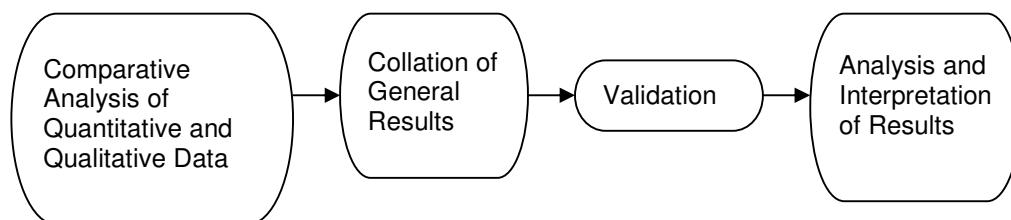
Phase I Conduct of Survey (Quantitative Method)



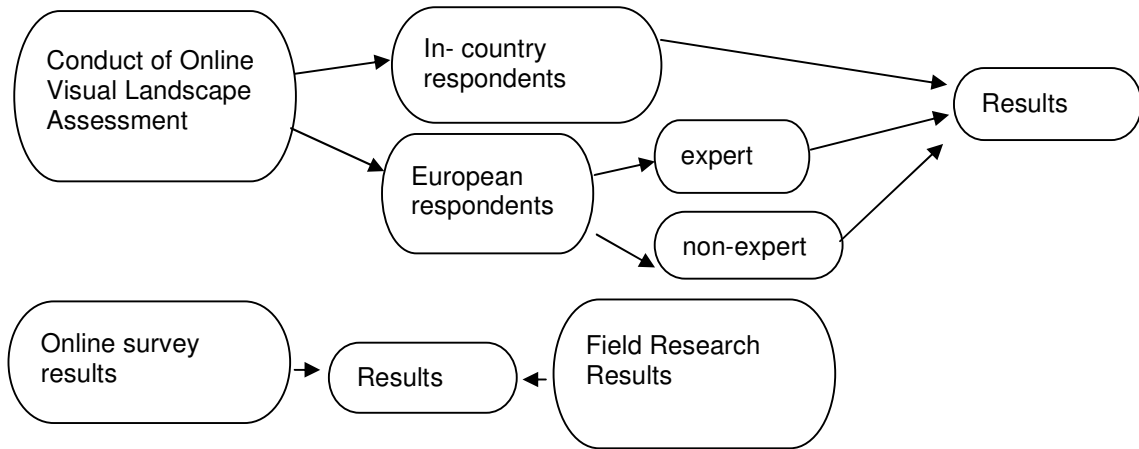
Phase II Conduct of Participatory Rural Appraisal, Focus Group Discussions and Key Informant Interview (Qualitative Method)



Phase III Validation and Comparative Analyses of Both Quantitative and Qualitative Data



Phase IV Online Visual Landscape Assessment



Research Flow

Figure 12

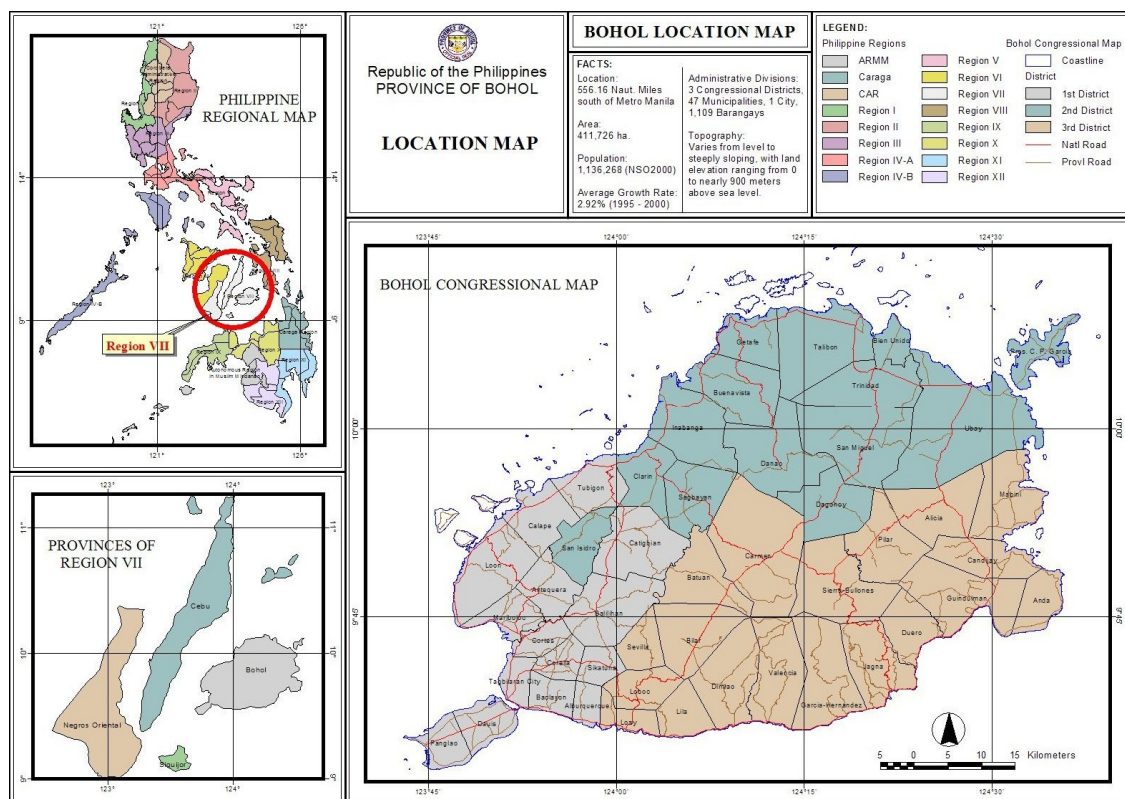
IV. Chapter IV

This chapter presents the research environment and the research participants. Through the aid of the the province of Bohol particularly the Provincial Planning and Development Office and some information from local planners, this chapter provides facts and information as to the geography, social background and political dynamics of Bohol.

IV.1 Bohol, Philippines

Most the information gathered in this chapter can be found in www.bohol.gov.ph. This is the official website of the province of Bohol.

Provincial Vision: Bohol is a prime eco-cultural tourist destination and a strong agro-industrial province with an empowered and self-reliant people who are God-loving, law-abiding, proud of their cultural heritage and committed to the growth and protection of the environment.



Map 1
Province of Bohol

Map Credit: Planning Office, Province of Bohol

Bohol belongs to the Central visayas region, in central Philippines. Bohol can be found in the south of Cebu, north of Camiguin Island and east of Zamboanga del Norte. The

island is 3865 square kilometers. The province itself (also named Bohol) comprises neighboring islands and islets; the biggest are Panglao, Lapinig, Mahanay, Jaguilao, Pangangan, and Cabilao. Balicasag near Panglao is noted as a diving site. With the neighboring islands Bohol, the province has a total land area of 4117 square kilometers. (www.bohol.gov.ph)

Bohol is the 10th largest island in the country is located between southeast of Cebu and southwest of Leyte. Bohol is accessible by air and sea travel, it is the nearest province to Cebu city, the biggest metropole in the south with travel time of 1 hour and 30 minutes by fastcraft and 20 minutes by plane. Located centrally in the Philippine archipelago specifically within North Latitude 9°30'00" and 10°15'00", and East Longitude 123°40'00" and 124°30'30". Bohol is about 556.16 nautical miles directly south of Manila and is about 39.7 nautical miles southeast of Mactan Island. (www.bohol.gov.ph)

IV.1.1 Geographical Information

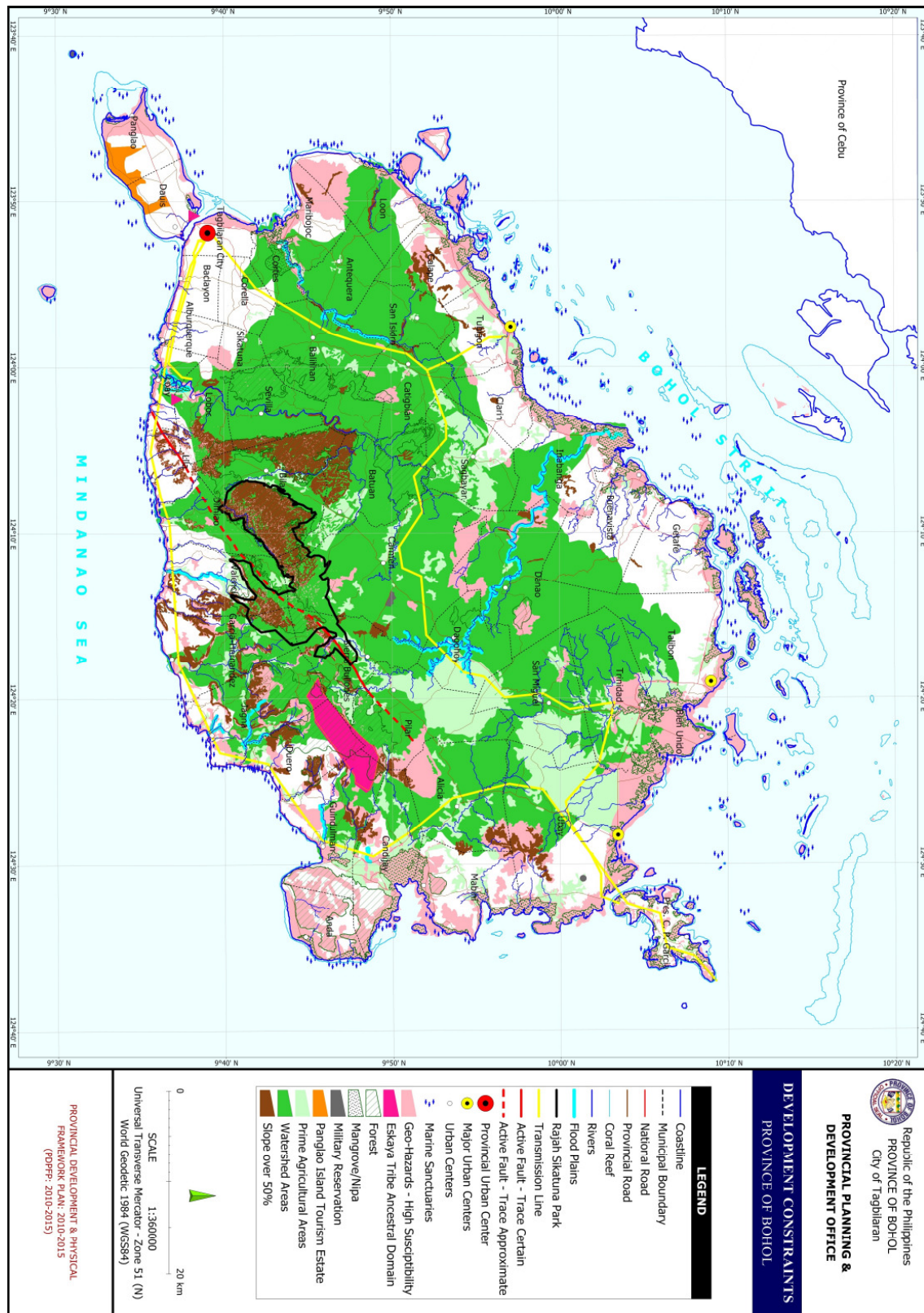
Different geographical data have been used to support as a secondary source in this research. Through the aid of the Provincial Planning and Development Office of the Province of Bohol, the Philippines, the researcher was able to substantiate, compare and analyze qualitative data against geographical data. Some important information like development constraints, land use, land classification, vegetation, population, and poverty incidence, networks of protected areas for agricultural development, development opportunities and road networks include in the following data. The researcher selected the nine different geographical maps since they correspond to the question of the research. These are important components of the social, economic, political and environmental dimensions of the research.

These maps were also used in the different qualitative research methodology particularly in the transectional walks, social mapping-resource mapping. This served as baseline information for the researcher to have an overview of the socio-cultural and physical landscape of the research locale.

Unfortunately, not all municipalities and villages do have the geographical information system; hence a Bohol wide GIS map was used. These maps were then also presented to the local communities, in order to see to it if the respondents could locate important socio cultural information in the map.

It was then a validation process if the data provided by the provincial planning office of the Province of Bohol coincides with the data given by the respondents themselves. These maps then served as a guide for the researcher in enriching the qualitative research, in identifying the strengths and opportunities of the landscape and in analyzing the different factors which play an important role in local development and most importantly in the protection of the landscape.

Voices from the Mountains: Local People's Perception on Policies Protecting the Karst Landscape of Bohol, the Philippines



Map 2

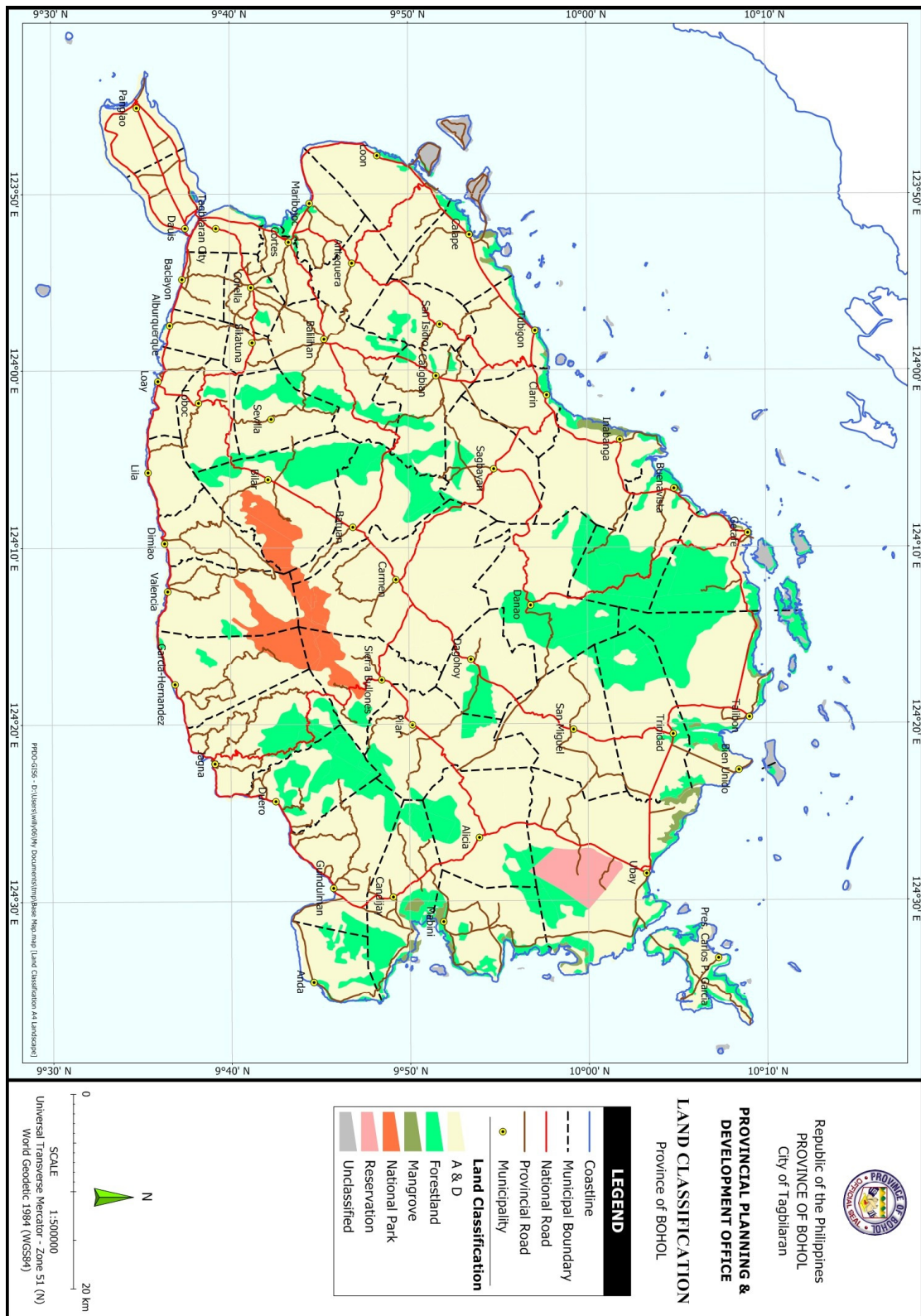
Development Constraints

Map Credit: Planning Office, Province of Bohol

The development constraints map of the Province of Bohol presents an overview of the factors which may constitute constraints in development. The term constraint is misleading since only few of the identified constraints identified in the legend could be perceived as constraint or hindrance. The Raja Sikatuna Protected Landscape identified in the map, is not a development constraint but an opportunity to conserve and promote the local natural resources. As identified in the map, the Rajah Sikatuna Protected Landscape is the remaining forested area of Bohol, which enjoys the protection of law. Instead of perceiving such as a constraint, this could be translated as an eco-tourism opportunity, and promotion of local sustainable livelihood through the wise use of natural resources available within the landscape.

Other valid constraints identified in the map include, active faults, geo hazards and other topographic characteristics which could be considered a hindrance to development. It must be noted that both the Rajah Sikatuna Protected Landscape and the Chocolate Hills Natural Monument have watersheds, forest areas, and slope of higher than 50 %. Adjacent to the periphery of the Rajah Sikatuna Protected Landscape is the Eskaya Tribal Ancestral Community whose members are also resource users of the protected landscape. Crossing through the entire Rajah Sikatuna Protected Landscape is an active fault which must be taken into utmost consideration. Within the vicinity of Carmen, a town within the Chocolate Hills Natural Monument is a large geo hazard area. It must be noted that oil palm plantations are also within this vicinity. And since oil palm is not endemic to the province, there is a need for more chemical fertilizers for its cultivation hence endangering the ground water, the soil of the area considering that a major portion of the municipality is also a geo-hazard.

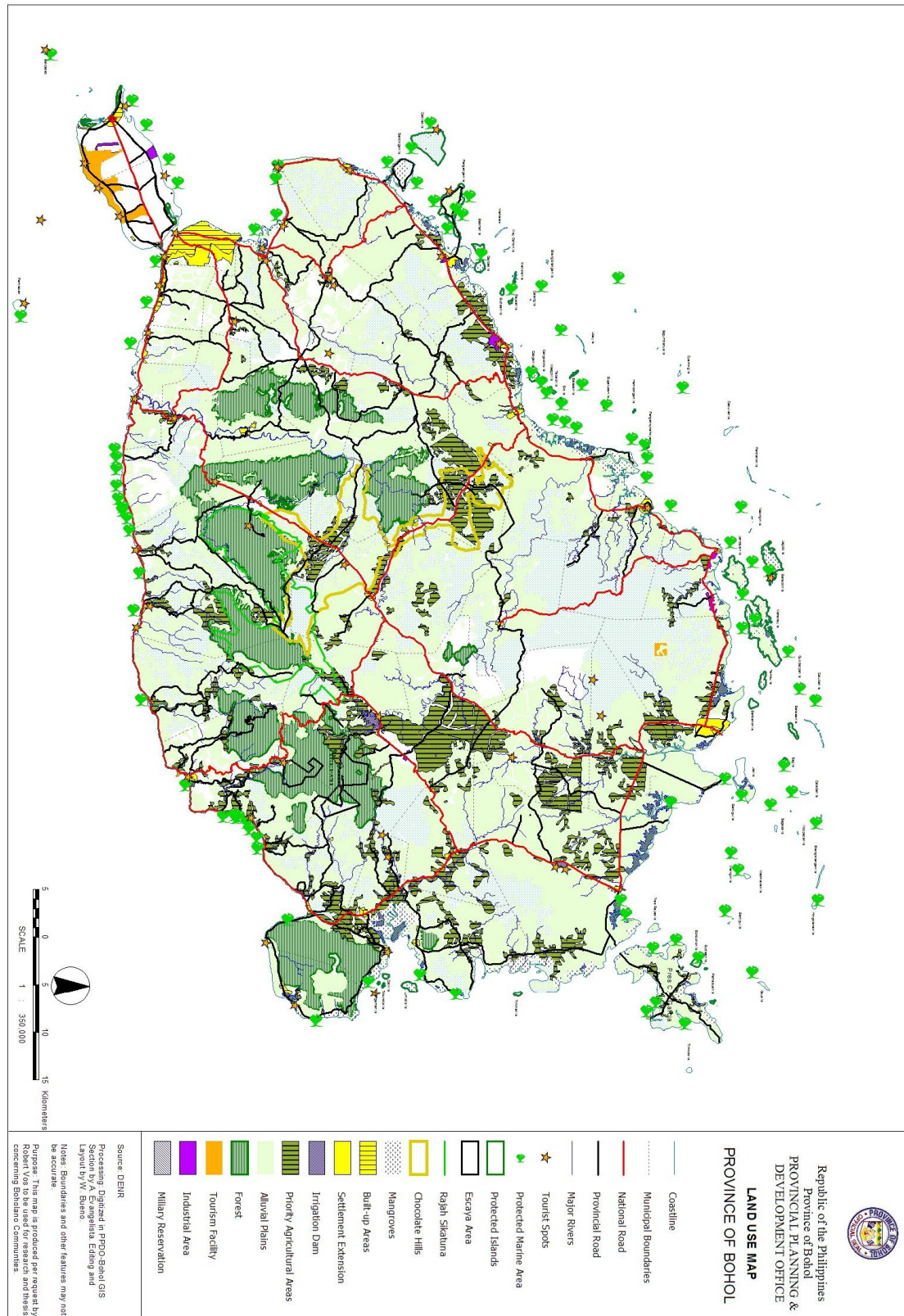
Voices from the Mountains: Local People's Perception on Policies Protecting the Karst Landscape of Bohol, the Philippines



Map 3
Land Classification
Map Credit: Planning Office, Province of Bohol

The 1987 Philippine Constitution classifies lands into two categories; private lands and lands of public domain. Private lands are either privately owned by private individuals or by the state in its capacity as a private entity- like properties by government owned and controlled corporations. Private lands are subject to expropriation under the power of eminent domain of the state. The constitution however further classifies lands of the public domain into two general classifications namely: Alienable and Disposable (A & D) and non disposable lands which include natural park, mineral lands and forest lands. A & D lands refer to those which have been declared public lands but not needed for conservation purposes. Non alienable lands are areas in the public domain that have been classified for forest use such as public forest, permanent forest or forest reserves, timberlands, grazing lands, game refuge and bird sanctuaries, and areas which are not yet declared A & D. A & D lands include agricultural lands, residential, commercial, institutional, and educational and town sites.

The Forest Management Bureau (FMB) of the Department of Environment and Natural Resources (DENR) provides further classification to the lands of the public domain and adopts the land classification of the country. It must be noted that the lands which are coloured beige are classified as A and D which means alienable and disposable lands. The National Park identified in this Map is the Raja Sikatuna Protected Landscape. It is the only national park in Bohol. It could be noticed that the Chocolate Hills Natural Monument which constitutes largely of the towns of Carmen, Bilar, Batuan, Sierra Bullones and other adjacent municipalities are classified as A and D lands, meaning to say they are lands of public domain which are alienable and disposable. The Chocolate Hills Natural Monument is also an adjacent landscape to the Rajah Sikatuna Protected Landscape. Forestlands are indicated with a green colour, Mangrove areas with moss green, National Park with orange, reservation areas with pink and unclassified areas with gray. This map only proves that only the Rajah Sikatuna Protected Landscape only truly enjoys the protection of a law. Forest lands and National Parks are clearly inalienable lands. Unfortunately, though the Chocolate Hills is considered a Natural Monument, no sufficient protection mechanism incorporated in the law declaring it as a natural monument. It could be recalled, that during the administration of President Arroyo, there was an attempt to declare the lands within, around and between the chocolate hills to be inalienable lands but this resulted in social unrest, which further deepened the strained relationship between the government and the local people living within the vicinity.

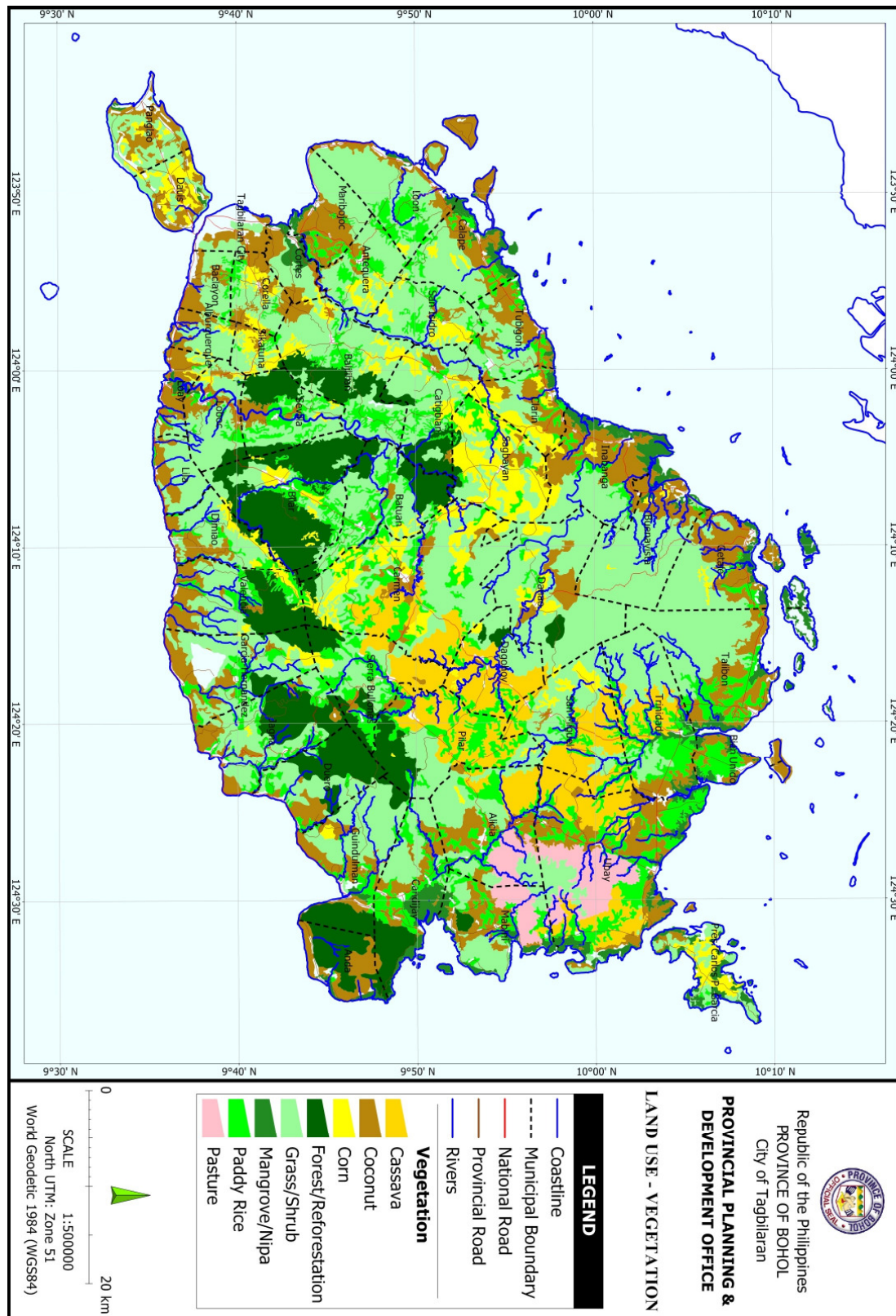


Map 4
Land Use

Map Credit: Planning Office, Province of Bohol

The above map gives a clear picture of the land use system of the province of Bohol. It must be noted that the Chocolate Hills Natural Monument is bound by yellow lines is intertwining with the Rajah Sikatuna Protected Landscape, which boundaries are represented by green lines. Also seen in this map is that the Rajah Sikatuna Protected Landscape is coloured green, which means that it is a forested area. Within the Chocolate Hills Natural Monument are priority agricultural areas, and A and D lands. It must also be noticed that these priority agricultural lands are only a few in the province of Bohol. There are also communal irrigation areas within the Chocolate Hills Natural Monument. Still some of the farmers are dependent on rain. The only irrigation dam is in the town of Pilar, Bohol. Military reservation is also found within the vicinity of the Chocolate Hills Natural Monument.

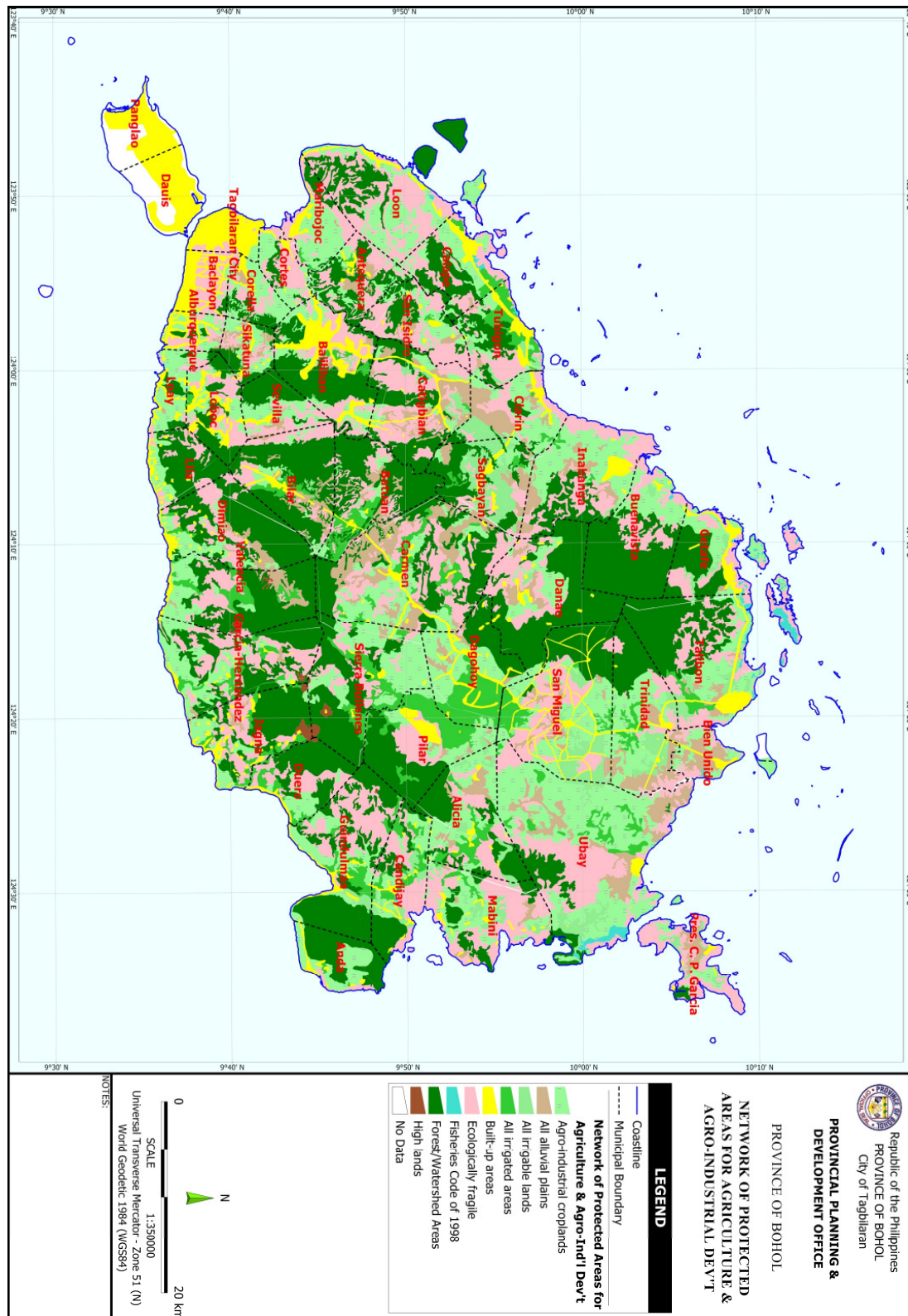
In this map, it could also be recognized that only some portions of the island of Panglao has tourism facilities. Unfortunately, the map only presents tourism facilities which tend to promote commercial tourism than eco-cultural tourism. Though tourist spots are identified in the map- represented by a star, this map only implies that tourism facilities are lacking in eco-tourism areas. A tourism map of the province of Bohol is unfortunately unavailable. This is only integrated in the development opportunities map of Bohol. Bohol as a premier in tourism development program should draft a tourism map to indicate spatial dimensions of tourism in the province. Through this, tourist routes and mobility are illustrated while weak points like lack of tourism facilities are adequately presented. This would be both helpful for the planners themselves, to manage tourism in the province effectively and the tourists would have an overview of the tourists' spots and products being offered in the province. Basically the surface ground of the province of Bohol, as seen in the map is generally alluvial plain. This type of plain is suitable for cultivation of local crops and rice, however, it must always be noted that most of the central part of the province is a karst area, where a careful use of fertilizers is needed.



Within the vicinity the Chocolate Hills Natural Monument are dominated by corn plantation represented by the colour yellow. Also found within the landscape are some coconut plantations shaded by the colour brown. It must be noted that corn is a major temporary crop of Bohol according to the National Statistics Office in 2002. Moreover, coconut is the most dominant permanent crop followed by banana and mango. Most of the coconut plantations however are found in coastal towns. An important root crop of Bohol is also cultivated within the Chocolate Hills Natural Monument- which is cassava indicated by the mustard yellow colour. While cassava does not constitute a typical Boholano meal, it is a popular alternative when prices of rice get high. Also, cassava is more robust than rice, which could survive dry seasons. Other root crops would include sweet potato, "Gabi" (internationally known as Taro) - this has the same consistency and colour of cassava but tastes differently, and "Ube" (known as Purple Yam) - which is a favourite ingredient for desserts. Consequently, within, around and between the Chocolate hills are rice paddies planted. Generally the province of Bohol is self sufficient in the supply of rice.

Almost the entire portion of the Rajah Sikatuna Protected Landscape comprise a forested area, surrounding its periphery are corn crops cultivated.

As depicted in this map, majority of the province of Bohol is grass/shrub areas. Pasture areas dominate the eastern part of the province – particularly the town of Ubay.



Map 6
 Network of Protected Areas for Agriculture and Agro-industrial Development
 Map Credit: Planning Office, Province of Bohol

Section 6 of the Republic Act 8435 or the National Agriculture and Fisheries Code of the Philippines mandates the creation of the Network of Areas for Agricultural and Agro-Industrial Development which requires the Department of Agriculture shall, within six (6) months after the approval of this Act, and in consultation with the local government units, appropriate government agencies, concerned non-government organizations (NGOs) and organized farmers' and fisher folk's groups, identify the Strategic Agriculture and Fisheries Development Zones (SAFDZ) within the network of protected areas for agricultural and agro-industrial development to ensure that lands are efficiently and sustainably utilized for food and non-food production and agro-industrialization.

Agro-industrial cropland indicated with the colour light green is represented in the map together with forestlands (dark green), alluvial lands (brown) and irrigable and irrigated lands (light green and green respectively).

This map is relevant considering that most of the areas of the Chocolate Hills Natural Monument are included in the Network. While there are few agricultural activities within the Rajah Sikatuna Protected Landscape, agricultural activities in the surrounding localities have a great impact to the protected landscape as well.

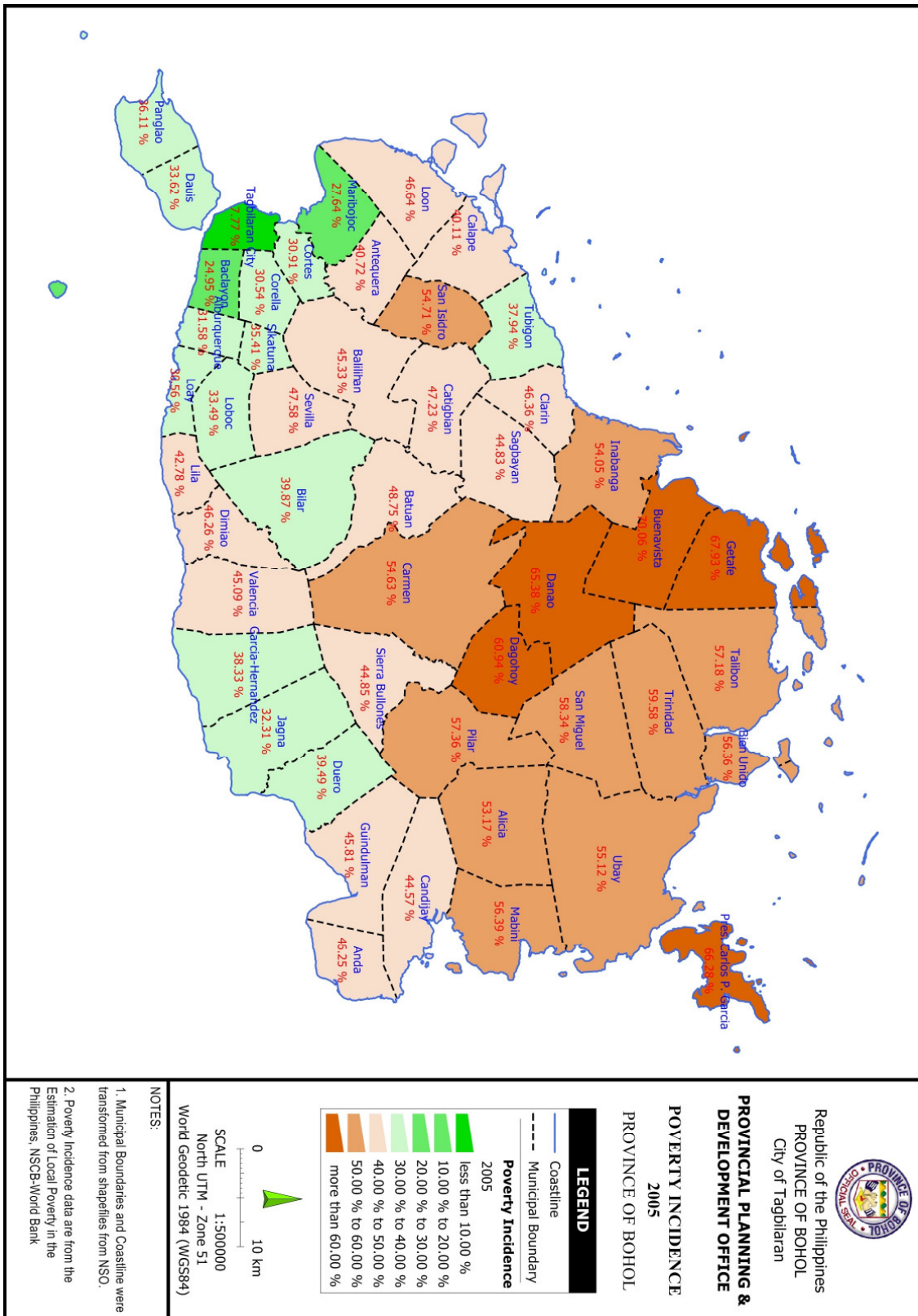
The pink colour of the above map represents ecologically fragile environments, and this includes the Chocolate Hills Natural Monument. Unfortunately, only the surrounding area of the Rajah Sikatuna Protected Landscape is depicted here as ecologically fragile, since the entire Rajah Sikatuna Protected Landscape is depicted through the colour green which represents forest lands. Alluvial plains are also found within the Chocolate Hills Natural Monument while the rest is considered irrigable and or irrigated lands.

It must also be taken into consideration that while there are a lot of pink coloured areas in the map, only a few protection mechanisms in a form of a municipal ordinance have been promulgated.

Most of the rural areas in the province of Bohol are less populated. The towns constituting the Rajah Sikatuna Protected Landscape and the Chocolate Hills Natural Monument are generally less populated. The town of Batuan which parts are both included in the Rajah Sikatuna Protected Landscape and the Chocolate Hills Natural Monument has a population of less than 15,000 people. The town of Carmen which has apparently bigger land area has a population of 45 thousand to 60 thousand people. As implied in the map, the population distribution is monotonous with exception of higher population density in urban and semi-urban areas.

The National Statistics Office of the Philippines reported an increase of 91 thousand in the population of Bohol in 2007. The total population reported in 2007 is 1, 230, and 110. The province of Bohol has 209,588 thousand households. In the years 1990 – 2000, there was an average annual growth rate of 1.83 percent. However between the years 1995-2000, there was a drastic growth rate of 2. 92 percent, higher than the national annual growth rate of 2.36 percent .There is however no available actual demographic data. While there is only one urban area in the province, this however has a relatively bigger population share of over 250 thousand people. The rest are distributed in semi-urban town of Ubay and other rural towns. There are unfortunately no data for inland and outbound migration.

Boholano males have a life expectancy of 68.8 while women have 72.3. In the record of the Department of Health in 2000, the province of Bohol has an increasing birth rate which fluctuates between 1.35 to 2.07 percent.



Map 8

Poverty Incidence

Map Credit: Planning Office, Province of Bohol

In 1997, Bohol's poverty incidence rate of 48.4% was the highest in Region 7, higher than the national average rate of 40%. However, this has been decreasing over the years from a high 60.5% in 1985 and 54.7% in 1991.

As to the flow of commodities in and out of the province from Bohol's ports, limestone topped the list of exported commodities of the province in year 2000 toppling rice which became the number 2 exported product of Bohol. Other outgoing top commodities include GI sheets, salted fish, native products, mangoes, banana, cattle, copra, carabao, salt, hog, raffia, cooked fish and nipa shingles with a total volume of 613,360 metric tons. Cement topped the list of incoming commodities followed by appliances, feeds, manufactured goods, fertilizer, furniture, corn grits, flour, cooking oil, rice, refined sugar, motorcycle, hardware/construction materials, plywood and medicine with a total recorded volume of 370,703 metric tons for the top 15 commodities. From this same report, it is noted that, among the incoming goods in Bohol, the province had been importing rice over the years. In 2001, Bohol was estimated to have imported 280,000 bags of rice per report gathered from NFA.

Though the poorest area of Bohol (the towns of Getafe, Buena Vista, Danao and Dagohoy and the Carlos P. Garcia Island) are not within the protected landscapes, most of the towns within the karst protected landscape have a poverty incidence rate of 40-50 percent. The town of Carmen, which area comprises most of the Chocolate Hills Natural Monument has a poverty incidence of 50 to 60 percent.

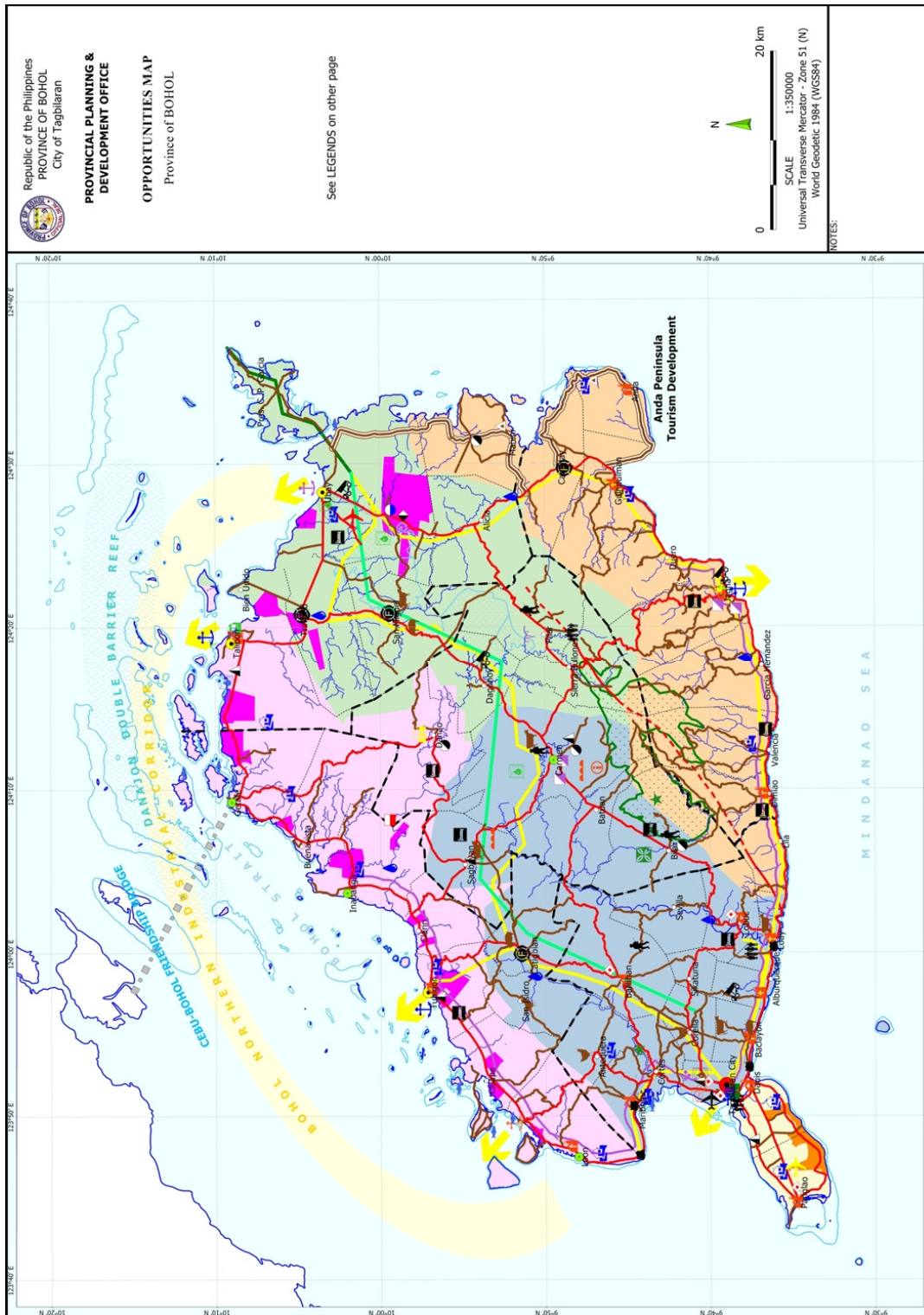
This is a major challenge for public executives, administrators and planners on how to deal with chronic poverty in the province of Bohol. It is only recently, that the province is not longer included in the top twenty poorest provinces in the Philippines because of the boom of tourism, however, even towns offering major tourist spots does not seem to reap the fruits of tourism.

It must also be noted that areas which have social unrest with the presence of the revolutionary movement are generally poor.

Bohol as an agriculturally dependent province should consider as a priority the agricultural productivity through capability building of farmers, fertilizer subsidies, irrigation development and taking into much importance the redistribution of lands, giving the lands to the tenants who are actually tilling the land.

More than these, the political culture much change through legal mechanisms which discourage or prohibit political dynasties, cronyism and other forms of nepotism and corruption.

Voices from the Mountains: Local People's Perception on Policies Protecting the Karst Landscape of Bohol, the Philippines



LEGEND		
<ul style="list-style-type: none"> Coastline Coral Reef Municipal Boundary BIAD Boundary Rivers Active Fault - Trace Certain Active Fault - Trace Approximate Rajah Sikatuna National Park Panglao Island Tourism Estate Special Economic Zone Provincial Urban Center Major Urban Center Urbanizing Center 	<p><i>Aquaculture</i></p> <ul style="list-style-type: none"> Carageenan Processing Laboratory Oyster Seaweed Mariculture Park/Zone <hr/> <p><i>Livestock</i></p> <ul style="list-style-type: none"> Abattoir Dairy Production Projects Livestock Laboratories Livestock Pooling Center Organic Poultry Organic Swine 	<p><i>Infrastructure</i></p> <ul style="list-style-type: none"> National Road Provincial Road BCRIP III Fiber Optic Line Cebu-Bohol Friendship Bridge
<p><i>Tourism Theme Clusters</i></p> <ul style="list-style-type: none"> Cluster 1 - Sun, Sea, Sand Adventure and Holiday Cluster 2 - Eco-cultural Tourism Cluster 3 - Eco-Tourism Cluster 4 - Agri-Tourism Cluster 5 - Culture and Heritage 	<p><i>Cultural Heritage</i></p> <ul style="list-style-type: none"> Archeological Site Indeginous People Heritage Church Heritage - Museum Historical Marker Performing Arts Youth Detention & Rehabilitation 	<p><i>Transmission Lines</i></p> <ul style="list-style-type: none"> Existing Transmission Lines Leyte-Bohol Interconnection Backbone Project Bohol Irrigation Project III Kantakoy Hydro-Electric Power Plant Proposed Panglao Intl Airport Tagbilaran Air Port Ubay Airport Devt Industrial Port Sea Port Tourist Port Nautical Link to other provinces
<p><i>Agri-Support Facilities</i></p> <ul style="list-style-type: none"> Crops - Laboratory Rendering Plant Processing Plant - Rice Food Processing Bohol Irrigation Project Coverage 	<p><i>Environment</i></p> <ul style="list-style-type: none"> Proposed Cluster Landfill Biodiversity Center Geologic Monument 	
<p><i>Trade & Industries</i></p> <ul style="list-style-type: none"> Industrial Gas Trade & Industries Support Facilities 	<p><i>Development Administration</i></p> <ul style="list-style-type: none"> Const. of Philippine Army Quarters Fire Station 	
<p><i>Housing</i></p> <ul style="list-style-type: none"> Housing Project Resettlement Project 		

Map 9
Opportunities Map :Legend
Map Credit: Planning Office, Province of Bohol

The preceding Map shows us the different socio-economic structures that are relevant in development. This map shows the readers an illustration of areas of opportunities manifested through a spatial data. As a province primarily relying on agriculture, it can be noticed that there are more agri-support facilities, aquaculture institutions and livestock production than trade and industries. Trade opportunities are scarce in the province of Bohol, which is why if Bohol is to compete with the neighbouring province of Cebu and Cagayan de Oro, there should be more concern on industrial development. With three universities and eleven colleges and other institutions of higher learning, Bohol is equipped with educated human resource. The researcher also finds the clustering of tourism areas to be irrelevant since every municipality has integrated eco-cultural, eco-tourism, agri-tourism, culture and heritage in their tourism plan. Looking into the location of the Rajah Sikatuna Protected Landscape, according to its tourism cluster classification, it is considered an eco-cultural and cultural heritage area while in fact this is more of an eco-tourism area, and less of a cultural heritage area. The Chocolate Hills Natural Monument would also fall within the eco-cultural and agri-tourism cluster classification where in fact, this is more of an eco-tourism area.

While it must be acknowledged that the purpose of tourism cluster classification is to categorize certain regions according to its tourism function, this does not seem to correspond with the objective of the classification. A more integrative and separate tourism map would be more helpful in identifying tourism area, and not classifying certain regions according to its tourism function. A network of tourism area, classified according to its nature and function would be more practicable. Like for instance, tourism routes for eco-cultural attraction must be well drafted in a map. A tourist who is only interested in eco-cultural tourism would then have a picture of the different routes he has to take. However an important requirement in tourism is a good road network. Eco-cultural area, and cultural heritage sites not easily reached through cars and busses would then discourage potential tourists. Another issue would be peace and order. The security of the tourists should be the utmost priority of the government. Tourists are guests bringing money in the province; the government should ensure their safety and security.

IV.1.2 Bohol's Resources

Almost eighty percent of the entire province is a karst area and because of this almost fifty percent of the entire province is covered with limestone and other non-metallic

minerals like high-grade silica, guano, and clay. The biggest limestone quarry in the province of Bohol is in the town of Garcia Hernandez operated by the Philippines Sinter Corporation. The limestone deposits in Garcia-Hernandez spread a 640 hectare area with 600 million tons of limestones. Some villages of the municipality of Garcia Hernandez are within the territories of the Raja Sikatuna protected area.

IV.1.2.1 Forest Products

Bohol is also known for its handicraft products. This is because the province has enough natural resources which could sustain the handicraft industry. Vines and fibers are easily found in forests and bush areas. Indigenous hard wood, like the molave (*Vitex parviflora*) called in the local vernacular; tugas is popular among furniture makers.

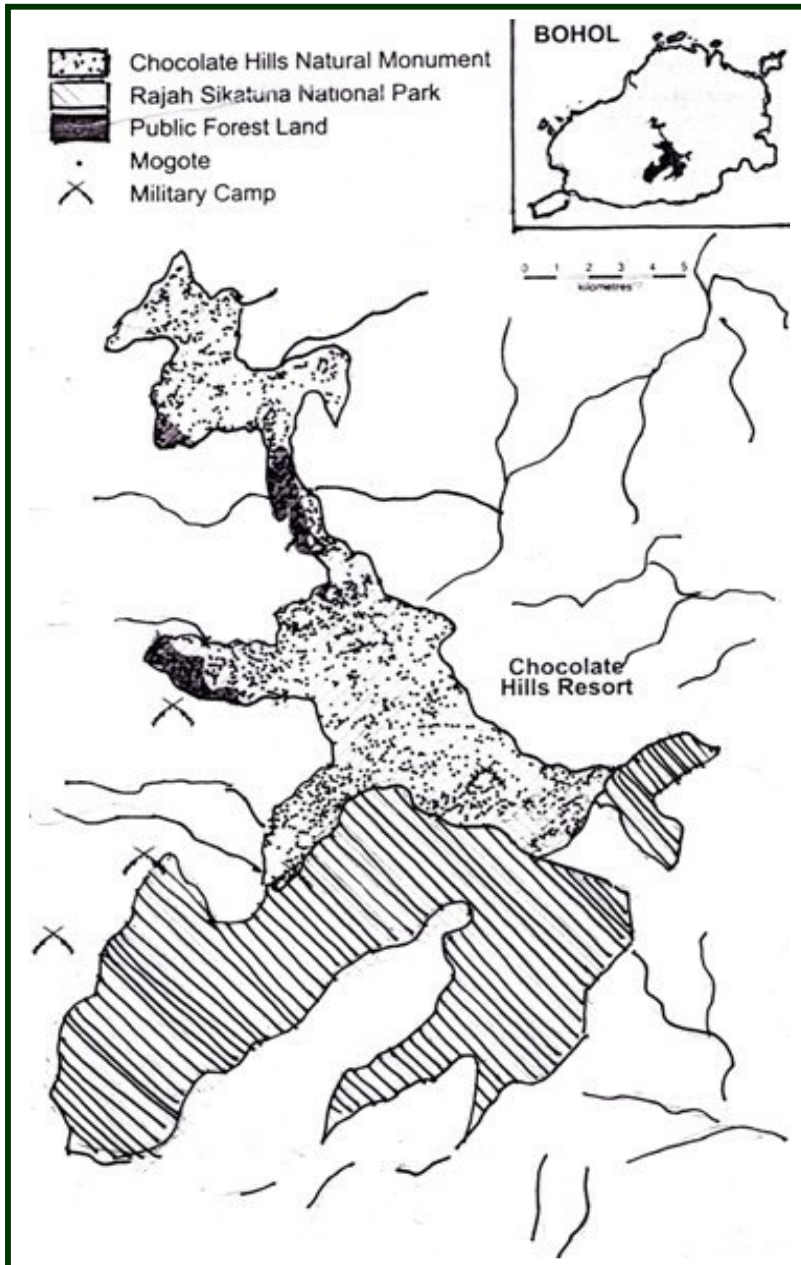
IV.1.2.2 Eco-Tourism

The Island province Bohol has been known over the past years as the prime eco-cultural tourist destination in the region. The island is famous of its white sand beaches and blue waters. Bohol also takes pride of its rich marine life and there is a concerted effort on the part of the government and the civil society to preserve these natural resources through an effective coastal management programs. Most of these marine natural resources are gaining international attention. Most popular among tourists and scuba divers are the islands of Pamilacan, Balicasag, and Cabilao. The inland features of the province of Bohol also offer variety, uniqueness and well-being. These are Bohol's natural wonders such as waterfalls, underground caves, bubbly springs and verdant forests. The chocolate hills is the best example of this with 1,268 perfectly coned hay cock hills formed through time with elevations of 40-120 meters high; the Baclayon church, the best preserved Jesuit-built church in the region; the provincial mascot- the Philippine tarsier, the world's smallest monkey endemic only to Bohol and a protected species.

Karst formations imply that most of the province was once underwater. There are geological formation found in the inland towns of Sevilla, Carmen and Sierra Bullones which supports this claim. Bohol's limestone substrate makes it not ideal to large scale agriculture. That is why it could be noticed in the preceding maps that corn and rice plantations are scattered in different areas. However, oil palm plantations were not

reflected in the map since this is relatively new. The karst landscape of Bohol is generally covered with primary and secondary forests. This is an abode to different indigenous species unique to the province like the, tarsier, the flying lemur, and the Philippines civet cat. Much of Bohols diversity is still to be discovered.

The Karst Landscape of Bohol



Map 10

Map of the Chocolate Hills
Natural Monument and
Raja Sikatuna Protected Landscape

Ulrich, 2001

The map shows the research locale of the study. As shown in the map, the Raja Sikatuna Protected Landscape and the Chocolate Hills Natural Monument are adjacent with each other. Both landscapes cover seven (7) municipalities namely; Bilar, Batuan, Carmen, Sierra Bullones, Garcia-Hernandez, Valencia and Dimiao. The qualitative research however only considered one (1) barangay for every municipality. And the barangay with the most number of people where chosen in each municipality.

IV.1.2.3 Landform

Bohol is roughly a circular island, comprising one of the island belonging to the Central Visayas region. Physiologically, the island is divided into two approximately equal sized components divided between the north and south. The northern part consists mainly of gently dissected terrain. The southern unit further divided into two smaller sub-units of about equal area in the east and west. A narrow coastal plain and a series of east to west trending mountain ranges characterize the eastern half. In contrast, the western half consists of wider coastal plains which flank an extensive plateau-like interior (Ulrich, 1995)

Generally, the central Bohol is a karst landscape which is a product of dissolution of the carbonate over time producing a range of intricately-sculptured rock surfaces and landforms such as blind valleys, closed depression, residual hills, cenotes, sinkholes, streams and springs.

The entire subject area is formerly an uplifted marine sediments that formed into a plateau-like platform that is dominated by two features namely; broad, flat valleys that are punctuated by isolated limestone hills varying from 10-80 meters and the series of folded (anticline) limestone raising up to several hundred meters above the surrounding plains creating steel cliffs and summits that flanks or separates the network of flat valleys in the subject area. (Ulrich, 1995)

IV.1.2.4 Slope

Classification of slope into distinct categories by gradient change is intended to determine allowable uses between gradients. The Department of Environment and Natural Resources have been using slope gradients to institute policy and regulatory requirements. One major application of slope as a policy and regulatory instrument is the application fee of the 18% slope gradient as the delineating slope to classify between Alienable and Disposable lands and Forestland/Timberland.

IV.1.2.5 Chocolate Hills Natural Monument

The Chocolate Hills is composed of around 1,268 to about 1,776 perfectly cone-shaped hills, spread over an area of more than 50 kilometers² or about 14, 435. They are covered in green grass that turns brown during the dry season, hence the name.

The Chocolate Hills is a famous tourist attraction of Bohol. The people are so proud of it that it can be found in the provincial flag and seal to signify the wealth of natural resources in the province. The large and numerous haystack hills vary in sizes from 30 meters to 50 meters high with the largest being 120 meters in height. These hills are scattered throughout the towns of Carmen, Batuan and Sagbayan in Bohol. Bohol's "main attraction", these unique mound-shaped hills are scattered by the thousands on the island's central plain, concentrated near the town of Carmen.

During the dry season, the precipitation is inadequate, such that the grass-covered hills dry up and turn chocolate brown. This transforms the area into seemingly endless rows of "chocolate kisses". The branded confection is the inspiration behind the name, Chocolate Hills.

IV.1.2.6 Raja Sikatuna Protected Landscape

Prior to its proclamation as a national Park, Raja Sikatuna Protected Landscape forms part of the Loboc Watershed Reforestation Project by Virtue of the Presidential Proclamation no. 450 of December 23, 1953. Study and assessment done in the late 70's showed that a major portion of the present RSNP was comprised of natural forest stand dominated by several dipterocarp species and several natural scenic attributes that were potentials for educational, scientific and recreational use. This motivated the

then BFD-7 to recommend for establishment into a national park in the early 80's. Eventual action on the recommendation took place in 1987 when the area was officially proclaimed as the Raja Sikatuna National Park by virtue of Presidential Proclamation No. 129 on July 10, 1987 signed by then President Corazon C. Aquino.

Subsequently, President Joseph Ejercito Estrada issued Presidential Proclamation No. 287 on April 23, 2000 categorizing this reservation as Rajah Sikatuna Protected Landscape covering an area of 10, 452.60 hectares. The Raja Sikatuna Protected Landscape (RSPL) covers thirty three (33) barangays in seven municipalities (Batuan, Bilar, Carmen, Sierra Bullones, Garcia-Hernandez, Valencia, and Dimiao) located in the south-central part of the province of Bohol, the Philippines.

This proclamation was then the basis for RSPL's inclusion as an initial component of the National Integrated Protected Areas System mandated by Republic Act No. 7586 otherwise known as NIPAS Act of 1992.

IV.1.2.7 The Biology of the Raja Sikatuna Protected Landscape

Most of the Bohol's remaining natural forest lies within the Raja Sikatuna Protected Landscape (RSPL), with few major areas of intermingled plantations and dipterocarp forest elsewhere on the island. Sierra Bullones, Bilar, Valencia, Garcia-Hernandez, Carmen, Batuan, and Dimiao are the municipalities (with 29 barangays) that contain part of RSPL. These sites have areas covered by secondary forest.

RSPL floral and faunal inventories were done by the Soil and Water Conservation Foundation in order to determine the diversity and richness of major species. This assessment not only provided information on the taxonomy and distribution of species but it may, in the future, contribute to determining priority conservation measures by the barangays and municipalities.

The RSPL still has about 10.452.60 hectares of good secondary growth forests with Sierra Bullones having the largest contiguous area. There are frequent remnant stands isolated because of land clearing and conversion. Almost all land outside the boundary of protected landscape has been cleared of forest.

IV.1.2.8 The Thrust of Protected Area Management in Sustainable Development in Bohol

Bohol's rural poor depend on ecological resources for livelihood. In turn, their resources base is affected by destructive practices perpetrated by themselves or other interest groups. Population pressure, as well as the resulting market demand, further drives all interests to use up these resources and threaten the long term sustainability of the natural environment. Rapid population increase combined with this excessive exploitation of ecological resource also has the potential to negate current gains achieved in poverty reduction.

Plans and programs of the province have to address the day-to-day conflict between the short-term economic gains and the long-term interest to conserve and protect the ecological resource base.

Managing the province's environment and natural resources is instrumental to the sustainable development of agriculture, industry, tourism, culture and infrastructure in both the medium and long-term time frame. The state of the economy and the quality of life in any given are almost always depends on how the land, water, forest, air and other ecosystems and biological resources and their diversity are managed and protected.

It is therefore imperative however, to balance economic growth with environmental and natural resources conservation and wise use for the progress and sustainable development of the island.

A total of 76, 766 hectares of Bohol's area are under protection as initial component of the National Integrated Protected Area System's (Raja Sikatuna Development Plan 2006). Environmentally Constrained and Environmentally Critical Areas Protection purposes are for the conservation of flora and fauna, biological diversity and natural heritage areas, conservation of forest cover, as well as provision for livelihood opportunities, water conservation and sustainable development for those living in and around these areas. All development within these areas shall follow the provision embodied in the NIPAS Law.

The development goal of Bohol is to protect, manage and develop the natural landscapes and seascapes in such a way that will safeguard the functional capacities of these ecosystems and their sustainable use. In order to carry out this goal of the province will preserve the diversity of flora and fauna, geological resources and the beauty of natural landscapes and seascapes and ensure that the river easements, buffer zones and landscape assemblies shall be implemented along with all the provisions of the NIPAS Law.

IV.2 Research Participants

Local people were the primary respondents of the research. These people are hypothetically considered as "resource-users" of the karst landscape, they both include Tenured Migrant Communities, and local residents living within the vicinity of the karst area.

"Tenured migrant communities" are communities within protected areas which have actually and continuously occupied such areas for five (5) years before the designation of the same as protected areas in accordance with this Act and are solely dependent therein for subsistence. These communities are protected by tenure instruments which give them the right to occupy and use the landscape within the terms and conditions of the tenure instruments.

During the survey, names of the participants were randomly sampled. Participants of the focus group discussion were purposively sampled. It was aimed by the researcher that a proportional representation of the sectors identified: Women; Youth and children; Farmers; Cooperatives-handicrafts; office related jobs; and development workers e.g. NGOs and POs working within the area be attained.

Major stakeholders in all of the seven municipalities were the key participants of the research. NGOs, POs and other organizations concerned also played a vital role in the research. Views, policies, programmes by policy makers, the provincial governor, the municipal mayors and planning and development coordinators of focus municipalities served as important input of the study.

V. Chapter V

This chapter presents the qualitative methodology being applied in this research. It describes specific research procedures, and discusses different qualitative techniques relevant to the conduct of this research.

Consequently, this chapter discusses the data of the qualitative research presented in a narrative manner.

V.1 Qualitative Research

The qualitative methodology applied in this research is a combination of different qualitative techniques designed to capture information and data which cannot be captured quantitatively. This would include key informant interviews, focus group discussions, informal interviews, participant observation, transwalks, social mapping and recording of the communities' daily activities among others.

Qualitative Research Methodologies Used:

V.1.1 Participatory rural appraisal

The conventional approaches to natural resources management is the Top-down transfer-of-technology. In the participatory rural appraisal, people's strengths are carefully evaluated through a mutual learning experience. The principle of the participatory rural appraisal is the recognition of local people's knowledge, and identifying them in an intensive, systematic and semi-structured manner. More than anybody else, local people are experts of their environment. They know how their social and ecological environment behaves. They are also the first people who notice changes in their environment, like for instance, a decline in certain specie. The facilitator acts passively, purely relying on the information given to them by the people. However, before he conducts the actual PRA, he must be equipped with spatial datas available at the local municipality.

It is about building a process of participation, of discussion, communication, and conflict resolution. The critical task of a facilitator is empowerment. People who underwent years of suppression would find it very hard to express their opinion directly. The

researcher modified the steps of a formal PRA. Since the research is an individual scholarly work, there was no interdisciplinary team formed due to lack of material and human resources.

The researcher made use of secondary data conducted direct observation of community/village conditions. This would include participant observation, environment and cultures and norm of the villages. He talked to a cross-section of inhabitants in the community/village locality (widely use of Semi-structured interview).

Key features of the PRA includes community participation, rapid progressive learning, group interaction, and local knowledge, the use of multiple techniques, flexibility and context specificity, on-the-spot analysis/on-site presentation and multiple perspectives. (www.usaid.gov)

V.1.1.1 Initial Activities

The researcher made use of secondary data/information from the Soil and Water Conservation Foundation, the data of the respective municipal governments and from the provincial government and the material information provided by the Department of Environment and Natural Resources. A work plan was set to conduct a preliminary interview. This exploratory interview was a semi-structured interviews conducted randomly on selected sites.

At the initial stage, persons knowledgeable on various aspects of the topic of the study were consulted particularly the members of the Protected Area Management Board which is comprised the Provincial Development Officer; one (1) representative from the municipal government; one selected representatives from the respective barangays covering the protected area; one (1) representative from each tribal community, if applicable; and, at least three (3) representatives from non-government organizations/local community organizations, and if necessary, one (1) representative from other departments or national government agencies involved in protected area management. (NIPAS ACT, 1992)

V.1.1.2 Principal Fieldwork in PRA

The researcher spent several days to several weeks (6-10 days), depending on size of the area, purpose, complexity, etc.

It is common to change the plan during the course of fieldwork. Some of the hypotheses were changed or replaced by new ones and some topics were dropped and new topics were added. These were influenced by actual observations, secondary data and the preliminary interviews. The research at this juncture was fluid because of the vast flow of information acquired by the research. The researcher conducted key informant and individual/household interviewing, held frequent informal interviews, focus group discussions and workshops. From time to time throughout the course of the fieldwork and again at the end of any fieldwork sessions, field notes were reviewed and the researcher ensured no important information was omitted, since delay results in significant lost of memory. A daily diary of the researcher supplemented the field notes, detailing the activities of the researcher and his observation in the community.

The review included sorting out known/learned data, evaluation of the degree of confidence, assessment of social background of the respondents at par with their responses and opinions. Additional visits may be necessary when the degree of confidence is not achieved or the surfacing of some inconsistent responses. Responses were not synthesized based on expert opinion but synthesized according to actual responses, and opinions of the respondents.

V.1.1.3 Instruments used in the Participatory Rural Appraisal

- Key Informant Interview is a qualitative, in-depth interviews of people selected for their first hand knowledge about a topic of interest. The interviews are loosely structured on a list of issues to be discussed. Key informant interviews resemble a conversation among acquaintances allowing a free flow of ideas and information. Interviewers frame questions spontaneously, probes for information and takes notes which are elaborated on later. (Kumar, 1989)
- Focus Group Discussions
During the focus groups discussion people from similar backgrounds or experiences (e.g., mothers, young married men, birth attendants/mid-wives) are gathered together to discuss a specific topic of interest to the investigator(s).

A focus group activity is nothing more than a planned, relaxed discussion among a small group of people on a specific topic. The objective of a focus group discussion is the exchange of information and a healthy conversation within a group. However, we must always be reminded by the words of Foucault that communication is bound by power relationship. A debate in an uneven group of respondents would only promote monotony of ideas, and further suppression of the disadvantaged group. The challenge of the facilitator is to identify this power relationship, and neutralize this through a fair and moderate facilitation. If it shall be later identified that groups and respondents are hesitant to express their thought in a presence of a stronger respondent, this must be equalize through follow up home visits and interviews. The advantage of which over one-on-one interviews have two reasons; first, information can be obtained more quickly because only one interview must be scheduled. In practice, it is actually an interview to a group. More importantly, the group setting allows individuals to use the ideas of others as cues to more fully elicit their own views. The effectiveness of the focus group can be maximized if the size of the group can be kept to 8 to 12 people. For a given project, a minimum of two to three focus group sessions is recommended. (International Development Centre – (www.idrc.ca/cp/ev))

Focus groups are necessary in providing in-depth understanding about a topic. This also allows participants to speculate since conversational atmosphere is more relaxed and hospitable. Focus groups also enable the researcher to see the facial expression of one participant in reaction to a statement of another. Disadvantage people can freely react to issues surrounding the main topic. More than anything else this provides group synergy.

Although the great strength of focus groups lies in the richness of the information that participants provide, there are limits to the method's usefulness. Focus groups can identify the impact of a particular law, protected area management plan to the social and economic life of the community but it cannot answer the magnitude or amount of an impact because focus groups do not provide inferential statistics that a survey using a random sample of the program participants would. Focus groups also usually do include a large enough number

of participants to make credible inferences. Moreover, the clamours, thoughts and opinions of the participants in the focus group may not at times be representative to the entire population. To counter balance this disadvantage, a survey is also proposed to be conducted.

Social Map – The respondents were asked to identify places of importance (social, economic, and political, environmental) and allowed them to draw this within a geographical map presented to them. The respondents were also further asked to draw habitation areas of the local people. This map permits the researcher to have a clearer view of the social interaction of the local people within the landscape. Also incorporated to this map, is the mobility map that outlines social movements through formal transportation ways (roads, streets and bridges) and other formal ways.

Transect walks – is an experience walk, conducted by the researcher through the cross section of the landscape to detail peoples relationship with their environment.

Sampling Method for the Focus Group Discussion – With the help of the barangay captains of the respective villages, the researcher made use of purposive sampling which aims an equitable representation of different sectors within the village. These sectors are identified by the researcher together with the barangay captain and Non- government organizations working in the village. The different sectors are identified namely as; women, youth, farmers,

V.1.2 Workshop method

A participatory workshop method was conducted as part of the instruments used in the PRA. A participative learning experience through creative means principled by the popular education methods in a consensus building defines the technique. The researcher made use of creative and indigenous materials such as old calendars, charcoal, coconut coils, coconut sticks and stones.

V.1.3 Ethnography

In an ethnographic research, the researcher recorded all information he got through interviews, FGDs and participant observation everyday practically writing the diary of the

local people. One of the most common methods for collecting data in an ethnographic study is direct, first-hand observation of daily participation. This can include participant observation. Another common method is interviewing, which may include conversation with different levels of form and can involve small talk to long interviews. An informal focus group discussion is also a common practice where villagers were gathered around a comfortable place in their afternoon siesta talking both serious and “not so serious” matters. Questionnaires can be used to aid the discovery of local beliefs and perceptions and in the case of longitudinal research, where there is continuous long-term study of an area or site, they can act as valid instrument for measuring changes in the individuals or groups studied. Traditionally, the ethnographer focuses attention on a community, selecting knowledgeable informants who know well the activities of the community. These informants are typically asked to identify other informants who represent the community, often using chain sampling. This process is often effective in revealing common cultural common denominators connected to the topic being studied. Ethnography relies greatly on up-close, personal experience. Participation, rather than just observation, is one of the keys to this process. (Agar, 1996)

Part and parcel of ethnography is oral history. Oral history is very hard to validate considering the fact that local municipalities hold scarce information about their own respective towns. Oral history is dependent on the memory, and the story telling ability of a person. It could not be assumed that oral history constitutes a detailed form of information but rather, a rough but deep local knowledge. Old legends and stories not written in books which may not hold factual information but illustrates cultural importance and social meaning is important in understanding the socio-cultural landscape of a place.

V.1.4 Online Forum

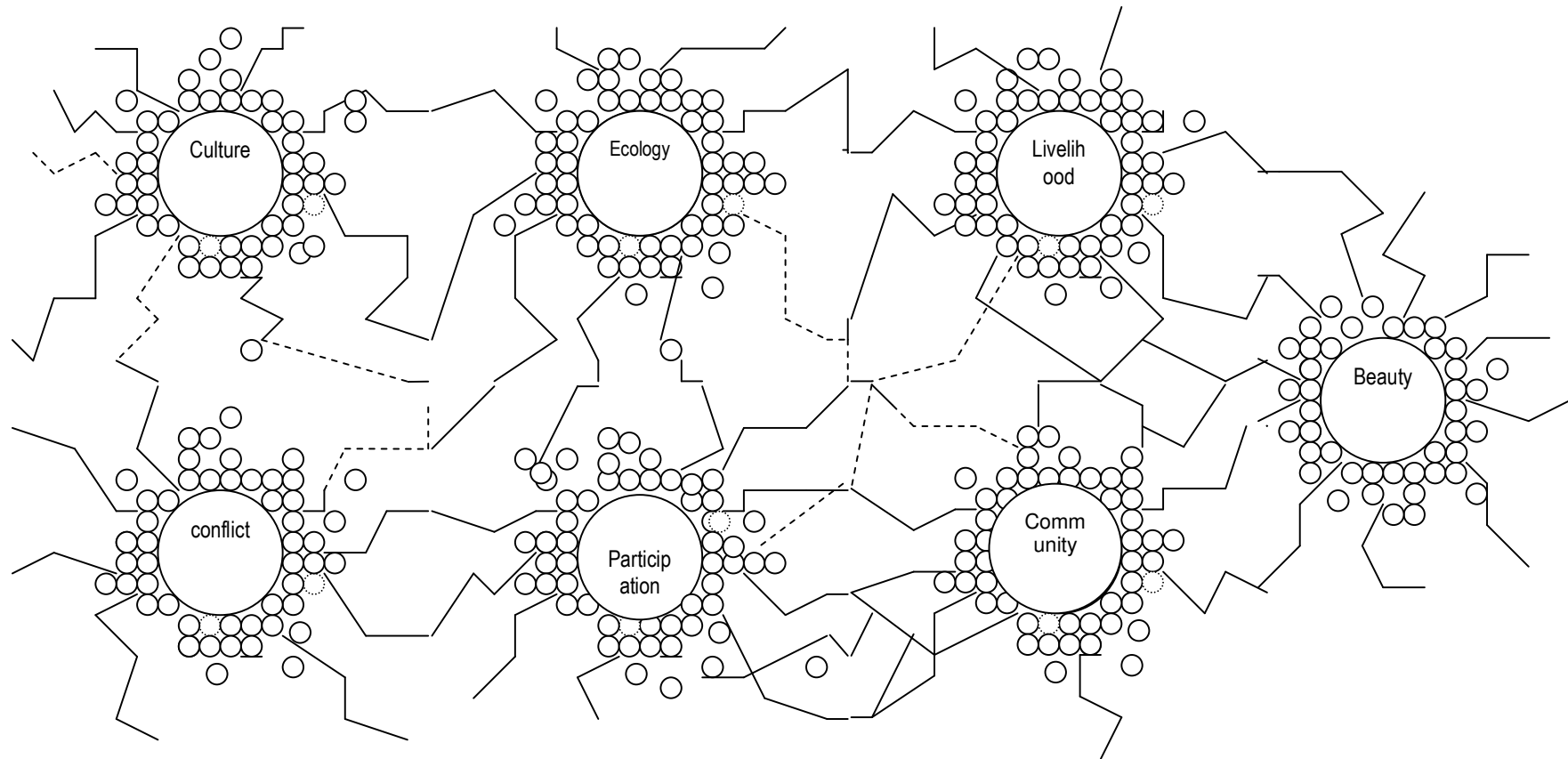
A useful qualitative instrument used by the researcher to sort out qualitative views of the Boholanos around the world through the use of an internet platform, <http://tubagbohol.mikeligalig.com/index.php>. Tubag-Bohol.com “*Bohol answers*” is an online forum for Boholanos around the world which tackles political, social, cultural economic and environmental issues. Moderated by the researcher himself, topics surrounding the social and environmental issues of the Karst landscape were brought

out. Though discussions were very loose, the online forum proved to be very helpful in sorting out different opinions of Boholanos in different perspectives.

Methodology	Data Gathering Procedures	Target Participants	Focus
PRA	FGD , Workshop Method, Expert Interviews	Tenured Migrant Communities, and residents within the vicinity	Local opinion on Policies and Planning Procedures
Ethnography	Recording of the daily life through participant observation	Tenured Migrant Communities	Description of the local culture
Key Informant Interviews	Interviews	local government executives, public administrators, planning officers, tourists	Expert/ governmental opinion on Policies and Planning Procedures
Online forum	On – line discussion in a forum	Boholanos living outside of the province and are accessible through internet	Local opinion on Policies and Planning Procedures

Summary of Methodologies Being Used in the Qualitative Research

Table 6



Focus Group Discussion Model
Figure 13

Figure shows the interconnectivity of the different themes. This also illustrates how nodes of one theme could relate to nodes of other theme. This Model illustrates how a free flowing discussion such as Focus Group Discussion could develop to a web of thoughts formed by central themes defined by nodes which can be connected by veins.

V.1.6 Description of Procedure

The qualitative data is composed of data and information coming from the participatory rural appraisal, ethnography, focus group discussion and informant interviews. The qualitative research employed different instruments however presentations of which are summarized in one chapter. Opinions of public administrators, non-government organizations, people's organisations and sectoral representatives from women, youth, farmers, business and academe were considered. In cases of far flung villages where the representation of all sectors is impossible, an equal representation of the sectors existent in the village was sought. This was predetermined in the list of residents and their occupation acquired in the barangay (local villages). Since the study implores the communicative theory of Habermas, the researcher played a passive role in the discussion and or interview, merely moderating and neutralizing.

Participatory rural appraisal and ethnography were conducted in (8) eight focus villages. The researcher made use of different techniques, such as field interviews, and focus group discussions which are extensively discussed in the previous chapter. A major component of the PRA is the focus group discussion which was taken into two conducts namely; discussions and workshops. Focus Group discussions were taken both as an informal conversation with the people and as a formal intellectual exercise. The researcher introduced himself and the topic of his research. It is important that the researcher be accepted by the community in order to win the trust and confidence of the people. "Social acceptance" was then achieved through the help of the village chieftains who introduced the researcher to the sectoral leaders. Most of these leaders do not have any formal elected positions however do gain trust and respect among the members of his/her informal group. The researcher opened the topic on the people's impression of their environment as a spring board. This transcends from an aesthetic impression of the landscape through emotional, functional and symbolic or spiritual attachment to the place. There were no guide questions however the researcher always bears in mind the focus topics which are: landscape perception, local knowledge of karst and karst protection policies, social and economic impact of the karst protection policies, conflicts arising from the protection policies, and local participation in protected area management. Discussions in different groups developed differently however, focus topics were always taken much into consideration. The use of democratic facilitative

approaches paralleled with the principles of Freire expressed in the Pedagogy of the Oppressed was utilized. The opening spiel was conducted on a workshop method with the use of indigenous materials available in the village which were old calendars, charcoal, banana leaves and sticks and stones. The workshop result was synthesized and validated through lengthy discussions, repetitions and consensus. There were of course varied reactions and each of these were taken and recorded. Issues that aroused during the focus group discussions were resolved through consensus. Individual opinions were not ignored. Most of the residents were not comfortable of photo cameras and recorders that is why the researcher required a help of a transcriber. Since some of the themes that aroused were very sensitive, the respondents were ensured of confidentiality by asking them to give aliases when they are not comfortable in giving their real names. Discussions were done in *Boholano* which is the native language of the island. The researcher kept a diary of everything he has observed during his stay; this includes informal talks with the local people and participant observation. Since transportation was difficult from hinterland villages to the municipal centres, the researcher spent a minimum of one (1) week in each of the focus sites. There were eight focus villages namely: Cabacnitan, Batuan; Bugang Sur, Riverside, Bilar; Canlabong, Dimiao; Cambuyo, Garcia-Hernandez; Bugsoc, Sierra Bullones and Anonang, Valencia and Montehermoso, Carmen.

V.2 Thematic Discussions

V.2.1 Culture

Theme Question:

Describe your way of life in your place What are the values, beliefs and traditions that are still existent in your area?

How does it define the local people?

Nodes:

- **Values**

This node describes the local values which are inherent in the local community. It explains the underlying morals, ethics and norms which define the local community. These values are significant in preserving the local environment for centuries.

Existing traditional values are still very much present in this community, such as the close-family ties, “bayanihan” (cooperation) system and “pakikisama” (camaraderie). These values though not distinctive of the Boholano culture however are reflective of the Philippine culture in general. These values strengthen society and establish a stronger backbone for community participation in natural resource management. Moreover environmental values which take its roots from the deep belief of the Boholanos to environmental spirits which dates back to the pre-colonial Philippines are reflected on their profound reverence on holy sites, such as forest, caves and any body of water which are believed to be dwelling places of the environmental spirits. This is one of the most important reasons why traditional Filipinos have great respect for nature.

Innate to the Boholanos is the value of “daginot” or conservation. This value has been useful and reflected in the creative reuse of plastics, bottles and cans. Bottles have been used as water containers, plastics as package bags and cans as flower vases. Rice sacks for instance have been used as curtains and even house clothes. According to the local guide from the SWCF, most of the garbages scattered in the area came from visiting tourists. The crude and simple life in this community has in some ways protected the environment from possible harm. It is because of this value that there is generally lesser waste generated in this community. Cow and swine feces are also used as organic fertilizers. Some far flung barangays which cannot be reached by electricity use oil lamps to illuminate their houses during the night. To save money and perhaps because of unavailability of transport vehicles and roads, students walk as far as seven kilometers a day just to reach school. The value of “daginot” is also the value which is responsible why most of the people, though poor have some small savings. The practice of “daginot” is a way of making both ends meet.

The value of saving is equally important for the Boholanos. Pennies are stored in old cans and in bamboo pillars of their homes. Boholanos do not take much risk and would rather keep their money for future. Boholanos are not risk takers and would generally invest their money for their children's education.

Typical to a Boholano home is cleanliness. A European tourist who had a cultural excursion in this community even commented that the Boholanos are the cleanest people he knew. It was because he observed that the community though poor does

observe proper hygiene. He noted that in his foster family whom he lived with for six weeks, it is normal for the family to take a bath at least twice a day in streams or rivers. He recounted that they needed to walk at least two kilometers just to reach the stream to bath. It is also a common practice for Filipinos to clean the house everyday, polish the floor and sweep the dried leaves on the backyard. Rural Boholanos live in a traditional bahay-kubo (Nipa Hut) which has generally a plain interior but a lavish exterior. The garden is the main attraction of the house. The garden is accentuated by different ornamental plants and shaded by vibrant colors of exotic flowers. It is the role of women to keep their homes clean and beautiful.

The backyard is also characterized by a vegetable and/or root crop garden. Most of the vegetable that the local people eat come from their own garden. These backyard gardens are useful safety valves in times of famine and typhoons where the rice plantations are affected. In 2007 there was an extensive and long rice crisis, people in this area survived through eating camote (sweet potato) and cassava. Keeping the environment green did not only provide fresher air and a cleaner surrounding but most importantly has served the people during times of difficulty.



Foto1

Children from the neighborhood gather in a house to watch television
Foto: Aparece,2008

Boholanos observe the value of sharing. In remote villages where they cannot be reached by electricity, community members who have their own electricity generator share their light to their neighbor. It is common that children gather in a house of a neighbor to watch television. Whenever there is surplus in their harvest, this is normally shared with the neighbors. In times of difficulties like flood, famine and hunger and other natural catastrophies, community members help each other through sharing their food, clothing and shelter.

“Bayannihan” is also described as community work. Bayanihan is commonly observed in smaller units within the “barangays” (village). A barangay is subdivided into informal sub units called as puroks. Every purok is headed by a Purok leader who organizes a group

of ten (10) to twenty (20) families. Every family has a cleaning assignment. Volunteerism is an important component of "bayanihan". Community projects which are financed by non-government organizations and are participated directly by the people. Some of these include building of school rooms or renovation of school buildings, waiting sheds, parks and other public structures. Impliedly, social responsibility is inculcated through this value. The people are conscious of the social benefits of community projects. The literal interpretation of "bayanihan" illustrated in Philippine books is the traditional communal carrying of the "Nipa hut" when a family plans to transfer to another location. Since Nipa huts are relatively light because of the materials being used in its construction, the fundamentals are uprooted from the ground and literally carried by men of the community. All of the male members of the community are encouraged to help in carrying the Nipa hut. As a sign of gratitude, the owner of the house usually prepares a "tuba", a coconut wine popular in this community. "Bayanihan" comes from the root word, "bayani" which means hero in Tagalog. More than the literal description of this value, it reflects the Filipinos and the Boholanos virtue of cooperation and association. This value strong enough to withstand Spanish colonization is very much present in every Filipino. It is because of this value why most of the members of the community are encouraged to participate in "pulong-pulong" or informal discussion in barangay centers since they have seen that whatever decision made in barangay councils also affect them directly as a community. Although some members are apathetic or even suspicious of government agenda, this value is reflected through deep social concern and consciousness. Inday Rosalinda, a health worker in the town of Bilar postulates, "Local communities have no other means of surviving poverty than community cooperation. Through cooperation we build up bonds which make us stronger and these bonds complements each others resources and needs. "Manang Tersie further added that through community cooperation, families could be supported and strengthened by the entire community. Nang Lita shares the importance of neighborhood help system "Without my neighbors, I could never withstand all the trials I have encountered in my life. When my husband died, the entire community was there for me. There were times that we did not have anything to eat, but our neighbor brought us something to eat. These are the things that I am always thankful about." These statements only suggest that cooperation is not only a value but a need for a community to survive. Communities are aware that through this community support system, their community will survive.

Though it is a value that could be dated back to early Filipino ancestors, bayanihan is still relevant to the present times.

“Bayanihan” is a form of mutual help system which signifies a voluntary exchange of human and material resources for the common good. Mutual help system is a pre-colonial Filipino culture which is an intrinsic part of the communal societies. The early Filipinos lived as community, basically sharing everything they have. There was a communal land ownership, and a common agriculture. The fruits of their labor are shared by everybody.



Foto 2

“Bayanihan” Filipinos carrying a Nipa Hut. A traditional practice of community support system where men of the community help in carrying a house when a member transfers to another place. Foto: Remolona, Eli

Also a common manifested value of sharing is “ambit” or “sosyo”. This “ambit” or “sosyo” system though common during fiesta celebration has now been popular during market days. It is common in this community that every family raise any livestock .When a family slaughters one of their

livestock, they then inform the rest of the community who may be interested for an “ambit”. “Ambit” is basically a form of informal credit system, but only referred to livestock. A debtor could pay this in cash or in kind, or it could be that the debtor may pay this when he then slaughters his own livestock. The pre-colonial barter system is still observable in some degree in this community. Fish and fish products are scarce in this area because of the remoteness of their community. People would barter fish, dry goods and other products which are only available in towns like detergents, canned foods, clothes etc against rice or root crops. Some people still pay physicians with goods such as rice, bananas, root crops as payment for consultations and other medical services.

“Pakikisama”- or “pakigingun-ingun” – is the value of camaraderie or sympathy or compassion. When a family mourns of a death of a family member, the entire community shares the sorrow with them. They usually manifest their sympathy through helping in making the coffin, preparing for the food and donating some cash. This is locally known as the “Dajong” system. The “Dajong” system is common in almost all communities in Bohol, even in the main city. Every family of the Purok (village sub unit) contributes a certain amount of cash and rice when a member of the community dies. It is a social cooperative system specified on community cooperation in times of death of a community member. The word “Dajong” comes from the Visayan vernacular which means “to carry”. It denotes the literal carrying of the coffin of the dead, and implies that the society carry together with the bereaved family, the emotional and financial costs of death.

While “Pakikisama” is perceived to be more of a value, it is however sometimes abused. “Pakikisama” or comradeship is an important value for Filipinos. In Filipino communities, it is then important that people associate, and eventually integrate themselves in the community. Failure to do so would connote an “anti-social” behaviour. This would sometime extend to asking favours. The “Padrino” system is an example to this. “Padrino” is a Spanish word which means godfather. This vice is one of the root causes of corruption in the Philippines. “Godfathers” are obliged to help their “godchildren” to find positions in the government. Or if someone is in trouble with the law, he just needs to call his “padrino” to fix it. The Padrino system is a typical example of an abused form of “pakikisama”. Although in the padrino system is wider in meaning, it is a patronage system existent in the Filipino culture and politics. It is the value (vice) system where one gains favor, promotion, or political appointment through family affiliation (nepotism) or friendship (cronyism), as opposed to one's merit. The Padrino System in the Philippines has been the source of many controversies and corruption.

Another form of credit-savings system is “hulog-hulog”. The “hulog – hulog” is organized informally and mostly by women. This informal credit-savings group is comprised of ten to twenty members. Every member has a monthly contribution and a specified “harvest” time. Harvest time is understood as the month or period when a member takes his share of the savings. For instance, if every member contributes Php 100 every month, and the group is comprised of twenty members, a member who is due to take his

harvest, may take as much as Php 2000 including his own contribution. He has the option to take everything, partially, or nothing. Anyone who borrows money from the group, member or non-member must pay a minimum interest fee of five percent.

“Kahapsay” (orderliness) is an aesthetic value used in judging character and beauty. The value of “kahapsay” is one of the required values in choosing a future wife.. Orderliness is important in this community. “Kahapsay” is an important criterion in every home and community. Many Christian Boholanos believe that orderliness is next to godliness. The value of “kahapsay” is also reflected in their town centers. A typical description of a Philippine town originated from the “reduccion”. “Reduccion” are the towns systematically and orderly organized according to its use and functions, established by the Spaniards during the Spanish occupation. It is characterized by churches, markets and “ayuntamientos” city halls systematically and orderly located in town centers.

“Querida” system is common practice tolerated by remote societies in the province of Bohol. Querida is a Spanish word which means a concubine. The maintenance of a concubine is sublimely condoned, provided that the father can provide sufficient financial support to both families. But this is not always the case.

Boholanos are very hospitable people. Their warmth and acceptance to their guests is manifested through food. Normally hosts prepare a good meal, clean the house when they are expecting some guests. The social attitude of “ikog” which is an expression of a shame when a guest is not treated well at home is very much recognizable among the local people. When the guest leaves, he normally takes with him “pabaon” or food for the road. In fiestas, or community celebrations, this is referred to as “bring-house”. The Boholanos are peace loving and friendly people. The capital city of Tagbilaran is labeled as the City of Friendship, because it was believed to be the place where the first international treaty of Friendship took place between Raja Sikatuna and Miguel Lopez de Legaspi of Spain in 1565. This is the first time where there were no local resistances to Spanish arrival. Boholanos are generally unsuspecting, and because of the value of hospitality, they are abused by some strangers with ulterior motives.

- **Cultural identity**

This node describes how culture in itself defines the local community. The daily living of the local people and the things which they place at utmost importance are just some of the aspects mentioned in this node.

Cultural identity is the feeling of belongingness to a particular group or community which identifies itself with its distinct culture or of a persona as far as she/he is influenced by her/his belonging to a group or culture. Common characteristics and ideas may be clear markers of a shared cultural identity, but essentially it is determined by difference: we feel we belong to a group, and a group defines itself as a group, by noticing and highlighting differences with other groups and cultures. Any culture defines itself in



Foto 3

Eskaya language, one of the oldest languages in the Philippines. Unique to this language is the corresponding body language. This language is only spoken in the central part of Bohol. Foto: Aparece, 2008

In a country comprising of several thousands of islands like the Philippines where people are isolated in small groups of ethnic people thereby causing the development of so many dialects in different intonations and accents, superstitious beliefs and practices, customs and traditions are handed down from parent to children. Bohol is one of the island provinces to have developed a

relation, or rather in opposition to other cultures. People who feel they belong to the same culture, have this idea because they rely partially on a common set of norms, but the awareness of such common codes is possible only via the confrontation with their

absence, namely, with other cultures.



Foto 4

Old Spanish churches like this 400 year old church in Baclayon Bohol, is a living evidence of Spanish colonization in the Philippines culture of its own.

The Boholano people (also known as Bol-anon) refer to the people who live in the island province of Bohol. They belong to the Visayan ethnic group, which constitute the largest Filipino ethnic group.

Binol-anon is the dialect spoken on the island of Bohol, it is a variation of the Cebuano which is spoken in major parts in Visayas and Mindanao (except Bacolod and Ilo-ilo which speaks Ilongo and Hilongos respectively and Samar- Leyter which speaks Waray). Eskaya, a language spoken in central and some coastal areas in Bohol is considered to be one of the oldest languages in the Philippines that survived foreign influence through centuries. Binol-anon dialect is distinct from other Visayan-Cebuano dialects by a few phonetic variations. The "y" sound in Visayan Cebuano is pronounced as "j" (instead of "iya" in Cebuano becomes "ija"), the "k" sound is spoken as "h" ("ako" in Cebuano becomes "aho")the "l" sound sometimes if it is used in the second or following syllable becomes "w" ("kulang" in Cebuano becomes "kuwang"). Every town in Bohol has a distinct accent.

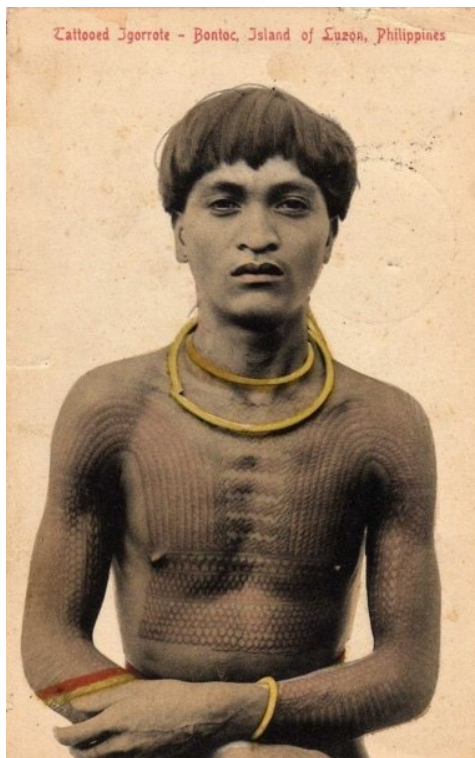


Foto 5

A Pintado "tattooed man" is depicted in this picture (1900s). Pintados are men in the Visayas region who flaunt their tribal battle victory through their tattoos.

Foto credit: The Old Philippines, National Museum of the Philippines

"tattooed ones." The "pintados" were tribal warriors. Every tattoo in their bodies signifies

The majority of the Boholano population is Roman Catholic. There are also a significant number of other Christian denominations like the Iglesia ni Cristo, Protestants and Aglipayan (Philippine Anglican Church). Christianity has a very strong influence in the Boholano culture and politics. Most of the Boholanos are devout Catholics however; their paganistic traditional practices are still integrated in their belief systems. Roman Catholicism was brought by the Spaniards to the Philippines when Ferdinand

Magellan discovered the country in 1521.

The people of Bohol are believed to be the descendants of the last group of inhabitants who settled in the Philippines called *pintados* or "tattooed ones." Every tattoo in their bodies signifies

their battle victories and the the number of people they have slain. Boholanos have already a culture of their own as evidenced by the artifacts dug in Tagbilaran, Dauis and Panglao, Bohol.

The Boholanos are known to be frugal , hospitable, pious, humble people. Most of Boholanos living in coastal areas are sea-farers and fishermen while those living inland are farmers. Boholanos are modest and humble people. Many of the Boholanos consider themselves poor even if some of them live high above the poverty line. Boholanos live normal simple lives. Most of the Boholanos hide their wealth to protect themselves from bandits. Boholanos are not risk takers; they would prefer to keep their money in banks rather than investing in trade. Agriculture is still the main source of livelihood for the Boholanos. Boholanos are very shy people at first. Boholanos are also very sensitive people. That's why they themselves are careful of their own words. They are also fun of using Euphemism. They would rather say nasty words in the nicest way. Boholanos are ashamed of their intonation since most of the people coming from islands make fun of it. The Boholanos are fun of family and community gatherings. Poverty does not prevent them from celebrating birthdays, anniversaries and other important occasions modestly. Since the Boholanos are known to be religious people, they love to celebrate town fiestas. Fiesta is a community celebration dedicated to their patron saint. It is a tradition that has been inculcated in their culture. Sometimes it is because of social pride why some Boholanos are forced to lend money just to celebrate town fiestas. There is social pressure and they consider it a shame if they are not able to celebrate this most important event of the year. Boholanos living in Manila, Mindanao, Cebu, or even abroad, prefer to go home to attend the fiesta celebration .It becomes a part of Boholano religiosity and hospitality that every family regardless of financial status prepares a fattened pig every year. The provincial government, and even the church tried to discourage the lavish preparation of the fiesta celebration requiring only prayer and mass during town fiesta but this seems to have very little effect. Even town ordinances attempted to arrest the tide of fiesta goers but unsuccessful. It failed to dampen the Boholanos' love of fiesta. So, one cannot legislate against tradition. It is a form of religious and cultural devotion. If there is Thanksgiving Day in the United States, then fiesta is a Boholano answer to this. Like thanksgiving, it is an opportunity to spend time with the family and meet old friends. It is a way of thanking God and the town patron for the blessings the town people have received. It is a cultural celebration presented with

great festivities and bountiful meal. To a Boholano, the fiesta is the highest form of expressing one's self to the community. It is manifested in the way he and his family receive their guests. He feels honored and thankful to be able to serve his visitors. Town fiestas have reciprocal component. An invited guest is expected to invite the host family when his town celebrates its own fiesta. This is observed during the month of May when almost everyday, there is a town fiesta celebration in each of the forty seven municipalities of Bohol. This form of community interaction surpasses social barriers and thereby enhances friendship, mutual respect, and cooperation and strengthens family relation. That is why the value of this tradition has been kept in the hearts of true Boholanos for so many generations. Bohol has been regarded by some visitors and tourists as the "fiesta capital" of the Philippines --- the real fiesta island.

Boholanos identify themselves not only with their culture but to its landscapes as well. When Boholanos have guests they bring them to the famed tourist spots like the Chocolate Hills. Chocolate Hills is a landmark that serves as a distinguishing feature of the local people. Boholanos are proud of their physical environment and serve as informal tourist agents enticing other people to visit Bohol.

Now that Bohol has become the prime tourist destination of the country, more and more Boholanos are coming home every year to visit their home province and even bring with

them some foreign friends



Foto 6

Mestiza de Sangley or Filipina Mestiza, c. 1875, Francisco Van Camp, fotografía Musee De L'Homme in Paris

The ideal woman in the Philippines is personified by Maria Clara. Maria Clara is a literary figure featured in the writing of Dr. Jose Rizal, the Philippines national hero. The persona characterizes a fine, reserved and well mannered woman, who lives up with the conservative culture in the Philippines. Boholano women still witness the values of Maria Clara. Women's social role is motherhood, attached to it is nurturing and caring for the family. It is their inherent role of women to take care of the family. It could be recalled in Philippine history that in the pre-colonial

period, the Philippines was once a matriarchal society where women had major decision making powers. Because of Spanish influence, women's roles were being downgraded in making homes and taking care of children. However, more and more women are taking major part in governance and decision making bodies.

- **Traditions and Beliefs**

This node describes the local traditions and beliefs which may be perceived paganistic and superstitious but have helped immensely in the environmental preservation and conservation measures

The Boholano belief system is a combination of Christian doctrines and pre-colonial paganistic practices. Although the term paganism is an inappropriate word to describe pre-colonial Boholano practices, but for purposes of discussion, the same term is applied with no intension of downgrading early Boholano beliefs. The local people still practice rituals when planting rice and when harvesting it. The local people used to slaughter pigs and chickens as a form offering to the spirits for a bountiful harvest known as the "pahinungod". It is a pagan tradition practiced by modern Boholano Christians. Moreover, the local people also reserve a small portion of their harvest as a means of gratitude to the spirits. It is recognition that human beings are only transitory to this world, and they do not own their produce, hence they must be thankful to the spirits who provided them a fertile ground and a good rain during planting season. Rituals would include burning pigs or chicken (similar to the traditions reflected in the Old Testament), splashing animal blood in the environment and tribal ritual prayer led by the local "albulario" or shaman. It is also observed that local people also observe the same ritual



Foto 7

An "albularia" annoints some oil on her patient.
Foto: Sidney Snoek, 2008

during birthday celebration. A birthday celebrant is anointed with animal blood during his birthday. Local men before they start their "drinking session", spill some wine on the ground, as a means of honor and respect. This is also referred to as "pahinungod". The ritual practice of "pahinungod" is so important for every Boholano. Boholanos believe that a bad harvest is caused by angry spirits. "Ube" is a

sacred crop for the Boholanos. When it falls on the ground, they would kiss on it like a sacred object. "Ube", a purple yam which is popular for its sweet scent and unique flavor is an important root crop for the local people. They recite some prayers first before they start their work. The local people do also have special charms as means of protection called as "agimat", "anting-anting" or locally known as "habak" worn as a necklace or as belts around the waists.

The local people have profound regard of the karst landscape as a revered site. The landscape which includes forests, rivers, caves and underground streams have been practically preserved because of the local peoples respect on environmental spirits which they believe to have been dwelling in this areas. People when walking through the forest normally chant, "*tabi- tabi po*". "*Tabi-tabi po*" is a means of asking permission to the spirits for passage. There are also some observed ritual by old people when cutting trees in the forests. Boholanos believed that trees have spirits. Some epidemics and maladies are blamed on disrespecting the dwelling places of the spirit. Natural catastrophes like the *El Nino* phenomenon, storms, and landslides are even blamed by the old people to the disrespect of nature. There is also a common practice of replacing everything which has been taken from the forest. Boholanos believe that everything we use and exploit on earth is borrowed. They refer this as "*hinuwaman*". Life in itself is a borrowed entity, and trees which to them are bearers of life must be replaced when they are cut, because this is just borrowed or "*hinuwaman*".

Boholanos also believe that spirits dwell in bodies of water. People believe that when one makes noise while taking a bath in streams and rivers, the spirits will be disturbed, that's why like walking through a forest, bathers normally chant "*tabi-tabi po*" and make a sign of a cross for protection. This is a clear manifestation of a combined Christian – paganistic belief. The caves have also been respected as burial sites by the early Filipinos. Historically, caves are important hiding place since Boholano revolution led by Fransisco Dagohoy against the Spaniards through the World War II, which served as an asylum and hiding place for war refugees. Plates, spoon and fork and other kitchen wares found in the caves were believed to be owned by the spirits, when it could have been left by the local Filipino refugees during the war. Not only are that caves important for its historical and cultural significance but also for its economic value. Local people gather bird's nests in caves, and guano – the nutrient rich feces of bats used as fertilizers. The forest has been the source of alternative medicines and faith healers invoke environmental spirits in curing their patients. Since health facilities are scarce in the area, the local people rely much on the "*albulario*" or the faith healer for medication for their health problems. Some people still observe the practice of "*Pagdidiwata*" which is a ritual that summons the environmental spirits to help them heal or ask for guidance.

- **Place Attachment**

This node describes how the local people are attached to their community and environment. Their sentimental sense of belongingness to both physical and social environment they are living in. It also describes the popular Philippine culture which is close-family ties where families opt to stay in one place because their social knit is so close, they cannot live afar from each other.

Boholanos have very large and extended families and are closely knitted. There is social obligation of every member to help other members of the family. Because of this, successful Boholanos who are already living abroad have this personal obligation to help their family, and this help extends to nephews and nieces particularly in supporting their education.. This practice promotes dependency on other members of the family. People are so attached to their environment and some could not bear the loneliness of leaving their place. Marissa recalls, *“When I was 18 years old, my mother sent me to Manila to work as a domestic helper, I could not bare the loneliness there. After a few months I asked my employer if I can go home, luckily she allowed me.”*

People become more attached to their environments, not only because of their length of stay, beauty and sentimental value, but most importantly, it social value. It is hard for a Boholano to be apart from his or her family for a long time. This in some ways hampers other Boholanos to migrate to seek for greener pastures outside of their place because they are deeply, closely and emotionally attached to their families. Even those who opted to leave and work in the cities or abroad, they always see to it that they regularly visit home at least once a year. Even Boholanos who have lived almost all of their lives abroad settle in Bohol when they retire.

Foreigners who fell in love with the place settle in Bohol for good. There are a significant number of European and English migrants in Bohol.

V.2.2 Ecology

Theme Question:

How do you describe your relationship with your environment? How do you see the importance on the care for the environment?

- **Local knowledge on karst and karst protection policies**

Only few of the respondents have a good understanding of a karst area. Most especially to the fragility of their environment, Only a few could more or less explain probable effects of some agricultural/forest practices. Most of the people believe that the earth has its own way of regenerating itself. This could be related to the GAIA theory. A simple knowledge on 'anapog' or gravel (a special kind of limestone mix soil type is common in these areas) is common to each of the respondent. Some respondents describe the karst landscape as typified by caves. Some sees the fragility of the water source as an important feature. Some would simply equate Karst as the Chocolate Hills. The term karst is only known to community organizers, government workers and researchers. The information dissemination exerted by the local government is not sufficient. However, most of the respondents are aware of harmful effects of some agricultural practices for example the extensive use of chemical fertilizers and cutting of trees without replanting. Living in

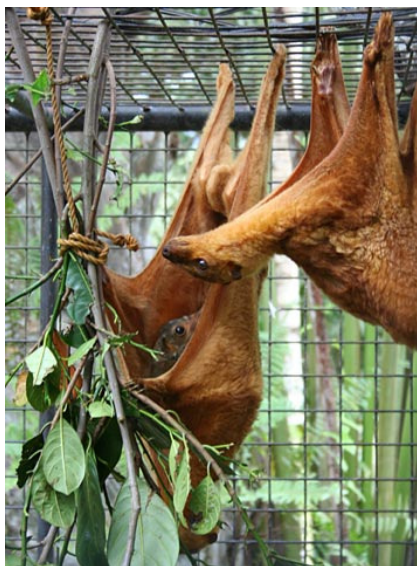


Foto 9
Flying lemur locally know as "Kagwang" in captivity being fed with leaves in Loay, Bohol: Foto: Hellingman, Jeroen



the
karst
areas
for

Foto 8

The Philippine tarsier locally known as „mawmag“ which is endemic in the province of Bohol has been featured in many ecological magazines around the world

years, the tenured migrants see the ecological fragility of the area. They have also observed some changes in the landscape. Some tree specie like "tugas" are becoming rare. They have also observed a decrease of some indigenous animals like the tarsier, tingaw (Boholano civet cat) and the flying lemur. Before the Soil and Water Conservation Foundation conducted researches, local people did not have technical

knowledge on how to manage their environment. Nevertheless, the desire to take care of their environment has always been there. This has been manifested by their adherence to the traditional practices of farming, replanting and control on hunting of

some birds. This has been a natural instinct for them, and for most people who depend much on the forest, and to the entire karst landscape for their daily living.

The coming of the Soil and Water Conservation Foundation provided them with technical skills and knowledge on protected area management. Even Jonjie Madronero observed that the local government and national government agencies lack technical skills in protected area management.

Respondents were able to describe their environment as forested limestone area, characterized by caves, sinkholes, springs, small rivers, valleys and hills. The karst area which largely covers a forest area is potentially used by the local people as a source of their livelihood. This karst area is rich in biodiversity. This has been a home to some of the world's endangered species like the flying lemurs and the tarsier. This has been verified by the respondents themselves during the participatory rural appraisal.

- **Social Importance and Peoples Relationship with the Karst Area**

This karst area is potential water resource of the community. Access to potable water has always been a difficulty in far flung municipalities in the Philippines. The presence of streams (off and underground) and rivers have been potent source of water in Bohol. Most of the residents rely on artesian wells and poso (a manual water pump). Water pipes cannot reach villages in hinterlands. Although most of the residents agree that the source of water must be well taken cared of, most of them do also admit that there are still some practices which caused gradual pollution of water in their area. Manay cited that she herself used to wash their clothes in open streams using laundry detergents which might be harmful to the stream. Cardo also used to wash his dogs, cows and carabaos in rivers. Some of the respondents even revealed that most of them do not have proper toilet at home, their children normally remove their wastes in forests.. Diarrhea epidemics were recalled by some respondents because of contaminated water source. Although only few respondents admitted, it has been observed that residents do also do have proper solid and liquid waste disposal. The people lack knowledge on the segregation of hazardous, organic and inorganic wastes.

The forested karst area has also been a source of herbal/alternative medicines. Since access to proper health facilities is scarce in rural areas, most of the residents rely on herbal medicines for both minor and major illness. Most often than not, residents only bring their patients to hospitals when their conditions worsen. People believe that

nature heals everything. Certain herbs, tree barks, insects and seeds were as common remedies for stomach ache, colds or animal or snake bites.

Subsequently, this karst area has also been the source of faith/spiritual healing by a local *albulario* (shaman). Most of the residents, young and old still believe in environmental elements and revere the forest because of its sacredness. The local shaman "*albulario*" is a respected person in the community. They are local herb witches who provide informal health services since they lack access to proper health service. There are however regular visits of barangay (village) health workers. Midwives and nurses are accessible in Barangay Health Centres where they provide medical services to the people. Most of the women still prefer the local "mananabang" or "manghihilot". They are local midwife with no formal education and training but acquired their skills through experience. The work of a "mananabang" just as the "albulario" is handed down from generation to generation. Hygiene is a major factor to consider since most of the "mananabangs" do not observe proper hygiene and sanitation in their practice. Instruments and utensils are not well sterilized.

The karst landscape has been a place of recreation for both the local people and tourists. It provided them relaxation, fun and enjoyment in their leisure time. Maria recounted her childhood memories of living in the karst area,

"I have always enjoyed taking a swim in the rivers, taking a walk with my friends in the forest, looking for spiders which we used in insect fighting. The caves were very enchanting and sometimes haunting that's my mother always forbid me to go there. The place still amazes me until now."

Rico's favourite hobby is hunting. During night time, he waited for bats to come out from the caves and hunt them. Some people in this region eat bats and other birds. But the consumption is insignificant since birds are not major source of food for the local people. The fresh waters of the rivers and streams have always been the favourite of Coring. After having worked as a chamber maid in Manila for three years, she missed the clean water of their village.

Some of the respondent brought the concern of limestone quarrying of some big companies in their region. Most especially for respondent coming from the Chocolate Hills region, they were alarmed of the large scale quarrying of some hills in their area. Before the Chocolate Hills was declared as a natural monument, lands including

mogotes (limestone residual hills) were considered private, alienable and disposable lands. This has attracted local landowners to sell their parcel of land which included the mogotes.

Stone gathering is a common livelihood for some residents in this karst region. These stones are used for construction of local houses. Concern for this is not so immense because this is not done on a large scale basis.

There are some local residents who rely on the gathering of birds nest as their livelihood. Since most of these special birds live in caves which is peculiar of karst regions, birds nest gathering has been an attractive source of revenue in this region.

Much of the concern aired by the non-government workers working in the area is the hunting of birds and animals. The Soil and Water Conservation Foundation reported a dramatic decline of some rare species like the flying lemur, civet cats and the world-known Philippine tarsier. Respondents blamed external hunters coming from other towns and regions and traders which afforded demand for such kind of animals. Clandestinely, some residents accordingly hunt these birds because of buyers coming from Manila.

Lisa expressed her opinion why such things occur, *"In a place where there are lesser opportunities for livelihood other than agriculture, people would seek means to provide the needs of their families."*

Apparently, the lack of opportunities of a better livelihood lead people to extensively exploit natural resources which could be tantamount of abuse. People do not have much choice when the prices of local commodities get high and their livelihood cannot sufficiently provide the needs of their families. The lack of alternative livelihood programs has been one of the issues raised during the PRA. Most of the residents think it is a priority to find means to feed their family than taking care of the environment. An effective protected area management can only be achieved when the basic human needs to survival and sustenance is at least achieved. The provision of alternative livelihood is necessary in protected area management. Livelihood measures have been conducted through the Poverty Reduction Program of the government.

- **Recreation**

This node describes the people's relationship with their environment through recreation. It depicts the time they have spent with their family in this landscape and the sentimental value of this place for families and friends.²

The beautiful hills of the landscape have been a playing ground for small children in this area. Children are used to hunt small spiders or reap wild guavas and other fruits found in the forests and mountain/hilly areas.

The landscape has also been a host to family gatherings. Because of its unique features, it has attracted both local and international tourists. Local tourists come from different regions in the Philippines. They normally come in groups or with their families. But, most importantly, local families find so much recreational value to their own landscape. Rita recalls her childhood spent in the karst landscape, " *On my way to school, I normally walk through the forest, where I enjoyed much of it's the enchantment. The animals, birds continue to fascinate me.*"

The local people enjoy the various features of the landscape. From rivers, hills, underground springs, caves, poljes, and plains, each of the features brought memorable experience to the people, not only because it is the main place of their livelihood and settlement, but it brought fun and recreation to their families.

One of the livelihood measures conceptualized by non-government organization and the government is sustainable pro poor tourism. Tours organized in schools are encouraged to focus on local tourism to promote ecological awareness.



Foto 10

Kayaking is a type of recreation which is popular in rivers and other bodies of water

- **Care for the Environment**

This node describes how the local people care for their environment. This illustrates how the local people in their daily life takes much attention in taking care of the environment in their own simple ways.

The local people fully understands the social and ecological value of the karst environment particularly its forest and its bodies of water. The importance of replanting trees has already been practiced along time ago but only a few know as to which type of trees to be planted. One of the problems being seen is that there is only less information, education campaign regarding the proper care of the environment. Only the better educated residents have full knowledge of the appropriate environmentally healthy practices. Although traditional agriculture has slowly been replaced by commercial agriculture, there are some traditional practices which still remain. There are still some farmers who use organic fertilizers but some are still persuaded to use chemical fertilizers for better produce. The demand for bio-agricultural products is also not so high hence; most of the people resort to commercial farming. Crop rotation is also observed by most of the local people but, the introduction of the Oil Palm to the locality gave fears to some sectors that it might promote monoculture.

Agro forestry has been practiced in Bohol for a long time. The Boholanos used to plant some important root crops underneath trees which serve as their canopy. There could be intercropped or arranged on a special manner to enrich the nutrients of the soil or may be in a time sequence. In the Philippines, particularly in southern Luzon, farmers have developed a multi-storey system of agro forestry. It is also a popular agro forestry system in the Philippines to plant agricultural products in a multi-layered canopy form where sun loving species are located in the upper canopy, while shade reliant crops form the under storey. The system employs reduced tillage, and is sustainable mainly because of the year round vegetative cover, which conserves soil and water both in the short and in the long term. In addition, the agro forests provide food, fuel and income, and also utilize land space and family labor efficiently.

A typical multi-storey system in the Philippines combines these plant species: Coconut, black pepper, Banana, Papaya, Coffee, Pineapple and Ginger. However, there is great

variation in the combinations of crops. Very typical in Bohol is a wide array of agricultural produce which is planted on different rotations throughout the year. A combination of rice, root crops, vegetables and fruits comprises the main produce of agriculture in the province. Although, not popular at producing for external consumption, Bohol's agriculture has been a reliable means of livelihood for the local people. It is also an observable practice to see backyard vegetables and root crop gardens.

- **Environmental awareness at home**

Most of the families interviewed are aware that plastics and other non-biodegradable wastes are inimical to the environment. Even though solid waste management did not pose a major concern because of the agricultural set-up and lesser industries in the community, most of the families do not have enough knowledge of waste segregation, and non-biodegradable wastes are just dumped anywhere else since garbage trucks do not reach far flung barangays. There are also some families who prefer just to burn their wastes. Especially during times of dengue fever epidemic, most of the families burn old tires just to drive away mosquitoes. Other unhealthy practices include washing of clothes in rivers using harmful detergents, and extensive and indiscriminate use of pesticides and chemical fertilizers. However, there is a growing movement to promote the use of organic fertilizers, and emphasizing on traditional farming methods. The lack of material and technical knowledge of some people who are not original natives of the place puts the endemic trees of the forest at danger. Some people just cut small trees indiscriminately, without taking into consideration indigenous native trees which might be cut along the process and just be plainly used as firewood. Although most of the people understand the value of replanting every tree that has been cut down, most of them replace the indigenous trees with exotic trees like Mahogany and Gemelina. Most of the people also prefer to plant these trees because these are easy and fast to grow and are also popular as cheap lumber. Environmental consciousness has also been informally integrated in preparatory education curriculum in elementary and high school level.

- **Ecological Respect**

This node describes how the local people show their respect for the environment. Boholanos are proud of their rich natural resources and biodiversity. Bohol is a home to an endangered species of the class primate, the Philippine Tarsier. It serves as a provincial emblem and is even reflected in the provincial flag. Because of its rareness

and its cuddly features, it is made as a local mascot and has unfortunately attracted smugglers, trading them to buyers outside of the island. Consequently, the local provincial board of Bohol has approved an ordinance, totally banning the possession of the tarsiers thereby returning them to the wild.

Some people believe that the increase of tourists would disturb the spirits. Many still think that the forest should be accorded with much reverence and respect since this is their source of livelihood. Noticeably, most of the respondents who are tenured migrants in the place have more place attachment or sense of place to the karst area. They have been living there since birth and their sense of belongingness is stronger. Both tenured migrant respondents and buffer zone respondents do agree that the karst landscape of Bohol is still very beautiful. This is described by the way they enjoy simple daily lifestyle and recreation. Bong even recounted how he and his children enjoy swimming in the rivers and streams and Gloria shares how her children takes pleasure walking and playing in the forest while she looks for some firewood.

Cardo proudly claimed that the fresh air, the green landscape is incomparable to the towering buildings and polluted air in Manila where he formerly worked in a construction site.

Respect on the environment according to Lita is a way of giving back to nature the blessings it has showered on them. She further says, " *If we don't care for our environment, by way of respecting the gifts of nature, how will we survive as people when our entire livelihood depends on nature?*"

- **Ecological Well-being**

This node describes the local sustainability measures that are undertaken by the local community to protect and preserve the environment

There are wide array of formal and informal measures which are undertaken by the community to protect and preserve their environment. Some of the informal measures are: regular cleaning of the social places such as parks and community centres; replanting of trees in the forests; and the minimal use of non-biodegradable products. Local people also are very pragmatic in using their spaces at home by planting vegetables in plastic bottles at their backyard.

Formal measures are organized strategies usually facilitated by non-government organizations and the government. This includes participation in research i.e. gathering

of data, participation in planning and implementation of environmental projects, tenured migrant workers work as voluntary “watch guards” of the forest; participation in local cooperatives which promotes local indigenous products and sustainability.



Foto 11

A local vegetable known as „alugbati“ is being planted in plastic bottles and containers . Foto Aparece, 2008

Foundation however still claimed that the Karst Landscape of Bohol is rich with biodiversity. The foundation documented a wide array of birds, insects, nocturnal animals, snakes and a wide variety of ferns. Anding recalls seeing flying lemurs when she was young, now she has noticed that she seldom sees it. There has also been a dramatic decline of tarsier. Goryo recalled that tarsiers were never hunted during his time because there was no demand for it. Ondoy used to hunt *tingaw* or civet cats when he was young and noticed nowadays a fewer number of this specie. Molave (locally known as tugas) and yakal trees are also depreciating in numbers. This is because of their high demand for furniture and construction. Some old houses in this area are built with such hardwood and have endured the test of times. Although it is the common practice of some residents within and without the periphery to replant trees when one cuts it, trees which are not native to the forest are replanted such as mahogany and gemilina. Mahogany and gemilina are common trees which people use to plant in this area because it can grow in just five years. However, access to fresh and potable water has always been scarce in this area. This is primarily because of the karst feature of its hydrology. Although there has been no drastic record of epidemic blamed on poor water resource during the past five years, the water quality is still lower than the standard.

Most of the respondents admitted a slow degradation of the natural ecosystem. They have recognized disappearance and some decline in numbers to particular animals, insects, plants and trees. This has been verified by a research conducted by the Soil and Water Conservation

- **Ecological Problems and Nature Abuse**

This node describes the views, opinions and experiences of the local people on some ecological problems and nature abuse done by both some members of the local community and adjacent villages outside the karst area.

One of the perceived problems identified by the people themselves is solid waste disposal system. Remote villages which are very difficult to reach by road suffer the most. The local governments lack garbage trucks to collect solid waste. Hence, people result to burning their solid wastes or dumping it in open spaces.



Foto 12

Picture shows an open dumping area shared by the entire community
Foto: Aparece, 2008

Water is scarce in this area, thus, the local people have high value on the bodies of water within the karst landscape. Communities which cannot be reached by water pipes fully rely on rain, water, streams, springs and rivers as their main source of water. However, there are still some misconceptions that surfaced during the discussions. People believe that the strong current of water in rivers would clean wastes such as detergent residues. People also have the misconception that the water has its ability to clean itself. And because people think, that the wastes they have thrown on water are just very minimal, it is not really a primary concern. Accordingly, it would also be more convenient for women accordingly to wash their family's soiled clothes directly in the rivers or streams considering the distance of this area to their household which is relatively far. However, the local people have also reserved streams for drinking where washing is not allowed. Though water pollution is not considered a big problem in this area due to the relatively small population, persistent abuse of the bodies of water would eventually lead to a destruction of this scarce resource. Moreover, most of the local people also believe in water spirits. The local people believe in "tiaw" or spirits, who are responsible in protecting the water. Even skin diseases caused by bathing in contaminated water are accounted to be caused by the "tiaw".

Moreover, the local people complain that most of the destruction within the karst area is not caused by the local people themselves but by outsiders or of the people living within the boundaries of the protected area. The local people confirm reports of illegal mining activities, although small scale in nature but still existent. They also confirm reports of small scale logging activities which are prevalent in the area.

According to the results of the PRA conducted by the SWCF, William Granert put into detail the problems identified within the karst area, namely:

1. Disregard of Ecological Processes and Life-support Systems

- Open pit mining reducing forest and other vegetative cover
- No Karst landscape management program to protect underground water resources
- A fragmentation of forest areas leading to reduction in natural regeneration

2. Destructions of Genetic, Species and Habitat Diversity

- Mining in geologically sensitive formations such as cave areas
- Conventional farming practices that reduce diversity and remove native plants
- Bio-prospecting and bio-safety (indiscriminate use of pesticides)
- Few programs to protect and conserve the flora and fauna of the island province
- Establishment of monocultures of exotic species that negate goals of food security and biodiversity enhancement and replacement of forest and agricultural lands with monocultures and exotic species
- Encroachment in critical ecosystems (protected area)
- Degradation of critical habitats both inside and outside designated protected areas
- Forest cover and biodiversity is continuing to decline
- Illegal collection and selling of wildlife
- Inadequate knowledge from scientific research as to flora and fauna species, population size and location in Bohol

3. Unsustainable Use of Resources

- Existing regulations inhibiting the proper management of proclaimed watersheds and reforestation areas; protection and production issues in protected areas like wildlife poaching and hunting, illegal collection of resources and illegal cutting of trees

- Non-systematic approach to water resource management and inefficient water service facilities
- Few major water conservation sites in agricultural areas
- Over-utilization of soil resources causing soil erosion, nutrient loss and low productivity

4. Degradation of Environmental Quality

- Environmental and human health problems in the vicinity of mining activities
- Erosion and risk to coastal, other downstream areas and the marine environment from chemical and other wastes due to mining and other extensive resource
- Exploitation activities in the uplands, improper waste management systems, unregulated dumping and absence of efficient sewerage and liquid waste disposal or treatment facilities in all municipalities
- Poor attitude of the people regarding management of their wastes
- Poor enforcement of air quality regulations especially industries and vehicles
- Indiscriminate burning of crop residues (rice hulls, straw) household wastes and dumpsites

The report of the SWCF confirms the following ecological constraints within the karst area:

The lack of awareness in community about the importance of protected area management coupled with the insufficient manpower and logistics.

The present condition of both flora and fauna is under threat from illegal cutting of trees/timber poaching, extensive forest clearing/slash and burn cultivation which have caused habitat destruction like the tree roads of bats and foraging trees. Faunal population is depleted due to unregulated trapping/hunting. Abandoned denuded areas are invaded by cogon grasses, climbing bamboos, shrubs and other unwanted weed species.

Sustainable use of renewable and harvestable resources- planted exotic tree species to be subjected to agricultural harvesting practice for sustainability.

Quarrying and Mining Activities

There were some reports that came to the office of the governor of Bohol that quarrying has leveled off some of the chocolate hills. This prompted the then governor (now

Congressman of the third district) Erico Aumentado, to issue Administrative Order No. 3, series of 2006, which prohibits the issuance of quarry permits and favourable endorsements of mining permit applications in Carmen, Batuan and Sagbayan towns, to forestall any degradation of the Chocolate Hills – no matter who the applicants might be.

The chocolate hills have already been declared geological monuments and are covered under the National Integrated Protected Areas System (NIPAS) for which the Department of Environment and Natural Resources (DENR) is the lead implementing agency. Aumentado accentuated the important role of the provincial government is exerting in preserving and maintaining the natural wonder of the Chocolate Hills which includes –the plains between, connecting and surrounding them since they are part and parcel of the heritage the Boholanos need to share to the world. His government prohibit quarrying and mining activities in the three towns. Through this effect, Bohol Environment and Management Office (BEMO) denied all quarry permit applications or renewal and requests for favourable endorsements of mining permit applications. The Mines and Geosciences Bureau (MGB) of DENR was also requested to deny all mining permit applications or renewal in the named towns. The DENR, however as an independent national agency may not follow the orders of the local government. Hence, there is a conflict of power between the national government and the local government. There were some instances that the DENR issued permits thereby creating more friction between the national agency and the local government. There is also a dilemma on the the jurisdiction of protected landscape. The NIPAs law specifies that this is the jurisdiction of the DENR, but when local government decisions come in conflict with DENR policies, conflict arise since protected landscapes are local political territories according to the Local Government Code of 1991.

The provincial mining ordinance aims to regulate and control growth and development of the province through the promotion of agro-industrial ecotourism development, within the context of wise management and utilization of natural geological and cultural heritage of Boholanos. The law prohibits quarrying in protected and watershed areas.

While the demand for mineral materials from Bohol is still at its minimal level, it is advised to establish a framework and mechanism that set a maximum quarry area of 20 hectares for each permittee, and for each kind of permit depending on the type of operation being applied for.

The local legislators extensively deliberated on the regulatory powers and penal provisions as it re-enforced RA 7076 or the Peoples Small-Scale Mining Program.

The Bohol Mining Ordinance contains 17 articles, 46 sections and 17 kinds of permits that will mitigate the impact of the operation and ensure environmental sustainability.

Oil palm industry

One of the growing concerns of the local people in this karst area is the establishment of the palm oil industry in the nearby villages which has been supported by the government. Concerned citizens are worried of the further deforestation because of the new palm oil plantations. The current palm oil plantation in Matinao, Carmen Bohol which stretch an area of 7000 hectares is planned to be extended 10,000 hectares more. (Manila Bulletin, May 2007). According to Junjie Madronero the Karst Officer of the SWCF, the oil palm plantation is inimical to the karst region of Bohol because oil palm is not endemic in the Philippines and thus requires the use of extensive fertilizers. Moreover, this would place a threat to further deforestation of the remaining forest areas in Bohol. Humabol, a militant group in the province of Bohol slammed conversion of lands into oil palm plantations and the policy that opens up agricultural lands to industrial zones and the plantations for bio-fuels. (The Bohol Chronicle, April 20, 2008)

Fr. Raymund Estillore expressed his concerns, *"Malaysians are also coming with their oil palm plants. Thousands of hectares in interior Bohol, including Carmen, are now planted with oil palms which are not native to Bohol but Malaysia. Fertilizer and insecticides for these palms destroy the land and water springs because Bohol is based on limestone and those chemicals easily creep underground, polluting our underground springs and water sources. Oil palms compete with the already growing plants and native coconuts. Monocropping places this fragile pristine area at danger. This is what Boholanos are proud of being a home to different species of flora and fauna."*

Macky Ferniz said, *"Of course monocropping is bad for the soil and the environment. As well as the biodiversity. Some Malaysian companies are buying lands in Mindanao under the names of influential people, for this purpose. In fact it is already happening as I am writing this. Not only the biodiversity is affected, but the indigenous people who are residing in that area will be displaced or relocated, just to be owned by few rich people. This is unethical and should stop!"*

Bolingit explains, *"The commercial and industrial uses of coconut oil and palm oil are basically the same. So there is absolutely no need for the Philippines to start getting into oil palm production because its coconut industry is already well-established. What is needed here is to enhance the coconut industry some more to maximize production of coconut-based products as well as maximize agricultural output of coconut plantations by intercropping with other high-yield products"*

He further added, *"Well, it looks like the oil palm industry in Bohol is beginning to reap its initial harvest. I just hope that the government will take measures to ensure that prime agricultural lands, such as rice land areas, are not converted to oil palm plantations. If they insist on planting oil palm, it should be limited to either marginal areas or sloping areas that are not suitable for vegetable and/or root crop production"*.

The rising demand of oil palm is resulting in tropical forest being cleared to establish new palm.

V.2.3 Livelihood

Theme Question:

What is the common source of livelihood in your area? Is your livelihood dependent to the Karst area?

How important is the karst area to the livelihood of the local people?

- **Source of Income/Place Dependence**

This node describes how the local people are dependent of the karst landscape. It evaluates the local people's way of life and livelihood, and how their livelihood which is primarily agriculturally based is dependent on the entire landscape.



Foto 13

Rice plantation surrounding the Chocolate Hills in Carmen, Bohol.

The social importance of this karst landscape is not only expressed through cultural pride, but most importantly through its value on agriculture. Most of the local people rely much on agriculture as their primary source of livelihood, hence, the explaining functional dependence of the people to the landscape as it is the means of their livelihood. Nong Ondoy exclaims, *"Farming is the only thing that I know, I did not went to school since my parents were so poor that is why I am so much dependent on this landscape, If this is lost, then I will lose my life and livelihood too."* While most of the parents find much importance and meaning in formal education, their physical survival is their utmost priority. Leny, a teacher shares her experience, *"Some of my students just drop out from school because their parents cannot afford to send them to school anymore, and because they need to help in the household economy. Some of the students opt to stop school to help in their own farm or work as stone gatherers while*



Foto 14

Farming remains to be the main source of livelihood for the Boholanos.

since the boost of tourism in this area, she has invested in handicraft industry. She shares, *"The boost of tourism in our area gave us an opportunity to develop our own industry. My parents have been basket makers all their life, but they did not just have the wider market to sell their produce."*

Most of the families in this region are large, consisting of 6- 10 members. There are some families which have 12 -15 members. Some families have still the traditional agricultural thinking where having more children would mean more helpers in farms. Wilma pointed out; *"Though I am happy because I have a lot of brothers and sisters, I am sad that most of us were not able to go to school because my parents don't have enough money to sustain our education. We were obliged to work in the fields we don't even own. "*

some are being brought by their parents to the towns to work as house helpers at an early age of 9. This is the sad reality."

Most of the people living in this landscape depend on the resources within the landscape. Jenny is a young entrepreneur, her family has lived in this

landscape for generations and

- **Poverty Reduction**

This node describes the local livelihood systems, and poverty alleviation measures in this protected landscape it also describes how the local industry is improving because of the eco-tourism promotion of the province of Bohol and the concerted effort of its stakeholder for the development of their own province. Through the concerted efforts of non-government organizations, local industries such as handicraft – mat weaving, basket making and livestock and poultry raising are improving.

As a way to alleviate poverty, Bohol has been into partnerships and cooperation with several international aid organizations. One of which is the Australian Agency for International Development. A memorandum of agreement has been signed by former Bohol Gov. Erico Aumentado with Hassall and Associates International (HAI) to implement community-identified needs and priorities under the Philippines-Australia Community Assistance Program (PACAP) for at least another five years.



Foto 15

Weaving is one of the leading handicrafts of the Province of Bohol.
Foto: Magallanes, 2011

There are composed of two major project components – the Focas (Focused Community Assistance Scheme) and the RAS (Responsive Assistance Scheme). Both of these components are major strategies to pull Bohol out of the top 20 poorest provinces list of the country.

According to the AusAid International, the international funding agency which finances the FOCAS Project, “FOCAS works only in specific geographic regions and around carefully chosen ‘themes’. FOCAS encompasses a portfolio of related projects that are either 'landscape' and/or 'thematically' based, each covering one or more barangays or municipalities.”

The Australian Agency for International Development (AusAID) and the National Economic and Development Authority (NEDA) are the major implementing organizations of the project; they oversee and monitor individual projects in provinces.

Ms. Rosalinda Paredes, a known personality in the civil society of the province of Bohol co-chairs the Provincial Stakeholders Committee. She explains the uniqueness of AusAID-PACAP which focuses on building and promoting projects through responding to through the needs of the local community and establishing networks and with local government agencies and local government units to ensure sustainability of the project. Hence, the FOCAS project is a hard and daunting process, which requires above anything else capacity building and technology transfer to communities and local government units.”

The Focused Community Assistance Scheme (FOCAS) in Bohol has a grant of Php 53.5 million aimed to improve living standards of at least 8,240 households in Bohol's 87 poor barangays.



Foto 16

A woman making bags with the use of indigenous materials in the town of Bilar, Bohol
Foto: Magallanes,2011

In Bohol, there are four major FOCAS areas 1: Sustainable Agri-Business and Enterprise Development in Northwestern Bohol, 2: Enhancing Ecological-Cultural Tourism in Central-Eastern Bohol, 3: Sustainable Agriculture for Food Security and Economic Development and 4: Water and Sanitation

According to the FOCAS point person, May V. Blanco, the four major areas of FOCAS features the following specific projects -Sustainable agri-business projects and product development centers in raffia loom weaving, baliw, romblon, bamboo crafts and coconut processing in six towns of Bohol. Ecological-cultural tourism focuses on salabat product development, crop and handicraft production and traditional products site development in 8 towns. Sustainable organic agriculture features mainly on organic rice production in 4 towns. Water and sanitation brings in water development, information, education and communication, policy and micro-watershed management in all of PACAP's 17 town sites.

Local development planning offices of the respective local government units together with non-government organizations assisting the capability building programs of communities identified sustainable agri-business and enterprise development, ecological and cultural tourism, sustainable organic agriculture and water and sanitation projects. These are also reflected/ integrated in their sustainable development plans.



Foto 17

Sculpted tarsiers ready for painting. A popular souvenir item in Bohol. Foto: Magallanes, 2011

The FOCAS projects aims to promote local partnerships. The 87 barangays (villages) have been identified and validated by the local Bohol Poverty Reduction Management Office database centered at the Provincial Planning and Development Office. Ten non-government organizations conducted community capacity building projects to insure sustainability when when these projects are turned over to respective communities.

The Responsive Assistance Scheme (RAS) funds the 430 million projects to protect and develop Watershed Areas. These are nearby watersheds, strategically important to the Karst area of Bohol. Carood covers six towns while the Inabanga Watershed covers 10 towns both in Bohol's northeastern basin.



Foto 18

Finish products being displayed at a cultural and handicrafts center in Sagbayan, Bohol . Foto: Magallanes,2011

The development of micro, small and medium-sized enterprises (MSME's) have been long considered as important instruments in fighting poverty in rural areas. There is an increasing support for SME development projects in the recent years and stakeholders and partner

agencies and organizations have accumulated experiences in this area. Some of the projects designed to support the SMES are credit access, capability trainings, facilitation of market access, the development of networks, the provision of information in a variety of areas, such as equipment, technology and markets, as well as physical facilities and shared services.

In order to give more boosts on the sleeping economy, the government took opportunity on tourism to promote livelihood in this region. The "eco-tourism" program, designed to promote the environment through controlled and pro poor tourism strategies. These strategies provide additional employment to the community. There has also been a gradual progress in businesses and services attached to tourism, like handicraft, delicacy production and transportation and tour companies, also including private vans and jeeps which are used as van/jeeps for hires for private tours and the "habal-habal", an extended motorcycle which is a common means of transportation in this area.

Eco-tourism

This node describes the eco-tourism development efforts done by the local government and local opinion of eco-tourism.

The protected landscape follows the national definition of ecotourism. This



Foto 19

Local residents presents their traditional dance „kuracha“ in a cultural tourism campaign on a raft floating in Loboc River, Loboc, Boho, Philippines

definition states that ecotourism is a form of sustainable tourism within a natural and cultural heritage area where community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics as well as economic benefits are fostered and pursue for the enrichment of host communities and satisfaction of visitors.

The development of ecotourism facilities and products in and adjacent to RSPL incorporate a major orientation of the Province of Bohol's poverty reduction program.

This perspective is brought to RSPL ecotourism because of its great development potential for the area. Much of the eco-tourism concern of the province is focused on the Chocolate Hills, while less is given much attention and promotion on RSPL.

There are certain characteristics of ecotourism that can enhance its pro poor potential. These are its ability to be labor intensive, inclusive of women and the informal sector, based on natural and cultural assets of the poor and suitable for poor areas many of which are rural in location. There is also a need to diversify livelihood through non-farm activities.

During the PRA conducted by the SWCF, the expected impacts of pro poor tourism on local people are the following:

1. Small but very significant earnings of poor individuals from PPT initiatives
2. A wide range of non-financial livelihood impacts that reduce vulnerability of RSPL such as home stay program, self-esteem and cultural immersion.
3. A potential fair dispersal of benefits among the poor residents of the community

In addition, other positive livelihood impacts include the development of skills, improved access to information, infrastructure, credit and market facilities and strengthening of community organizations. Less tangible are such changes are renewed pride, optimism and more participation in decision-making processes.



Foto 20

The local government of Bohol exerts much effort in the promotion

A „buri“ plantation in the town of Batuan, Bohol. “Buri” is a plant popularly used in weaving baskets and mats.

Foto: Magallanes,2011

of eco-cultural tourism. However, eco-tourism is not as popular as commercial tourism. This is because the number of tourists in an Eco-tourism site is being controlled. Moreover, there are lesser facilities in Eco-tourism sites and the security of doing such activities is not guaranteed. Some tourists are cautious of their safety doing forest/mountain river trekking and etc. because of the presence of bandits and rebels in this area. Accessibility and a road network are also a hindrances to Eco-tourism. Some

eco-tourism areas are not easily accessible by vehicles though this maybe argued that this is a part of the eco-tourism package to maintain the savage setting of the



Foto 21

A local farmer shows how to prepare a buri plant in making handicraft products such as baskets and mats.

Foto: Magallanes 2011

community. Eco-tourism is not well advertised compared to commercial tourism. The provincial government has reaped its fruits in 2006 when Bohol was declared as the prime tourist destination of the country by the Department of Tourism. Much of this effort can be credited to the Boholanos themselves who have migrated to another city or to a foreign country serving as informal tourism agents of Bohol, promoting the island to their friends and acquaintances abroad.

Likewise, the reaction of respondents on the influx of tourists in Bohol has also been varying. Most of the residents living in the hinterlands do not feel much comfortable of the commercialization of tourism in their place. Businessmen feel blessed with the boost of

tourism in the province. Tourism attracts people from all walks of life, and promotes business and social activities. Most of the benefited sectors, such as businessmen in general, resort and hotel owners, handicraft industry, local delicacy production in particular are favourable for the development of tourism in the area. Through the promotion of tourism, jobs are created; such as tourist guides, waiters, cooks, hotel and restaurant managers, and even luggage porters, bus owners and drivers, and habal-habal (a local transportation which is actually a motorcycle improvised to accommodate a maximum number of five passengers) drivers. The challenge of tourism is sustainability since it is primarily dependent on tourists' influx. Tourism has provided livelihood to some people but this is not sufficient enough to sustain the needs of the people living in this area

- **Community Development through protection**

In a research conducted by the Ecological and Community Resource, Incorporated (Eco source) and the Soil Water Conservation Foundation (SWCF), using eleven (11) barangays of the Municipality of Bilar and neighbouring towns comprising RSPL, found

out that poverty reductions measures were successful alongside with the promotion conservation and protection of the environment's biodiversity. The projects that were being evaluated were; potable water, agro-fishery, nursery, livestock integration, soil and water conservation farming and micro-credit. There has been an increase of livestock production in the barangays of Bugang Sur, Canlambong, Cambuyo, Datag, Anonang, Banderahan, Botong, Lantang, La Victoria, Marawis and Maubo of the municipalities of Bilar, Garcia-Hernandez, Valencia, and Dimiao.

The research and evaluation was participated by of the RSPL Protected Area Management Board (PAMB) composed of the local government units surrounding the landscape and various national government agencies particularly the Department of environment and Natural Resources (DENR),.

Since one of the major problems in this region is the access to potable and clean water, this has been the major concern of government and non-government projects. The evaluation confirms that six barangays to have improved to level 2 and other 6 barangays of level 3. Other successes include the creation of 55 water associations in the protected landscape.

V.2.4 Landscape Beauty

Theme Question:

How do local people visually perceive their own landscape?

- **Beauty, according to the local people**

Human beings relationship with their environment can somehow be manifested through changes in the landscape. The interaction of human beings with their landscapes forms, changes and even alters the natural beauty of the landscape. Most importantly, that beauty is more of a cultural concept, certain interactions which factor the concept of beauty must also be equally considered. Hence, there is a need to assess certain landscapes, based on different perceptions from people living within and without the landscapes.

It must also be equally considered that physical features of a landscape have contribution to place attachment, the way people are emotionally and socially attached to

their landscapes. Beauty promotes personal attachment through joy and fascination that landscape brings.

Parsons and Daniel (2002) contend that if the physical features changed, there could be a possibility that the meaning that people attached to a place can also change.

Landscapes do continually change, factored by both human and environmental consequences. The ecological deterioration of a landscape would also have an impact to scenic beauty. Better appreciation of the landscape could lead to the adaptation of sustainable practices by users.

This node describes the cultural concept of beauty. It details people's means of appreciation of the finer things in life, most important it illustrates how people visually perceive their landscape.



Foto 22

Built structures on top of a hill at the Chocolate hills Natural Monument in Carmen, Bohol,
Foto: Travel Tour Bohol

Impression of beauty was varying in each of the group. Some would define their concept of beauty according to universal understanding, accepted principles, exemplary or uniqueness and plainly the reason that it's beautiful. Some of the residents also expound their concept of beauty based on their social experiences.

In an effort to explain how social experiences affect perception of beauty, Anita share her personal experience, *"I love this place, this is beautiful. My family lives here and I have beautiful memories here."* This statement reflects the respondents' attachment to the landscape because of its natural beauty, and her emotional-sentimental bonds such as her family and her memories in the place.

Some people would define presence of physical infrastructures, an indication of development and found such presence an addition to the physical enhancement of the landscape. On the other hand, some people would argue to preserve the natural form and structure of the landscape and insisted in the abolishment of permanent concrete structures present in the area. Should physical infrastructure be necessary, the creation of roads giving access from farm to market would be emphasized. Physical structures constructed for tourism development were recommended to be complimentary to the nature and kind of the landscape and should be in congruence and harmony



Foto 23

with nature. Instead of concrete cottages, *nipa* (local palm used in the roofing of farm houses) huts constructed with bamboos were proposed. In such a manner, the natural beauty is preserved through the maintenance of “wilderness” of the place.

Hanging bridges are common in this landscape, which are important ways of crossing small rivers from one village to another. Foto: Heberer, Boris

Most of the local people agree that the preservation of the natural beauty is essential and dreams that the children of their children still enjoy this gift of nature. Coring even articulated,

“The beauty of nature is a gift that everyone should enjoy. This is given to us by God for free. The best thing we can do is to maintain it. It is my best hope that my grandchildren and their children would still enjoy the beauty of this place, since much has change during the past years.”

Most of the old people in the community expressed their feelings for the landscape in figurative language. Guido jokingly compared the beauty of nature to a woman which he shared,

“The beauty of nature is like of a woman, we enjoy being with her because of their beauty and the more we get from it, the more we want it and sometimes we forget we are destroying her by wanting more than she can give.”

This statement would coincide with the GAIA theory, that the environment is a mother, a female, nurturing individual, capable of giving love and life to its children. Moreover, it is also consistent with the legend of Maria Makiling, depicting the spirit of the environment to be a beautiful woman.

The sense of social responsibility of the tenured migrants is reflected by their simple way of living. Instead using harmful fertilizers, most of them prefer organic fertilizers. Their produce is not aimed on a large scale basis but only on daily sustenance and some little profit. Residents who are bored with the idyllic life in the villages flee to Manila and other metropolitan cities in a hope for better opportunities. People's sense of beauty is affected by their emotional, cultural and social connection to their environment. Mario even said that the karst landscape is beautiful because it provided them resources to survive in their daily lives. Hence, the concept of beauty in this area is not only in the aesthetic sense but more of social and economic significance. Inday added, "*The Chocolate Hills have always amazed me, but more than its beauty and its attractive brown colour during the summer what more can I ask for?*" Moreover, Maria takes pleasure on the landforms of the karst area because according to her it is simply beautiful, stating, "*I enjoy taking a walk around the forests, mountains and hills because it is simply beautiful. The sight of the landscape makes my journey enjoyable.*"

Sometimes it's the provincial setting which makes the karst landscape attractive. Jake, a worker living in the city always finds his solace in the karst landscape, "I always find my peace here. The fresh air, the beautiful landscapes, and the delicious local food make me feel im in another world"

Edyong commented that the Chocolate Hills is beautiful because this has been nominated to the seven natural wonders of the world. Anding supported this statement by adding, "*Scientists, researchers and international tourist find this landscape magnificent, it must be beautiful.*" The respondent considers the landscape to be beautiful based on the perception of people with authority.

Kevin, an American tourist, when asked to describe the landscape simply said; "*Breath-taking!*"

- **Uniqueness**

This node describes how the uniqueness of the landscape is perceived by the local people.

The uniqueness of the forms of the Chocolate hills, the variety of the landscape structure, the different bodies of water and the biodiversity of the RSPL reflect the distinctiveness of this karst area. This feature has defined and has given a landmark to the tourism industry of the province, more than the beautiful beaches it can offer.

Sandro, a mountain climber and adventurer shares, *"Above anything else, tourists would surely enjoy the wide variety of choices this area can offer. It is blessed with so many gifts, that it gives every nature lover more."* John, a British tourist noted, *"I've been to a lot of places but I've never been to place where you can have everything you want. One even compared the Chocolate Hills to the pyramid of Egypt," It's truly overwhelming to see this hills resembling the form of the pyramids of Egypt and on an important note, it is not man-made but a natural gift!"* Jackie, a student from Manila but hails from this region proudly boasts the uniqueness of the Chocolate hills to her classmates, *"The defining*

feature of Bohol and perhaps the Philippines is directly at our backyard" while she added, *our land and our culture identify who we are as people."*

Mayor Mahinay of the municipality of Batuan quoted, *"It is the*

centrepiece of the tourism industry of Bohol."



Foto 24

The picturesque Chocolate Hills of Bohol turns slightly brown in early summer.

What makes a landscape unique more than its physical attributes is the culture attached to its geography. Bohol has been a favourite tourist destination not only because of its beaches and landscapes but because of the cultural activities which serve as major highlights during festive seasons. People who would simply taste the life in the *Barrio*

(Spanish word which connote a remote village), would have a great cultural emersion in Bohol.

Tey, a development worker shared her life experience in Bohol: *"When I came here in 1999, I did not plan to stay. I was here for a 3-month research project, but I felt in love in the place and I did not notice that it has been 10 years then. There must be something unique in this place which attracts people "*

- **Abundance of Scenery/Deterioration of scenic beauty**

This node describes the sentiments and emotions of the local people on different varieties of sceneries within the landscape, and their view on the deterioration of scenic beauty caused by the destruction of some parts of the landscape

There is a wide variety of landscape forms, bodies of water and caves in this area. This area is characterized by mountainous form which is common in the Philippines. There are some valleys and plains where the local farmers can cultivate. There are also different bodies of water such as streams and underground streams, small lakes, creeks and rivers in this area. It is an important note that the RSPL and the Chocolate hills are drained by watersheds in this area. Dodong said, *"The variety of the landscape provides us with better opportunities of livelihood, water source and local recreation. "This only reflects that the karst landscape provides a sustainable livelihood for the local people. Anding explain her thoughts on variety of this landscape:" I've never been bored in this place. There are a lot of things to see and to do because of the variety it offers. I could enjoy mountain trekking, go cave spelunking, go swimming in rivers, or just play in the plain fields. As a landscape with rich biodiversity, I could enjoy the presence of indigenous animals unique in this place."*

Mayet, a tourist from Manila shared her thoughts; *"Bohol has almost everything to offer because of the many things its landscape has to offer. I love taking a bath in warm springs or in waterfalls, go shopping in town markets. The quietness and relaxation in the place relieves me from the stress in the city. And if I need to reconnect to the urban life, the main city, Tagbilaran is just an hour drive."*

V.2.5 Conflict and Community

Theme Question:

How do the local people live as a community? What are the social issues and concerns surrounding the karst landscape?

- **Family and Community**

This node describes the sentiments of the local people on how the landscape means to them as a community, as a family. It also details the repercussion of protection which left some members of the local community unemployed forcing them to pursue greener pastures in other cities or abroad. This node also describes how endemic poverty could cause the destruction of the family.

Women play a very important role in the social and economic development of the community. Values are basically honed at home and mothers are responsible for the inculcation of these values. Values form the image of the society and define a community. Women are still viewed as the care-taker of the family and the stewardess of



Foto 25

Children play basketball after a tiring work from the field.

family and community values. Common to the Philippine society is the explicit role of women as a home-maker. That is why some of the women in this community are unemployed while they preferred to spend their time taking care of their children. Parallel to the important role of women in the family is women's active participation in

community development. Practically, all of the barangay health workers are women. Not only because this job is stereotypically assigned to women, but because women accordingly have innate nature to care. However, on the other side, men's role is basically on peace-keeping as almost all of the barangay tanods (guards) are men. Practically, those recruited and trained as forest guards are generally men. The social consciousness in this community is deep because of the widespread and long presence of the revolutionist guerilla movement.

Since most of the Boholanos are devout Catholics, the family planning advocacy in this community is still a great challenge. Majority still adhere to the teachings of the church. Other reason could also be blame to the macho culture, where Filipino men consider it an insult to their masculinity if they are asked to use a condom. Lack of access to proper information and facilities has further contributed to poverty since families have a norm number of 7-10 children, more than the parents can feed and support. Typical not only in Bohol but in the entire Philippines, is having a children of four which could extend to as much as 14 or 15. A family of six would be happy to have an income of Php 150 a day. There are also lesser barangay health centers, workers and facilities compared to the existing need of the community.

Although some women are engaged in informal domestic occupations like laundry, firewood collection and helping their husbands in the farm, there has been a slow dramatic change of roles of women in this community. Confronted by endemic poverty, some women opted to work as domestic helpers in metropolitan cities like Cebu and Manila. There are even reports that some women being lured to prostitution and trafficked to Manila and even abroad, particularly Penang, Malaysia. Women have become economic partners at home, complimenting the income of the father or even at some instances taking over the role of a "bread winner." Men are still the decision makers though women in some families are taking the role of the bread winner. In the absence of their mothers, the eldest female child assumes her role at home. Some children are forced to stop school to replace the social role of their mothers, as home makers, taking care of their younger siblings. Some also decided to stop school to work in order to help the economy of the family. For poor families which cannot afford elementary education, is the ability to read and write enough. They would contend that one would not be fooled anymore, if you know these rudiments of learning. Children as young as nine are trained to work in the farms. Children who grew up in this type of communities tend to mature earlier. However, children still find ways to play as this is the balancing agent of their lives. Most of these children are confronted with the bitter realities of life and hence are left with no other choice but to work in order to survive. There is currently no data available which documents the extent of child labor in Bohol. Sadly, this is because child labor is condoned and tolerated in the Philippines. And for most of the Boholanos, work is a sacred value that everybody needs to embrace. Most of the poor people also marry early even when it is not legally effective. There so much

pressure for children to help in the economy of the family. This has become of vicious cycle of generations, which tolerate children in the hard labor. While this kind of situation is typical in far flung areas, where the economy is stagnating and agriculturally based, child labor is also very much existing in urban areas.

- **Tenured Migrant Communities**

Tenured Migrants are the people who are actually continuously occupying a portion of the protected area for the period of at least five (5) years before the establishment of the area as a protected landscape as such in accordance with the NIPAS act and are solely dependent therein for subsistence. (NIPAS Act, 1992) In the study conducted, it was found out that there is a slim participation of the Local Government Units (LGUs) in the social preparation of the tenured individuals and communities and in the issuance of the monitoring and evaluation of the Tenure Instruments. This could be the effect of the NIPAS law specifying the DENR jurisdiction over Protected Landscapes. Protected Landscapes are originally local territory which management is taken over by the DENR through the NIPAS Act. Most local governments have a "hands-off" reaction to this law although they have a mandatory membership in the Protected Areas Management Board. The only involvement of the LGUs is basically ceremonial or endorsements of Tenured Instruments. There is no apparent synergy and continuity of work from the advisory and policy making role of PAMB through the management and implementation role of DENR. Most often than not, local government come into conflict with DENR. There is a struggle and dilemma of power between the national agency and the autonomy of local governments. DENR is one of the government agencies which are still not devolved. In the Local Government Code of 1991, it clearly mandates the LGUs' responsibility in managing and maintaining the ecological balance of their territories however, certain devolved functions of the DENR specifically on the social and community-based forestry programs are not properly implemented due to limited technical personnel and unclear procedures. The full authority over the protected areas is practically taken over by the DENR as the central coordinating agency of the Protected Areas Management Board (PAMB) which manages the protected areas. It must also be noted that the terms and conditions described in the instruments – Community Based Forest Management Agreement, Protected Area Community Based Resource Management Agreement and Certificate of Stewardship do not specify the roles of the LGU.

There is lack of participation among the tenured individuals and communities in the formulation and implementation of plans for their socio-economic upliftment. The Benefactor- Beneficiary relationship is still very apparent. This relationship must be developed through more local participation in all levels of governance. Though, in some degree, there is popular involvement and participation in the "dirty work", meaning to say, clean-up drives, and in assumption of tenured migrants to the role of forest guards. A major challenge for the tenured individuals and communities is the fulfillment of their obligations according to the tenure instruments while improving their economic situation without compromise on ecological stability. Most of the LGUS do not integrate socio-economic development plans of tenured individuals and communities - Community Resource Management Framework (CRMF), Community Resource Management Plan (CRMP), and Project Stewardship Plan (PSP) in their local development plans. This problem still goes back to the dilemma on territory. Most LGUs consider protected areas as independent territories, beyond their control and management. Most of the LGUs think that the tenured individuals and communities are within the jurisdiction of the DENR. This is the reason why some of the tenured individuals and communities are getting insecure of their social and economic status.

Non-government Organizations (NGOs) are at some point taking over local government functions because of local governments' incapability to plan and implement development measures. Most of the government workers lack expertise; knowledge and experience in development work since majority of those are appointed thorough nepotistic means. Meaning to say, the local governments are practically dependent on NGOs on their expertise and their ability to look for funds. Major funding organizations always require local governments to partner with NGOS in the planning, programming, resource mobilization, implementation, management, evaluation, and sustainability of development plans. NGOS have a problem in sustaining programs for the People's Organization (POs) of the tenured individuals and communities due to lack of funds. NGOs technical expertise is being utilized by the government to support programs that aims to develop the social and economic condition of the tenured individuals and communities. NGOs are entrusted by external funding organizations to provide assistance to LGUs in their development programs through skills and capability building, improvement of farming technologies, through solid and water conservation measure, effective financial management, and building partnerships and linkages.

It is also further observed that there is minimal involvement of PAMB in the activities of the tenured individuals and communities inside the protected areas. PAMB only assumes the advisory role although it is tasked to administer, manage, and regulate activities of a protected area through the General Management Planning Strategy (GMPS). While it is needed that the CRMF and CRMP adhere to the GMPS, this is seldom done because there is lack of cooperation and linkages between the PAMB and the tenured People's Organization (PO). PAMB composition is represented by; DENR regional director, the provincial development officer, the barangay captain of the respective village, and representatives from local NGO. However it must be noted, that the PAMB has more representation from politically elected officials, namely, the barangay captains. In this case, the barangay captains have 33 seats representing the 33 villages they represent. There is also no substantial logistic assistance provided by the PAMB in the promotion of PO development. Tenured individuals and communities always have fears to be evicted from their lands because of the nature of the tenure of their lands since forestlands cannot be privately owned. This is in spite the guarantee that Tenure Instruments give them an assurance that they cannot be unjustly evicted from their lands, and their right to stewardship is maintained so long as they follow the stipulations of the Tenure Instruments. Tax declarations are considered as proof of land ownership. There is still an apparent conflict between management and administration of protected lands between DENR and LGUs since, the LGUs still continue to levy tax on protected lands since it is a political administrative territory of the LGUs. Tax declarations are considered by land claimants as proof of ownership which is in conflict with the provisions of Tenure Instruments. Tenured individuals and communities are anxious about the new provisions of the Protected Area Community Based Management Agreement (PACBRMA) which provides a new zoning system – restoration zones. Under the provisions of PACBRMA, restoration zones are not eligible for tenure. There are considerable number of tenured individuals and communities who are living within restoration zones but the DENR does not exert any effort to resolve this problem which confronts people who are practicing traditional farming and residing in restoration zones. The tenured individuals and communities are skeptical and suspicious about the interventions of DENR because of abrupt changes of Tenure Instruments without proper social consultation. The change of the tenure instrument -from Certificate of Stewardship (CSC) to Community Based Forest Management Agreement (CBFMA) has created distress, uncertainty and left tenured individuals with so many some questions

unanswered. Tenure instrument in the end does not guarantee a lifelong security of tenure.

- **Education**

Educational opportunities are scarce in the Philippines and it is not an inherent right but a matter of privilege. Although preparatory education-elementary and high school is basically free in the Philippines, the availability of such institutions of learning is a growing problem. Not to mention the problem on poor school facilities, educational materials like books and work sheets, and the scarcity of teachers, the educational system itself is plagued with problems which originate in a culture of corruption. The problem in education is attached with so many social problems which influence pupils learning ability. It is discouraging for pupils to go to school with an empty stomach and that they need to walk kilometers, crossing streams and shallow rivers just to reach school. Much of the children who finish elementary prefer not to proceed in high school. This is because there are lesser barangay high schools in their area and a high school education would mean additional cost. To some families, ability to read and write, and most importantly knowing how to write their own names is enough. Most of the parents and some children informally interviewed have great ambitions in life. Almost 80 percent of the female children want to be a teacher. Teaching is a status profession in the provinces. The students themselves see the deficiency of teachers in their area.

A Boholano student is considered lucky if he is able to finish high school. Some are even contented of their elementary diploma. Only few students are lucky enough to reach college. Most of them are self supporting, doing household jobs, or working as part time waiters in fast food restaurants. Although there are few government-owned colleges in Bohol, students still need to pay tuition fees. This is though relatively cheaper compared to private colleges. School projects are financially demanding. Most of the technical colleges do require voluminous projects which the individual student must shoulder the cost. Education on the other hand is very much important for the Boholanos, some middle class families would even sell their animals during examination periods just to pay their children's tuition fees. Rice farmers would sell their harvested rice and buy a cheaper corn grain, just to save money for their children's education. Parents work hard to invest on the education of their children. Most of the Boholanos still believe that education is a way out of poverty. It is a social pride and a trophy when one in the family is able to graduate college. That is why education is considered a

family investment, because if a member of the family becomes successful, he or she is then socially obliged to financially support the family.

- **Social conflict**

This node describes the social unrest caused by the protection of the karst landscape particularly in chocolate hills areas where, lands previously privately owned are declared public due to the protection measure.

Social conflict in Bohol has been a chronic problem for years. This can be dated as early as the Spanish occupation during the Dagohoy resistance. In modern times, social struggle has escalated to a different level and influenced by left leaning sectors whose aim is to overthrow government and introduce communist ideology. These groups take opportunity in the economic and social situation of the people, taking hold on poverty, as an important instrument to lure people to cross over. In far flung barangays, where there is a minimal presence of government, people are attracted to communist promises to redress grievances and fight social injustice. This political agenda is in disguise of changing society and empowering them, concealing the real objective of government take over. Most of these organizations promote distrust on government credibility.

Real empowerment is through education and not through politically motivated social campaign. In areas where literacy rate is low, where governmental processes and activities are scarce and strange to the people, where government is practically absent, the introduction of new political ideologies provides an alternative view to the local people.

The Chocolate Hills Natural Monument

Presidential Proclamation 1037 is a proclamation signed by former Fidel V. Ramos which declares the Chocolate Hills as a natural monument. The declaration of the Chocolate Hills as a natural monument escalated social uprising which has been deeply rooted in land ownership. This has worsened the already delicate private property ownership situation in the province. There have been claims of land grabbing in the past but this time accordingly, is a government sanctioned land grabbing where private property within the Chocolate hills periphery are practically considered public lands and hence inalienable. Kinabuhi Network, a non-government organisation claimed that the provincial government main objective in this policy declaring the site as a natural monument is commercial tourism while disregarding the welfare of the local people. Lands within the Chocolate Hills which were formerly private disposable and alienable

lands are not in reality declared as government property. The power of eminent domain exercised by the government is not at all outright acquisition of private lands but putting much into specification that: "All public and private lands within, around and surrounding the hills shall not be converted to other purposes which are inconsistent with the objectives of this proclamation. In effect, though private lands are not outright converted into public lands, the change of land use has in effect converted these lands into public domain, where the government takes full control and management "The proclamation expounds,...." regardless of the existence of prior private rights, no activity of any kind including quarrying which shall alter, mutilate, deface or destroy the hills shall be conducted." The objective of this law is protection, but most often, protection measures come in conflict with private property ownership. The law provides a regulation and prohibition clause which limits private rights as spelled by the proclamation. Landowners are not allowed to alter, modify or change the landscape for any other reason not stated in the objectives of the proclamation aimed at protecting the landscape of its beauty, social and scientific significance. This means, that though they still possess their land title, their eminent right of use and exploitation over their private property is abrogated. Protection, resource management and tourism posed major challenges to the Chocolate Hills. The declaration consequently caused some social unrest, resulting in almost simultaneous civil uprising, led by the New People's Army establishing a new 'front', known as the Chocolate Hills Command. To some farmers, the proclamation is a government scheme which suppresses their right to own lands. But it must be noted that this law did not take away the right of the farmers to till their lands so long as it does not alter, mutilate or destroy the landscape. Some agricultural activities are still allowed. There seems to be a problem in government communication with its constituencies. Had it been that the limits to land use are only clearly specified in the local planning ordinances, there could have been no social unrests. The government has a regulating function even in private properties within protected areas. A conversion from alienable to inalienable lands is at all not necessary. Planning laws should have been clear and specific in the first place. Ironically, even environmental protection which is in itself progressive in nature comes into conflict with communistic and socialist ideas. One might wonder the real objective of the communist group in leading an uprising against the government. The researcher interprets such a move as conflicting since environmental protection takes its roots from socialistic ideals, of commonality, and social benefit.

As such, conflicts between the "command" and government military forces escalated.

Enrico, 28 expressed his sentiments *"If this government takes away our very means of livelihood, then it might be better to cross over to the communists since they are more concerned with our rights."*

Before the proclamation, the Chocolate hills being alienable and disposable lands are seen as quarrying assets and a source of income for small-scale miners, as well as quarry materials for the province's construction projects.

Despite their protected status, mining permits are still being granted by DENR and local government units or LGUs. Hence, mining and quarrying still took place but the promulgation of Bohol Mining Ordinance bans all kinds of quarrying in the protected landscape. Moreover, the provincial government of Bohol has requested for the transfer of jurisdiction over the Chocolate Hills from the DENR to the provincial government of Bohol. However, this was not materialized, since the NIPAS law specifically delegates the power and jurisdiction over the management, control and protection of protected landscapes to the DENR.

Moreover, the late Atty. Juanito Cambangay, former provincial planning officer suggested, *"The provincial government proposes that the proclamation defining the natural monument should be changed."*

There are complaints of poor management and service at the government-owned and operated Chocolate Hills Complex and restaurant. The government has an economic development orientation which looks at development mainly on the economic aspect. Some of the challenges being considered by the government is: getting the national government to support the project; encouraging local landowners to sell their lands; and persuading the Protected Areas Management Board or PAMB which has jurisdiction over the chocolate hills not to block any move by the government which promotes investment in the area.

Getting investors for the development of the province is also difficult since most of them would not take risks investing their money on a politically instable environment, considering the strong presence of the New People's Army (NPA). The members of the NPA extort money from local businesses in form of a "revolutionary tax". Having refused

to pay, Mayor Torre Franca of Sagbayan, Bohol survived two assassination attempts since 1998, when the rebels firebombed his car.

The persistent land use conflict prompted former President Gloria Macapagal-Arroyo to sign an amendment to Proclamation 468 on September 26, 2004 declaring the land around or in between Chocolate Hills as no longer part of the national monument. This amendment allowed the development of lands surrounding and within the Chocolate Hills by the provincial government and other private corporations which may have interests over the area, provided that it follows the provisions of relevant laws, particularly the NIPAS Act. The PAMB has however full jurisdiction over the control and management of the area. This is likewise supervised by the DENR. Further, the amended proclamation ensures that the areas that have to be preserved are preserved. This is however not clearly defined, but could be specifically elaborated in the implementing rules. Those areas that could be developed would be excluded from the national monument area and classified as alienable and disposable by the government hence reinstating the private rights of the private owners. Problems seen by planners is that the change and development of the lands surrounding and within the Chocolate Hills may alter the natural beauty of the landscape, thereby giving way to the establishment of concrete built structures which does not harmonize with the natural setting of the landscape. Some members of the civil society also have fears of too much commercialization of tourism in the Chocolate Hills.

A bill was proposed in the House of Congress by the Boholano legislator Eladio Jala House Bill No. 01147 entitled "an act declaring the Chocolate Hills as national patrimony and geological monuments, penalizing their plunder, destruction or defacement, and for other purposes in July 6, 2004. This was co-authored by Congressman Roilo Z. Golez and Edgar M. Chatto. Because of lack of political support, this did not materialized into law.

These laws sufficient as it may seem does not have any meaning without proper implementation by the respective government agencies concerned. The discrepancies in the issuance of the DENR clearance, the political intervention of interested cronies and the mere neglect of the roles and responsibilities have been the primary concerns of the protection. A lot of complaints aired out by concerned citizens regarding the politicizing of environmental issues and concerns. Anita remembered, *"Should the*

*DENR was not neglectful of its duties and responsibilities, the issuance of the environmental clearance to greedy mining companies could have been prevented**

On May 16, 2006, the Department of Environment and Natural Resources (DENR) submitted the Chocolate Hills to the UNESCO World Heritage Centre for inclusion in the list of Natural Monuments because of its outstanding universal value, falling under criteria vii - superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance. The protection, management, authenticity and integrity of properties are also important considerations.

There is also a problem of definition of a natural monument. According to the NIPAS Act of 1992, a natural monument is a relatively small area focused on protection of small features to protect or preserve nationally significant natural features on account of their special interest or unique characteristics. Covering an area of 14, 435 hectares stretching across five (5) municipalities (Bilar, Batuan, Carmen, Sierra Bullones, and Sagbayan) is not at all small. The classification of the Chocolate hills must be updated to Natural Park which is a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding natural and scenic areas of national or international significance for scientific, educational and recreational use. (NIPAS Act 1992)

V.2.6 Policies

Theme Question:

How are the local people involved in protected area management?

Perceptions on Karst Policies

There are varying responses as to the knowledge of local people about Karst policies. There was a common understanding on why the protection policies were formulated and this was because of the protection of the landscape and the preservation of biodiversity. Some of the respondents also claimed that though the letter of the law maybe protection, the real intention of which is the commercialization of tourism in the province under the guise of eco-tourism.

Lorenzo expressed his sentiments, *"The government does not care about the welfare of the people living within the karst area, they are only concerned about commercializing*

tourism and selling the protected landscape” Lisa added, “*Tourism is a floating economy which is primarily dependent on the influx of tourists. In my own opinion, this does not benefit the majority of the local people but only a few investors. Moreover, it does not provide sufficient sustainable employment opportunities* “. This has been verified by Eddy, that there is a lack of opportunity to develop local handicraft as a consequent economic prospect to Bohol’s tourism saying, “*Not only that the competition in the handicraft industry in Bohol is very stiff, the opportunity to develop local handicraft in our region requires more training and initiative that needs material and technical support from government agencies and other organisations.*”

Most of the better educated (high school graduate and tertiary) residents who are not personally affected by the protection policy because their nature of work is not inclined to agriculture are favourable to the policy. Local businessmen think that this would boost local economy because of the influx of tourists and such would open doors not only in the field of tourism but other business establishments as well. Many of them believe that tourism would ignite other business activity, because of the increased social activity in the area. The creation of new roads, bridges and other infrastructure according to Franco would attract investors. Mario who owns a trucking business explained, “*This is a good opportunity for people like us, who may not be actually working in the field of tourism but are benefited in ways such as better roads and more clients.*” Eco-tourism has been popular government campaign during the time of Gov. Rene Relampagos. “This has placed the province of Bohol back to the limelight and has taken the province outside of the list of the poorest provinces in the Philippines according to Rep. Edgar Chatto, author of the Tourism Act of 2008.

On the other hand, some also have positive views of the protection policies. To note, Carlito indicated, “*Should there were no protection policies formulated in regulating the exploitation of our environment, we should have already lost all our means of livelihood.*” Andoy inserted, “*The protection and preservation of our natural resources must be given legal shield through policies*”

One of the apparent problems that are faced by the Karst area of Bohol is management. Respondents have aired their sentiments of lack of consultation. The “*barangays*” (village) assembly which provides for avenue for participation and consultation still fails to meet this end. Information mechanism in the village level needs reinforcement. The value of participation must be inculcated through information. Because of the very

dynamic political culture in the Philippines, this process is hard to achieve in all villages. Local village officers contend that proper consultation procedure was conducted prior to the formulation of the proclamations. Linda, a barangay health worker who is also utilized as *barangay* "messenger" relaying important barangay announcements during her household visits claimed, "*Although the government exerts effort to extend participation of the local people, these efforts will prove to be futile until the government reaches its physical and functional presence to the people.*" In a society struggling from centuries-old problem of structural poverty, the province of Bohol suffers from the failure of the government to provide social and physical infrastructure for social development.

Most of the residents claim that the consultation mechanism is not efficient and that residents from far-flung villages do have difficulties going down the barangay (village) centres. The response of the people from upland (far-flung) and lowland (downtown villages) village varied. Most of the upland villages are not in favour of the declaration and see no benefits in the protection proclamation. They feel that they were not being involved in the consultation process and find no ownership in the law. Most condemn that certain private property rights are being curtailed and the limitation to the use of the forest has been detrimental to their livelihood.

Most of the respondents were not aware of the existence of the Protected Area Management Board (PAMB) implementing and policy-making body of the karst area. Only chieftains of the villages covered by both the Raja Sikatuna Protected Landscape and the Chocolate Hills Natural Monument have a good knowledge of the functions and compositions of the board since they have a corresponding representation in the board. Even the PAMB itself is hounded by controversy and criticism. The board only meet once every quarter and members of the board clandestinely need representation fee although this is not required by law since this is their subsidiary function of their official duties as public officers. The lack of representation fees made some members of the board not participative or even inactive. The researcher was also informed that the board cannot convene when there are no snacks provided by the convening committee.

- **Participation in governmental processes**

This node describes people's involvement in government processes, from policy-making, planning, programming, resource mobilization, implementation, monitoring and evaluation.

Analysis of the PRA revealed that the protection mechanism geared to safeguard the protected landscape has to some degree failed, particularly in the area of participation. This is because there was a slim direct participation of the local people in during the conceptualization of the plan. Moreover, if there is such thing as participation, it was nominal and rubber stamped because educational campaigns were not accordingly conducted. People were still not aware of the pros and cons of the protection mechanism. The current framework of participation in local development programs is only focused on implementation. Less has been focused on policy-making, programming, implementation, resource mobilization, implementation, monitoring and evaluation and sustainability programming. The involvement of local stakeholders in all levels of governance is necessary to achieve sustainability in protected area management. There is only one non-government organisation working in this area and the NGOs have only three seats in the PAMB.

Emmie, a development worker explains that although local stakeholder participation has gained recognition through the years, the actual management of protected areas must rest on the local people and that non-government organisations are only there to provide technical and material support to the people in form of programs. She added, "*Participation must be a value that needs to be sown and developed in the Philippine culture. Non-government organizations are only there to guide the local people, sooner; they have to take full control and responsibility of the development projects*". Marisa affixed, "*Participation must also likewise strengthen Filipino social values such as bayanihan (association and belongingness expressed by helping one another) and pakikisama (comradeship)*." Filipinos in general are not individualistic. The tribal Filipinos identify in their tribe and their place as their common domain. The tribal Filipino is like a tree that is rooted on something more than himself his family, his clan, his "tribe".

- **Multi-stakeholder participation**

This node describes the involvement of the different stakeholders which ranges from the church, academe, private organizations, business and people's organizations.

The participation of the stakeholders in the karst landscape is very wide. Bohol has been a model for stakeholder participation in the Philippines. There are wider avenues for participation in governance. The City of Tagbilaran, Bohol has been famed for instituting civil society participation in governance. Nicolas a development worker shares her experiences: *"The representation of different sectors in governance is a real practice of democracy." More and more members of the civil society and even the local people themselves are attracted to this avenue of participation.* Bantog shares his opinion, "Governance has transcended to a higher level, where the people are the main actors of their own development." This just apparently show a shift of paradigm that while most of the people rely much on the government, some people are forging effort for the betterment of their own community and be self-sustaining in their own development. A critique in multi –stakeholder participation is expressed by Nang Lina; she claimed that the sectors / stakeholders are not representative of the local people-resource users. Representation accordingly must first qualify the criteria of belongingness which implies that the sector representative must earn social acceptance and approval. She thinks that local people's representation is dominated by intellectual elites, think tanks and educated stakeholders. She fears that these stakeholders are only concerned with their own agenda. Real people participation should be done without any influence of experts, government representatives and other groups who have interests in the karst landscape. Experts should only play a minimal role in the facilitation, and may exhibit their scientific/technical opinion but in the end, the decision must rest on the people.

- **Factors that may hinder participation**

This node describes the factors identified by the local people that may hinder their participation.

There are several factors identified that may hinder participation. One is the lack of enabling mechanism (or avenues of participation). Although as mentioned there are wider rooms for participation in protected area management, much of it is concentrated on project implementation and policy making. And the avenue for participation in policy-making is limited to politically elected representatives and non-government organizations. There is a growing demand for direct people's participation in formal or informal avenues particularly in decision making. The lack of information dissemination is also considered to be one of the factors that hamper participation. Most especially to people living in far flung barangays, information has been very scarce and proper education, information and campaign must be conducted so as to penetrate the grassroots of the community and win their social approval. Information must be well understood in their native language understandable to them. Marita shares, that "...*pulong- pulong*" and barangay assemblies must be done often and must spread through the far flung barangays." "*Pulong –pulong*" is informal gathering of people in clusters discussing social and political issues confronting their own community while barangay assemblies are formal government processes where it is normally conducted when a policy, program or project has been proposed by the local government. This is also a form of public hearing where the people are given the opportunity to participate in decision making but sadly, this process has been nominal and rubber stamped so as to comply with the consultations requirements provided for in the Local Government Code of 1991. Local ordinances are not written in local languages. The strong American influence in the legislative system in the Philippines allowed the use of the English language as the official legal and governmental tongue, in oral deliberative and written governmental instruments. Local people have a hard time dealing with a foreign language. Though campaigns, consultations and informal discussion are conducted through the use of the local language, the law itself is not translated in the vernacular form. This promotes exclusivity of participation of the local elites who are better educated and disregards participation of individuals who are not equipped with the facility of the English language. There is also an increasing distrust on the government. Some people are so detached from governmental process and activities. Communities

are isolated from the external world through social and geographical boundaries. Communities lack the delivery of basic social services, like health, education, poor security and shelter. There is a neglect of maternal and child health in remote communities. Some mothers do not even consider the registration of new born babies important. Some parents do not even know the actual age of their children. There is a high maternal death rate during delivery. There are no prenatal check ups of pregnant women. Immunizations are conducted very seldom. More children die before reaching the age of one because of minor infections. There are very few barangay roads. Most of the remote barangays are not adequately supplied with water and electricity. What seems to be the problem is the political and economic focus on cities, while neglecting the barangays.

The inefficiency on delivery of basic services and the corruption issues hunting publicly elected officials, prompted the local people to be skeptical about the government. Most people feel they are neglected by the government since most of their needs and concerns are not properly addressed. The lack of political will of the public administrators to establish participation mechanism is a major challenge to participation. Marnie agrees that the government should bring itself nearer to the people and a strong political will is needed in widening participation in the spirit of democracy.

V.2.7 Participation and Politics

Theme Question:

How does politics play an important role in environmental management? Describe the relationship of public and private sectors? What role does each stakeholder take in the protected area management?

- **Government and public organizations**

This node describes the eminent role of the government in protecting the karst



Foto 26

A rough rural farm to market road like this is the only way farmers could bring their produce to the town markets.

are very critical to both present and future situations. Every decision maker has a different development framework and only few have been able to infiltrate the real meaning of sustainable development and apply it to their own development policies. Programs and projects are also political perfumes for a political elected public official who wants to remain longer in office. Since most of the environmentally-friendly projects are not normally appealing to the people since its effect cannot be seen at an instant, most of the time, policy-makers sacrifice environmental concerns in lieu of popular demands. One of the main concerns identified by the local people is the lack of farm to market roads. Some villages tend to be totally isolated from the outside community

landscape, and how decisions of policy-makers directly and indirectly affect the environment and the very lives of the local people...

It is a major thrust of new governance to anchor all its policies on sustainable development principles most especially when it

concerns the environment. Decisions of policymaker

because of lack of roads. A paradigm shift must be focused, not only to change the framework of policy makers but importantly of the people as well. Environmental advocacy must reach through the roots of the society through consistent and widespread information campaign.

- **Relationship between the public and private sector**

This node describes the relationship between the government and the private sector in the protection management of the karst landscape.

There is confusion on the specified role of stakeholders, non-government organization and the government on management, control and authority over the Protected Landscape. The roles and functions of each organization are so vague and are overlapping from each other. Much of the problem actually lies on financial management. Every organization would like to take control of the financial aid allocated for the project. There have been incidents of mud-slinging between the DENR and the Non-government organizations on allegations of corruption and malversation of public fund. There has been accusation of bribery on DENR on the issuance of mining permits. The power relations between these three major actors of the karst landscape are so critical to the point that it is already affecting the project itself. As a national heritage, the national government has legally control over the land. As a local territory, the local government assumes control and management over the protected landscape while Non-government organizations take credit for bringing funds, intellectual expertise to the project. The national government, because of its centralized hierarchical system more often fails to see local issues and concerns in details. Local governments would like to be more independent, exercising autonomy as prescribed by the Local Government Code of 1991, but there are governments agencies like the DENR which are still not decentralized and are operating on a national level. Neaps Law however delegated the power and control over the protected landscapes to the Protected Areas Management Board (PAMB) composed of village heads of concerned protected areas, planning officers, local government officials and non-government organizations. However, the PAMB only operates upon control and supervision of the DENR as the central coordination agency. The local government unit though thinks that they should have more control and involvement in the land, feels that they only play a supporting role. Their participation is only afforded through membership in the PAMB.

A good example of conflict between government and the non-government organization is the management issue the Raja Sikatuna Protected Landscape.

This has brought so many repercussions on the development of the Raja Sikatuna Protected Landscape and the welfare of the people themselves. The feud between some government officials and the Soil and Water Conservation Foundation (SWCF) has escalated which resulted to the abrogation of funds release by the NZaid, a international funding agency of New Zealand for one of Bohol's major eco-tourism projects, the RSPL after it after it found "questionable use of funds and implementation methods" by the Department of Environment and Natural Resources (DENR). Moreover during an interview with Mr. Bill Granert of the SWCF, he accused a DENR officer for misuse of funds. SWCF executive director William Granert said that the counterpart funding from New Zealand was part of a P10-million grant for the bio-diversity conservation and poverty reduction of the Rajah Sikatuna National Park which covers 29 barangays.

The New Zealand Aid Evaluation Team found out that during the first year of the project implementation, little was accomplished from the P1.3 million released by the New Zealand Aid (NZaid)..Granert also claimed that the project is tainted not only of allegations of corruption but of nepotism: *"the project appears to be an employment agency for people from Manila... who have little knowledge of the local situation."* Garnert is irritated that the control of project funds is on DENR Manila, whose people have no ground rooting and hands on experience. Garnert accuses the DENR of not supporting the community based project implementation. He contended that the DENR people are only interested in the control of funds... He added that there should be more livelihood programs for the people, and people should be more involved in the planning process of the project.

The entire Rajah Sikatuna landscape covers 29 barangays within the Loboc watershed and interior towns. The watershed is one of the main suppliers of water to Bohol's rivers. Other foreign governments such as the European Union have also poured funds into the project.

In a separate interview with Provincial Environment and Natural Resources Officer (PENRO) Eduardo Inting, he denied the allegations of Granert.

The NZaid eventually abrogated the 1.8 million funds in 2008 because of these controversies.

There was an investigation conducted by the Local Government Council in order to resolve this issue. Consequently Sangguniang Panlalawigan (Provincial Council) Committee Chair on Environment Alfonso Damalerio II authored a resolution filing appropriate charges against the perpetrators of the neglect and mismanagement of the Rajah Sikatuna Protective Landscape (RSPL). The problem was, the perpetrators were not identified hence the resolution was futile. As of now, nobody has been charged or put in court for the said allegation. There has been a move in Congress to amend the law on integrated protected area fund (IPAF), that these funds must be directly given to RSPL Protected Area Management Board (PAMB). Accountability should be improved through transparency in the disbursement of funds. A research in aid of legislation was conducted by the provincial parliament and they found out that the major problems in the project include : conflict of interests between stakeholders; lack of feasibility study for the project; there was also a lack of transparency and accountability on the project which is a conducive breeding ground for corruption. This is a classic example of power struggle between stakeholders, most especially when money is involved.

- **Corruption and the environment**

This node details how endemic corruption could directly jeopardize the environment and how the politicians benefiting from these corruptive processes perpetuate its vicious cycle.

Accusations of corruption are the government is nothing new. In fact, it is already part of the system since time immemorial. The challenge is how to minimize it. Grace a development worker agrees, "*There are of course direct and tangible effects of corruption to the environment.*" Government and non-government funds which have been allocated for the environment is most often time malversed. The DENR still issues mining permits although Bohol through its Mining Ordinance bans mining in any form in protected landscapes. Though the problem on illegal logging is not so serious in Bohol compared to the provinces in Central and Northern Luzon, this has also been slowly threatening the very habitat of the rich biodiversity species in Bohol. There are also unconfirmed reports of smuggling of tarsiers with the knowledge of the local officials. Before the small scale quarry has been banned in the interior towns of Bohol, the Chocolate Hills itself was threatened to lose its natural beauty because some of the hills

has been quarried by large corporations in the island. *"Everybody points their finger on public officials, since none of these could have happened without the knowledge of the public official concerned"*, Lito recalls.

- Relationship between the national government and the local government Units

The promulgation of the Local Government Code of 1991 paved way for a more decentralized system of government in the Philippines. This newly found independence proved to be problematic to some degree. This gave local government executive more powers in local government operations and fiscal management. This power became the breeding ground for localized corruption and abuse of power. This is the reason why there are certain agencies and governmental functions which are not devolved. The national government has a control and oversight function of the local government units through different offices and agencies namely; the office of the Ombudsman which prosecute cases of corruption of public officials; the commission on audit which accounts and audits local government spending; the Department of Environment and Natural Resources which manages, protects and controls the natural resources and executes measures to protect and conserve the environment and the Department of Interior and Local Government which supervises the police and the local government units. . The non devolutionized functions of the DENR created conflict between some local government units and the DENR. Local influencing factors must be considered such as: local political culture; local actors of development; and the capability and openness of local chief executives. In cases of protected landscapes though the management and control is under the Protected Areas Management Board (PAMB) composed of locally elected public officials and local non-government organizations representatives, the actual implementation of the policies being formulated by the PAMB is carried over by the DENR. The friction starts when the DENR asserts its national authority, and the local government units claim its self autonomy. The top- down management imposed by the DENR has proven to be ineffective through out the years. Environmental Management must be local based, since resources are local in nature. The function of the national body should only be monitoring so as to respect local autonomy. Autonomy and decentralization should be enforced in full, otherwise a hybrid form of decentralized government would only create confusion and conflict between the national and local government.

VI. Chapter VI

VI.1 Quantitative Research

This chapter presents the quantitative approaches and methodologies used in the study. It also includes the presentation of the quantitative data and its interpretation.

Methodology

VI.1.1 Survey

A survey was conducted in seven municipalities namely: Batuan, Bilar, Carmen, Sierra Bullones, Garcia-Hernandez, Valencia, and Dimiao. The respondents of the survey were randomly sampled from the total population. A survey is defined as a method of collecting and analyzing social, economic and geographic data. This is used to collect quantitative information about items in a population. This may focus on opinions or factual information depending on its purpose. For lack of human resources in conducting the research, a questionnaire method, where the respondents administer the survey themselves was conducted. This is commonly known as self administered survey (Ornstein, 1998).

VI.1.2 Internet Survey

In order to capture the responses of the International community on their visual perception of the karst landscape of Bohol, the researcher made use of the on-line internet survey through the assistance of Michael Roth, a research scientist of the Dortmund University of Technology who have used the same technique in his research: Validating the Use of Internet Survey Techniques in Visual Landscape Assessment – An Empirical Study from Germany. Invitations were sent to experts in the field of spatial planning; landscape planning, natural resource workers who are interested in the topic and development workers working in similar field.. At the same time, respondents from the Philippines were sought.

According to the method designed by Roth (2006), several other means were taken to ensure the acceptance of the online survey and to increase the number of participants by reducing the amount of dropout (for the first three techniques cf. REIPS, 2002):

- high-hurdle technique (e.g. collection of personal data at the beginning, decrease of the amount of text page per page),
- warm-up technique (practice of rating before the real experiment start),
- one-item-one-screen design (each rating on a separate web page),
- incentive (raffle of Bohol landscape photos),
- response time measurement

The obligation to maintain secrecy was ensured by the possibility to leave all demographic data fields blank and the separate storage of demographic data and evaluation results. For identification only the e-mail address, and for localisation of the participant the name of the country, was used.

To investigate potential methodical biases resulting from different means of input, every second person was presented a text field to directly enter their scoring instead of the graphical rating scale with numeric marks shown in figure 1.

The participants had to evaluate up to 8 digital landscape photographs regarding four (4) criteria (beauty, variety, well-being and uniqueness) used in landscape planning. The experiment was online from 26 October 2008 for three months. Respondents were acquired through advertisements on several web sites, in online forums and e-mail newsletters. A documentation version of the web questionnaire can be visited at: http://www.llp.uni-dortmund.de/web_survey/cxtzaanj/

Detailed steps of the online internet visual landscape assessment are as follows:

- (1) Technical explanation of using the online questionnaire
- (2) Identification of Multiple Participation
- (3) Collection of demographical data
- (4) Description of the visual landscape assessment techniques
- (5) Introduction with the explanation of the research
- (6) Warm-up/practice page with either graphical rating scale or text field
- (7) evaluation of 8 digital landscape in photographs

Methodology	Data Gathering Procedures	Target Participants	Focus
Survey	Questionnaires	Resource users- Tenured Migrant Communities Residents within the vicinity of the Karst area	Validation of the Qualitative Research data, additional data
Internet Survey (visual landscape assessment)	On-line questionnaires	International community	Visual landscape assessment in terms of beauty, variety, uniqueness and well- being

Summary of Methodologies Used in the Quantitative Research
Table 7

VI.1.3 Description of Procedure

The quantitative research is composed of surveys and online visual landscape assessment. Survey research is a research method involving the use of questionnaires and/or statistical surveys to gather data about people and their thoughts, behaviors and attitude towards a certain question. Visual landscape assessment is a method used by landscape planners to assess the different visual perceptions of people on a landscape. There are four categories being considered in the study; beauty, variety, uniqueness and well-being.

Statistical tests were performed on the quantitative through a combination of tests conducted in SPSS version 17 software. Descriptive statistics were used to provide an overview of the demographics of the survey population, which included age, gender, education and length of stay and occupation. Data reduction through principal component analysis reduced the 30 items into 12 dimensions. The object value of the new dimensions was employed as the new data set used in the testing of the hypothesis.

Sampling Frame

The population was examined to generate a sample of people living around Raja Sikatuna Protected Landscape and the Chocolate Hills Natural Monument. The sampling frame of the survey region consisted of 100 people over the age of 18 years. The target respondents of the research were heads of families. This could be the father, the mother or the eldest son or daughter. Upon the visit of a particular house, this would be

identified by the family themselves. The survey was conducted through the aid of research assistants to sampled residents in the region. A simple random sampling method was conducted to determine the actual respondents of the research. Each family is chosen randomly and entirely by chance such that each family has the same probability of being chosen at any stage during the sampling process and each subset of k families has the same probability of being chosen for the sample as any other subset of k families. (Yates, 2008) When a family is chosen to be a respondent, the family then identifies their head of family. Most commonly, fathers or elderlies are chosen to be heads of family, however there are some instances where the father is not available, or sometimes delegates this to his eldest son or daughter. The delegation of the informal title of head of family exists when the father fails to function as such because of illness or other reasons as it may apply. Sometimes sons and daughters who are acting as bread winners may take over this function. The researcher aims to filter opinions of decision makers at home. A disadvantage to this sampling system is that other strata like gender considered to be important might be neglected. However, looking into the descriptive statistics, there is a seemingly fair distribution of gender. Descriptive statistics that were gathered through the survey included the respondents' age, education, gender, and length of stay, education and occupation. When the demographic data from the study was examined against the 2007 census data, the results found that the study represented a snapshot of the demographic profile of the region in regard to age, gender and education.

Age	Gender	Length of Stay	Education	Occupation
30 (21 to 30 years old)	55 (Male)	5 (5 to 10 years)	51 (primary/elementary)	49 (Blue collared jobs)
24 (31 to 40 years old)	45 (Female)	18 (11 to 22 years)	43 (high school)	11 (White collared jobs)
25 (41 to 50 years old)		77 (23 years or more)	5 (college/university)	40 (Unemployed)
11 (51 to 60 years old)			4 (post graduate)	
10 (61 years old and above)				

Demographic Profile of Respondents

Table 8

The demographic profile of the respondents is shown above. Of the one hundred (100) respondents, there is a fairly good distribution of age, from different brackets. There is

slightly more male respondents than female respondents since the target respondents were the heads of family. There are only five respondents who live in the karst area of not more than ten (10) years while others live relatively longer in the area. Majority of the respondents are in the primary/elementary level of education, forty three (43) are in high school and only a handful made it to college. Most of the respondents are blue collared workers, and forty (40) are unemployed. It was then found out that local residents only consider jobs with formal employer and contract to be real employments. Jobs which are not formally registered like laundry washing, selling afternoon snacks, house cleaning are not considered to be employments hence 40 of the 100 residents consider themselves unemployed,

The online research was carried over 8 months on the net. It was able to capture responses of 82 respondents from ages 18 to 68 years old. Participation in the online survey came from different countries, such as Germany, Philippines, United States, Japan, Myanmar, Cambodia, and China.

VI.1.4 Data reduction

The researcher makes use of the **Principal component analysis (PCA)** as the main instrument to reduce the data. The reduction of the data is required for a large data with thirty different environmental world views/perception in order to narrow down and create a shadow of the said data. It involves a mathematical procedure that transforms a number of possibly correlated variables into a smaller number of uncorrelated variables called principal components. The first principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. PCA involves the calculation of the Eigen value decomposition of a data covariance matrix or singular value decomposition of a data matrix, usually after mean centering the data for each attribute. The results of a PCA are usually discussed in terms of component scores or loadings (Shaw, 2003). PCA is the simplest of the true eigenvector-based multivariate analyses. Often, its operation can be thought of as revealing the internal structure of the data in a way which best explains the variance in the data. If a multivariate dataset is visualized as a set of coordinates in a high-dimensional data space (1 axis per variable), PCA supplies the user with a lower-dimensional picture, a "shadow" of this object when viewed from its (in some sense) most informative viewpoint. The table below shows the correlation through

transformed variables. Significant to consider in this table are the Eigen values. The researcher conducted a maximum of four tests, while eventually deciding on four dimensions as the PCA requires dropping other dimensions with Eigen values lower than 1.

Interpreting factor loadings: By one rule of thumb in confirmatory component analysis, loadings should be .7 or higher to confirm that independent variables identified a priori are represented by a particular component, on the rationale that the .7 level corresponds to about half of the variance in the indicator being explained by the factor. However, the .7 standard is a high one and real-life data may well not meet this criterion, which is why some researchers, particularly for exploratory purposes, will use a lower level such as .4 for the central factor and .25 for other factors call loadings above .6 "high" and those below .4 "low". In any event, component loadings must be interpreted in the light of theory, not by arbitrary cutoff levels. In this case, the researcher used 0.6 as an indicator to confirm representation of a component.

	Place2	Place7	Place9	Place6	Place1	Place4	Place8	Place5	Place10	Place3
Place2	1.000	-.079	-.118	.126	.106	.074	-.018	-.245	-.086	.243
Place7	-.079	1.000	.220	-.332	-.140	.044	.168	-.032	-.014	.007
Place9	-.118	.220	1.000	-.032	.184	.025	.098	.078	.016	.137
Place6	.126	-.332	-.032	1.000	.116	.183	-.184	.074	.020	-.047
Place1	.106	-.140	.184	.116	1.000	.046	.028	.006	.027	.117
Place4	.074	.044	.025	.183	.046	1.000	.064	-.017	-.093	-.182
Place8	-.018	.168	.098	-.184	.028	.064	1.000	-.122	-.252	.068
Place5	-.245	-.032	.078	.074	.006	-.017	-.122	1.000	.211	-.201
Place10	-.086	-.014	.016	.020	.027	-.093	-.252	.211	1.000	-.054
Place3	.243	.007	.137	-.047	.117	-.182	.068	-.201	-.054	1.000
Dimension	1	2	3	4	5	6	7	8	9	10
Eigen wert	1.667	1.582	1.284	1.247	.942	.790	.714	.662	.583	.527

Through Correlation of Transformed Variables, Place Attachment
Table 9

The above table shows that dimension 5 to 10 are being dropped since its Eigen wert lower than 1. The PCA therefore only considers dimension 1, (place 2) dimension 2,

(place 7), dimension 3 (place 9) and dimension 4 (place 6). The four dimensions are the shadow of the actual data set and serve as model in the analysis. Most importantly, the object values which are the result of the PCA computation shall be the new data set to be used in the testing of the hypothesis.

Code Place	Place Attachment	Component Orientation	D1	D2	D3	D4
2	I feel no commitment to this Karst Landscape	No attachment	.132	.701	-.015	-.114
7	I feel like Bohol Karst Landscape is a part of me	Place Identity	.544	-.476	.021	.095
9	Doing what I do in this Karst Landscape is more important to me than doing it in any other place.	Place Dependence	.274	-.214	.652	.385
6	I do not feel that I relate at all to this Karst Landscape	No attachment	-.551	.452	.041	.322
1	This Karst Landscape is the best place for what I like to do	Place Dependence	-.044	.338	.599	.326
4	I identify with lifestyle and values of the people who live here (or come) this Karst Landscape	Community Identity	-.070	.140	-.280	.743
8	Living in this Karst Landscape says a lot about who I am.	Place Identity	.615	-.035	-.113	.318
5	This karst landscape is very special to me	Place Identity	-.477	-.478	.228	.164
10	No other place can compare to this Karst landscape	Place Dependence	-.447	-.286	.375	-.269
3	Doing what I do in this karst landscape is more important to me than doing it in any other place	Place Dependence	.403	.411	.462	-.339

Normalization with Principal Variables

Component Loadings, Place Attachment

Table 10

The above table shows high positive loading on place 8, (0.615) on the first dimension. . In dimension 2, high positive loadings are revealed in place 2, (0.701). Dimension 3 reveals high positive loadings on place 9, (0.652). The fourth dimension suggests there are high positive loadings on place 4, (0.743).

On the first dimension, it reveals that it is highly correlated with Place Identity as it is shown that there is a high positive loading on place 8 which is reflective of such dimension. This dimension represents how people feel they are connected to the

physical place or features of the natural areas. It exemplifies how the physical aspects of the landscape define them as people. On the second dimension it correlates to the responses of some people who do not have any feeling of social and practical attachment to the landscape as revealed by a high positive loading on place 2. No Attachment- this dimension represents the view on people's detachment from the landscape, their lack of connection to the natural area in which ever means.

On the third dimension, the high positive loading is correlated to the component on place dependence with high register on high positive loadings on place 9. Place Dependence – this dimension represents the concept on how people are dependent on the functional purpose of the landscape. It could be their hobbies or livelihoods which are dependent to the landscape.

The fourth dimension reflects a high positive correlation on Community Identity as it registers a high positive loading on place 4. Community Identity – this dimension represents the concept on how people connect themselves to their community. Very much relevant to cultural identity, it is a feeling of belongingness to the social environment which is basically expressed in emotional and sentimental manner. The need for belongingness is moreover an important level in the Maslow's Pyramid.

Through Correlation of Transformed Variables

	Eco4	Eco10	Eco8	Eco6	Eco1	Eco9	Eco3	Eco5	Eco7	Eco2
Eco4	1.000	-.110	.165	-.290	.091	.118	-.001	-.136	.194	-.155
Eco10	-.110	1.000	.108	.019	-.209	.023	.036	.230	.159	.190
Eco8	.165	.108	1.000	-.300	.049	.069	-.103	.065	.132	-.133
Eco6	-.290	.019	-.300	1.000	-.004	.277	.020	-.009	.028	.030
Eco1	.091	-.209	.049	-.004	1.000	-.025	-.433	.046	-.193	-.753
Eco9	.118	.023	.069	.277	-.025	1.000	.086	-.046	.233	-.035
Eco3	-.001	.036	-.103	.020	-.433	.086	1.000	-.224	.174	.558
Eco5	-.136	.230	.065	-.009	.046	-.046	-.224	1.000	-.046	-.064
Eco7	.194	.159	.132	.028	-.193	.233	.174	-.046	1.000	.068
Eco2	-.155	.190	-.133	.030	-.753	-.035	.558	-.064	.068	1.000
Dimension	1	2	3	4	5	6	7	8	9	10
Eigen wert	2.338	1.573	1.392	1.347	.769	.719	.646	.539	.465	.212

Through Correlation of Transformed Variables, Ecological Orientation
Table 11

The above table shows that dimensions 5 to 10 are dropped, only considering dimensions 1-4, with the lowest considerable Eigen value of 1.347

Code Eco	Ecological Orientation	Component Orientation	D1	D2	D3	D4
4	Despite our special abilities, humans are still subject to the laws of nature	Human not Exempt	-.173	.713	-.218	-.147
10	There would be a time that all of our resources will run out because of human consumption	Limits to growth	.289	.059	.526	.504
8	When humans interfere with nature it normally if often produces disastrous consequences	Balance of Nature	-.181	.616	.332	.146
6	The ecological problems we are facing right now is because of human beings neglect of nature	Ecological Crisis	.144	-.548	-.457	.499
1	Human beings don't have the inherent right to rule over nature.	Against Domination	-.850	-.069	-.167	.050
9	Humans are severely abusing the environment	Ecological Crisis	.105	.213	-.520	.600
3	The so called "ecological crisis" we are facing is completely exaggerated.	No ecological crisis	.739	.127	-.197	-.201
5	There would be a time that the earth cannot support the huge number of people.	Limits to Growth	-.151	-.175	.600	.435
7	Plants and animals have as much right as humans exist	Balance of nature	.282	.528	-.173	.428
2	Humans have full control over the stewardship of nature	Human Domination	.888	-.061	.150	-.161

Normalization with Principal Variables

Component Loadings, Ecological Orientation

Table 12

The above table shows in the first dimension a high negative loading on Eco 1, (-.850) which implies that the score on this item variable is inversely related to the score of the component. This reflects the component pro ecological against domination inversely correlate to the component on Human Domination. This component represents pro-ecological views that are strongly against the domination of nature. This negative loading was caused by a question which was negatively oriented to the component. Dimension 1 further registers a high positive loading on Eco 2, .888 which positively correlates to the component on Human Domination. Human Domination – suggests the concept that

human beings are the absolute steward of nature. The control and exploitation of nature must be on the hands of the human beings. In the same dimension, another variable registers a high positive loading of .739 which represents the component on No ecological Crisis. This component tends to refute the claim that the world is facing an ecological problem. It supports the idea that the earth has enough resources and will regenerate these resources on its own even with deliberate human exploitation on earth's resources.

Dimension 2 registers high positive loadings in Eco 4, 0.713 which is highly correlated the component on Humans not exempt. This component represents a pro-ecological view that humans are not exempted from the laws of nature, and are governed by natural laws like the rest of the natural world. Furthermore it reflects high positive loadings on Eco 8, 0.616, which highly correlates on the component on Balance of Nature – this dimension suggests the concept that there should be a balance of the rights on every creature, living or non living on this place. Each creature in this planet has its rightful place.

In the third dimension, Eco 5, with high positive loadings of 0.600 indicates highly positive correlation to the component on Limits to Growth. This dimension represents the idea on carrying capacity of the planet which must be equally considered in making decisions at the present time. The limitations of growth must be foreseen long before irreversible damage could occur.

In the fourth dimension, Eco 9 registers a high positive loading of 0.600 which highly positively correlates on the component- Ecological Crisis. This dimension represents the thought that there are existing human practices which are destructive to nature which must be stopped or even minimized.

	Nat10	Nat6	Nat4	Nat9	Nat2	Nat1	Nat5	Nat7	Nat8	Nat3
Nat10	1,000	,167	,088	,002	,077	-,069	-,106	,559	,798	-,008
Nat6	,167	1,000	-,144	-,128	,044	-,061	-,057	-,012	,145	-,211
Nat4	,088	-,144	1,000	,016	,209	-,111	,071	,062	-,026	,111
Nat9	,002	-,128	,016	1,000	,108	,179	,111	-,091	-,048	-,043
Nat2	,077	,044	,209	,108	1,000	,055	,220	-,062	,011	-,036
Nat1	-,069	-,061	-,111	,179	,055	1,000	-,108	-,061	,003	-,331
Nat5	-,106	-,057	,071	,111	,220	-,108	1,000	-,172	-,042	-,093
Nat7	,559	-,012	,062	-,091	-,062	-,061	-,172	1,000	,604	,104
Nat8	,798	,145	-,026	-,048	,011	,003	-,042	,604	1,000	-,140
Nat3	-,008	-,211	,111	-,043	-,036	-,331	-,093	,104	-,140	1,000
Dimension	1	2	3	4	5	6	7	8	9	10
Eigen wert	2,378	1,504	1,418	1,174	,916	,818	,711	,492	,420	,170

Through Correlation of Transformed Variables, Nature Values
Table 13

The above table shows dimensions 5 to 10 being dropped, while maintaining dimensions 1-4, with 1.174 as the lowest considerable Eigen values.

Code Nat	Nature Values	Component Orientation	D1	D2	D3	D4
2	This Karst Landscape is valuable for me because it supports my daily living.	Pragmatic	-.072	-.197	.771	-.063
6	Certain activities within the Karst landscape should be prohibited because it's harming nature.	Non-use	.135	.448	-.285	.585
8	Without the rich environment of the Karst landscape, all life forms within it will not survive.	Functional	.901	-.145	.018	-.152
4	People love to come to the karst landscape because of its beauty.	Aesthetic	-.326	.107	.608	-.177
9	People should not use the resources of the Karst landscape so that it could regrow and reproduce.	Non-use	-.084	-.410	-.259	.017
1	Everything in the environment has a value on its own because of its existence	Intrinsic Value	-.053	-.747	.088	.456
7	The Karst landscape provides a dwelling place for our dead ancestors.	Spiritual/cultural	.796	.044	.266	-.028
5	The karst landscape shall be totally closed to all human activities to preserve its biodiversity.	Non Use Value	-.236	-.141	-.399	-.749
3	This karst landscape is not ours, it belong to our children's children.	Future Use	-.015	.695	.153	-.060
10	Without people, nature has no value.	Non Intrinsic	.886	-.046	-.051	-.151

Normalization with Principal Variables

Component Loadings, Nature Value

Table 14

The above table indicates that in Dimension 1, high positive loadings in Nat 8 with a registered load of 0.901. This highly correlates to the component on Functional Value. As different to the pragmatic value, this value highlights the functions of nature in the ecosystem and the maintenance of all life forms, which may or may not be beneficial to mankind. The functional value of nature though may not at all times positively and directly affect mankind is important consideration for the survival of mother earth. It also recognizes its role in the sustenance of life systems.

In the same dimension, Nat 10 registered a high positive loading of 0.886. This highly correlates to Non- intrinsic value of nature; this dimension represents the concept that nature does not have a value on its own. Its value depends on the function it uses to serve human beings. Nat 7 in the same dimension also registered a high positive loading of 0.796 which. This is highly correlated to Spiritual-cultural value. This component represents the concept that revered sites should be put aside to honor the spirits dwelling in the place. The predominant concept of this factor is that some environments reflect local culture.

In dimension 2, a high negative loading in Nat 1 of -0.747 was registered. This is inversely, negatively correlated to Intrinsic Moral Value. This value represents the view that the value of nature is accorded by human beings..

In the same dimension a high positive loading of Nat 3 is noted with a register of 0.695. This is highly positively correlated to Future Use Value. This dimension represents the concept that natural areas and natural resources should be protected and preserved. The future use value is attributed to preserving the natural area for the benefit of human beings in the future.

The third dimension indicates a high positive loading in Nat 2 with a register of 0.771. This strongly correlates on the component on Pragmatic Value. This dimension represents the concept that nature is valuable for its purpose, function and benefit it can provide for human beings. Since most of the respondents are below poverty level, it is acceptable to think that the local people place this value on a high level. Maslow's hierarchy of needs explains that it is normal for people to think of survival first, before anything else. The karst landscape is valuable to the local people if it is useful to them. In the same dimension, Nat 4 registers a high positive loading of 0.608. This is highly positively correlated to the component of Aesthetic Value. This dimension measures the concept that natural areas that natural areas have aesthetic value depending upon different perception of human beings.

In the fourth dimension, Nat 5 registered high negatively with a loading of -0.749. This dimension is inversely/negatively correlated to the Non- use value. This dimension represents the concept that nature should be utilized for the benefit of humanity. This contradicts to the radical view of nature values wherein a complete retreat of human kind

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is needed to secure the maintenance of life systems and the earth. This registered high negatively since this is negatively oriented to the common value of the local people.

VI.1.5 Testing of the Hypothesis

Hypothesis 1: There are differences in visual landscape perception among different groups in terms of

- Beauty
- Variety
- Uniqueness and
- Well-being

Null Hypothesis

There are no differences in visual landscape perception among different groups in terms of

- Beauty
- Variety
- Uniqueness and

Well-being

Null Hypothesis 1.1 There are no differences in the visual landscape perception on Picture 1 among different groups in different categories.

Statistic for Test^{a,b}

	Pic1Bea	Pic1Var	Pic1Uni	Pic1Well
Chi-Square	6.849	2.452	6.420	3.442
Df	4	4	4	4
Asymptotic Significance	.144	.653	.170	.487

a. Kruskal-Wallis-Test

Visual Perception on Picture 1- Age

Table 15

The p-value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 1 among the Group-Age. This implies that the average perception on beauty, variety, uniqueness and well being for picture 1 is not significantly different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic1Bea	Pic1Var	Pic1Uni	Pic1Well
Chi-Square	.710	6.329	2.158	2.507
Df	4	4	4	4
Asymptotic Significance	.950	.176	.707	.643

a. Kruskal-Wallis-Test

Visual Perception on Picture 1- Length of Stay

Table 16

The p-value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 1 among the Group-Length of Stay. This implies that the average perception on beauty, variety, uniqueness and well being for picture 1 are is not significantly different across respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic1Bea	Pic1Var	Pic1Uni	Pic1Well
Chi-Square	1.695	3.057	3.736	4.162
Df	3	3	3	3
Asymptotic Significance	.638	.383	.291	.244

a. Kruskal-Wallis-Test

Visual Perception on Picture 1- Education

Table 17

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 1 among the Group-Age. This implies that the average perception on beauty, variety, uniqueness and well being for picture 1 is not significantly different across different educational backgrounds. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test ^a				
	Pic1Bea	Pic1Var	Pic1Uni	Pic1Well
Mann-Whitney-U	1064.000	1134.000	1220.000	1119.500
Wilcoxon-W	2099.000	2674.000	2760.000	2154.500
Z	-1.268	-.747	-.127	-.867
Asymptotic Significance (2-sided)	.205	.455	.899	.386

Visual Perception on Picture 1- Gender

Table 18

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 1 among the Group-Gender. This implies that the average perception on beauty, variety, uniqueness and well being for picture 1 is not significantly different among men and women. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test ^{a,b}				
	Pic1Bea	Pic1Var	Pic1Uni	Pic1Well
Chi-Square	6.091	.056	7.234	2.672
Df	2	2	2	2
Asymptotic Significance	.048	.973	.027	.263

a. Kruskal-Wallis-Test

Visual Perception on Picture 1 -Occupation

Table 19

The table shows that there are differences on the perception of beauty in Picture 1 among the Group-Occupation with a p value of .048. Moreover, it shows that there are differences on perception of uniqueness in Picture 1 among the Group-Occupation with a p value of .027. Moreover, the p value is higher than .05 on the perception on variety and well-being. This implies that the average perception on variety and well-being for picture 1 is not significantly different among different occupational backgrounds.

A Mann-Whitney U test was further conducted to determine which among the occupational groups perception on beauty have significant differences with each other.

Range						
	Occupation	N	Middle Range	Total Range	Statistic for test	Pic1Bea
Pic1Bea	2	49	50.69	2484.00	Mann-Whitney-U	701.000
	3	40	38.03	1521.00	Wilcoxon-W	1521.000
	Total	89			Z	-2.422
					Asymptotic Significance (2-sided)	.015

Visual Perception on Picture 1 -Occupation1

Table 20

There are differences on perception on beauty in picture 1 between white collared and unemployed of the occupational group with a p value of .015. The p value was lowered to .01667. This is done dividing .05 by the number of Mann-U Whitney tests conducted. This test is conducted to show relationship variables with each other. This goes to show that white collared employed people have a different view on beauty compared with the unemployed people.

Range						
	Occupation	N	Middle Range	Total Range	Statistic for Test	Pic1Uni
Pic1Uni	1	11	42.23	464.50	Mann-Whitney-U	140.500
	2	49	27.87	1365.50	Wilcoxon-W	1365.500
	Total	60			Z	-2.596
					Asymptotic Significance (2-sided)	.009

Visual Perception on Picture 1 -Occupation2

Table 21

There are differences on perception on uniqueness in picture 1 between blue collared job and white collared of the occupation group with a p value of .009. The p value was lowered to .01667. This is done through by dividing .05 by the number of Mann-U Whitney tests conducted. This goes to show that white collared employed people have a different view on beauty compared with the blue collared employed people. This implies that the concept of uniqueness differs between white collared employed people and blue collared employed people.

Null Hypothesis 1.2 There are no differences in the visual landscape perception on Picture 2 among different groups in different categories.

Statistic for Test^{a,b}

	Pic2Bea	Pic2Var	Pic2Uni	Pic2Well
Chi-Square	3.208	1.742	5.628	.310
Df	4	4	4	4
Asymptotic Significance	.524	.783	.229	.989

a. Kruskal-Wallis-Test

Visual Perception on Picture 2- Age
Table 22

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 2 among the Group-Age. This implies that the average perception on beauty, variety, uniqueness and well being for picture 2 is not significantly different among respondents across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic2Bea	Pic2Var	Pic2Uni	Pic2Well
Chi-Square	1.180	3.570	4.224	.450
df	4	4	4	4
Asymptotic Significance	.881	.467	.376	.978

a. Kruskal-Wallis-Test

Visual Perception on Picture 2- Length of Stay

Table 23

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 2 among the Group-length of stay. This implies that the average perception on beauty, variety, uniqueness and well being for picture 2 is not significantly different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic2Bea	Pic2Var	Pic2Uni	Pic2Well
Chi-Square	1.821	1.187	1.658	1.751
df	3	3	3	3
Asymptotic Significance	.610	.756	.646	.626

a. Kruskal-Wallis-Test

Visual Perception on Picture 2 - Education

Table 24

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 2 among the Group-Education. This implies that the average perception on beauty, variety, uniqueness and well being for picture 2 is not significantly different among respondents with different educational backgrounds. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test ^a				
	Pic2Bea	Pic2Var	Pic2Uni	Pic2Well
Mann-Whitney-U	1142.000	890.000	952.500	1227.500
Wilcoxon-W	2682.000	2430.000	2492.500	2767.500
Z	-.707	-2.593	-2.124	-.072
Asymptotic Significance (2-sided)	.480	.010	.034	.942

Visual Perception on Picture 2 - Gender

Table 25

The table shows that there are differences on the perception of variety in picture 2 with a p value of .010 between male and female respondents. This could conform to the observation that the perception on variety could be seen through the exposure of male and female respondents to the variety of the landscape in their day to day life. Men are more attuned to explore the variety of the landscape because of their livelihood. Moreover, there are differences on the perception of uniqueness in pic 2 with a p value of .034 between male and female respondents. This implies that perception in uniqueness is based on individual personal experiences of male and female respondents in the landscape.

Statistic for Test ^{a,b}				
	Pic2Bea	Pic2Var	Pic2Uni	Pic2Well
Chi-Square	.980	.972	.540	7.606
df	2	2	2	2
Asymptotic Significance	.613	.615	.763	.022

a. Kruskal-Wallis-Test

Visual Perception on Picture 2 - Occupation

Table 26

The table shows that there are differences on the perception of well-being in pic2 with a p value of .022 among Group-Occupation. In this case, the test rejects the null hypothesis. The p value is higher than .05 in other categories of beauty, variety, uniqueness; therefore the null hypothesis is not rejected in these categories. This implies

that the average perception on beauty, variety and uniqueness for picture 2 is not significantly different among respondents with different occupational backgrounds.

A Mann-Whitney U test was further conducted to determine which among the occupational groups have significant differences with each other.

Range					Statistic for test	Pic2Well
	Occupation	N	Middle Range	Total Range		
Pic2Well	2	49	38.59	1891.00	Mann-Whitney-U	666.000
	3	40	52.85	2114.00	Wilcoxon-W	1891.000
	Total	89			Z	-2.704
					Asymptotic Significance (2-sided)	.007

Visual Perception on Picture 2- Occupation1
Table 27

There are differences on the perception of well-being in picture 2 between white collared employed people and unemployed people with a p value of .007. The p value was lowered to .01667. This is done through by dividing .05 by the number of Mann-U Whitney tests conducted. This implies that the perception on well-being differ between while collared employed people and unemployed people. Factors such as education and information would affect perception on well-being.

Null Hypothesis 1.3 There are no differences in the visual landscape perception on Picture 3 among different groups in different categories.

Statistic for Test^{a,b}

	Pic3Bea	Pic3Var	Pic3Uni	Pic3Well
Chi-Square	16.226	3.696	5.915	2.214
df	4	4	4	4
Asymptotic Significance	.003	.449	.206	.696

a. Kruskal-Wallis-Test

Visual Perception on Picture 3 -Age

Table 28

The p value of .003 on the perception on beauty in picture 3 is lower than .005 across age groups. This implies that the average perception on beauty is statistically significant. The p value is higher than .05 in other categories of variety, uniqueness and well being in Picture 3 among the Group-length of Age. This implies that the average perception on, variety, uniqueness and well being for picture 2 is not significantly different among respondents with different length of stay. The test suggests that it does not reject the null hypothesis on the categories of variety, uniqueness and well-being.

A Mann-Whitney U test was further conducted to determine which among the age groups have significant differences with each other.

Range						
	Age	N	Middle Range	Total Range		Pic3Bea
Pic3Bea	2	22	19.39	426.50	Mann-Whitney-U	24.500
	5	9	7.72	69.50	Wilcoxon-W	69.500
	Total	31			Z	-3.474
					Asymptotic Significance (2-sided)	.001
					Exact Significance [2*(1-sided Sig.)]	.001 ^a

Visual Perception on Picture 3- Age1
Table 29

There are differences on the perception of beauty in picture 3 between 31-40 years to 61 years old and above with a p value of 001. The p value was lowered to .005. This is done through by dividing .05 by the number of Mann-U Whitney tests conducted. This implies that the perception on beauty differ between ages. Middle aged people (31-40 years old) have a different perception on beauty compared to older people (61 years old and above).

Statistic for Test^{a,b}

	Pic3Bea	Pic3Var	Pic3Uni	Pic3Well
Chi-Square	1.389	.989	.935	3.014
df	2	2	2	2
Asymptotic Significance	.499	.610	.627	.222

a. Kruskal-Wallis-Test

Visual Perception on Picture 3- Occupation
Table 30

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 3 among the Group-occupation. This implies that the average perception on beauty, variety, uniqueness and well being for picture 2 is not significantly different

among respondents with different occupational backgrounds. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic3Bea	Pic3Var	Pic3Uni	Pic3Well
Chi-Square	8.091	2.553	3.356	.504
df	4	4	4	4
Asymptotic Significance	.088	.635	.500	.973

a. Kruskal-Wallis-Test

Visual Perception on Picture 3- Stay

Table 31

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 3 among the Group-length of stay. This implies that the average perception on beauty, variety, uniqueness and well being for picture 3 is not significantly different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic3Bea	Pic3Var	Pic3Uni	Pic3Well
Chi-Square	.944	2.019	2.545	4.445
df	3	3	3	3
Asymptotic Significance	.815	.568	.467	.217

a. Kruskal-Wallis-Test

Visual Perception on Picture 3- Education

Table 32

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 3 among the Group-Education. This implies that the average perception on beauty, variety, uniqueness and well being for picture 3 is not significantly different among respondents with different educational backgrounds. The test suggests that it **does not** reject the null hypothesis.

	Pic3Bea	Pic3Var	Pic3Uni	Pic3Well
Mann-Whitney-U	1090.500	1142.500	1068.000	1165.500
Wilcoxon-W	2630.500	2177.500	2608.000	2200.500
Z	-1.069	-.692	-1.244	-.523
Asymptotic Significance (2-sided)	.285	.489	.213	.601

Visual Perception on Picture 3- Gender

Table 33

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 3 among the Group-Gender. This implies that the average perception on beauty, variety, uniqueness and well being for picture 3 is not significantly different across gender. The test suggests that it **does not** reject the null hypothesis.

Null Hypothesis 1.4 There are no differences in the visual landscape perception on Picture 4 among different groups in different categories.

	Pic4Bea	Pic4Var	Pic4Uni	Pic4Well
Chi-Square	10.979	2.707	3.839	3.539
df	4	4	4	4
Asymptotic Significance	.027	.608	.428	.472

a. Kruskal-Wallis-Test

Visual Perception on Picture 4- Age

Table 34

Table shows that there are differences on the perception of beauty on picture 4 among Group-Age with a p value of .027. This implies that the average perception on beauty is statistically different among age groups in picture 4. The test rejects the null hypothesis. The p value is higher than .05 in other categories of variety, uniqueness and well being in Picture 4 among the Group-Age. This implies that the average perception on variety, uniqueness and well being for picture 4 is not significantly different among respondents

across age groups. The test suggests that it **does not** reject the null hypothesis on categories of variety, uniqueness and well-being.

A Mann-Whitney U test was further conducted to determine which among the age groups have significant differences with each other.

Range					Statistics for test	Pic4Bea
	Age	N	Middle Range	Total Range		
Pic4Bea	1	26	15.73	409.00	Mann-Whitney-U	58.000
	4	11	26.73	294.00	Wilcoxon-W	409.000
	Total	37			Z	-3.012
					Asymptotic Significance (2-sided)	.003
					Exact Significance [2*(1-sided Sig.)]	.004 ^a

Visual Perception on Picture 4 -Age 1

Table 35

There are differences on the perception of beauty in picture 3 between 21-30 years to 51 years old to 60 years old with a p value of 003. The p value was lowered to .005. This is done through by dividing .05 by the number of Mann-U Whitney tests conducted. This implies that the perception on beauty differ between ages. Young people aged (21-30 years old) have a different perception on beauty compared to older people (51 years old to 60 years old).

Statistic for Test^{a,b}

	Pic4Bea	Pic4Var	Pic4Uni	Pic4Well
Chi-Square	4.861	2.803	4.867	2.334
df	4	4	4	4
Asymptotic Significance	.302	.591	.301	.675

a. Kruskal-Wallis-Test

Visual Perception on Picture 4- Stay

Table 36

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 4 among the Group-length of stay. This implies that the average perception on beauty, variety, uniqueness and well being for picture 4 is not significantly different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic4Bea	Pic4Var	Pic4Uni	Pic4Well
Chi-Square	5.088	1.802	1.220	2.875
df	3	3	3	3
Asymptotic Significance	.165	.615	.748	.411

a. Kruskal-Wallis-Test

Visual Perception on Picture 4- Education

Table 37

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 4 among the Group-Education. This implies that the average perception on beauty, variety, uniqueness and well being for picture 4 is not significantly different among respondents with different educational backgrounds. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Pic4Bea	Pic4Var	Pic4Uni	Pic4Well
Chi-Square	2.039	3.178	.280	1.938
df	2	2	2	2
Asymptotic Significance	.361	.204	.869	.379

a. Kruskal-Wallis-Test

Visual Perception on Picture 4 -Occupation

Table 38

The p value is higher than .05 in all categories of beauty, variety, uniqueness and well being in Picture 4 among the Group-Occupation. This implies that the average perception on beauty, variety, uniqueness and well being for picture 4 is not significantly different among respondents with different occupational backgrounds. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^a				
	Pic4Bea	Pic4Var	Pic4Uni	Pic4Well
Mann-Whitney-U	1175.000	980.000	1053.000	1237.000
Wilcoxon-W	2715.000	2520.000	2043.000	2777.000
Z	-.463	-1.978	-1.209	-.004
Asymptotic Significance (2-sided)	.643	.048	.227	.997
Visual Perception on Picture 4 -Gender Table 39				

Table shows that there are differences on the perception variety on picture 4 among Group-Gender with a p value .048 which is lower than .05. This implies that the perception on beauty differ between male and female respondents. The test suggests rejecting the null hypothesis. The p value is higher than .05 in other categories of beauty, uniqueness and well being in Picture 4 across gender, this implies that the average perception on beauty, variety, uniqueness and well being for picture 4 is not significantly different among respondents across gender. The test suggests that it **does not** reject the null hypothesis in categories of beauty, uniqueness and well-being.

Hypothesis 2: There are differences on perception on economic benefits of protection among different group

Null Hypothesis

There no are differences on perception on economic benefits of protection among different groups

Statistic for Test^{a,b}

	suslive	employment	Industry	ecotourism	coop
Chi-Square	.264	1.408	5.738	4.561	2.434
Df	4	4	4	4	4
Asymptotic Significance	.992	.843	.220	.335	.657

a. Kruskal-Wallis-Test

Economic Benefits: Age

Table 40

Table shows that there are no differences on perception on the different categories on the economic benefits of protection among Group-Ages with no p value lower than .05. This implies that the average perception on the different categories on the economic benefits of protection is not significantly different among respondents across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	suslive	employment	Industry	ecotourism	coop
Chi-Square	.779	.010	3.114	.217	.302
Df	1	1	1	1	1
Asymptotic Significance	.378	.921	.078	.641	.582

a. Kruskal-Wallis-Test

Economic Benefits: Gender

Table 41

Table shows that there are no differences on perception on the different categories on the economic benefits of protection among Group-Gender with no p value lower than .05. This implies that the average perception on the different categories on the economic

benefits of protection is not significantly different among respondents across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	suslive	employment	Industry	ecotourism	coop
Chi-Square	3.663	2.584	1.093	5.325	1.007
Df	4	4	4	4	4
Asymptotic Significance	.454	.630	.895	.256	.909

a. Kruskal-Wallis-Test

Economic Benefits: Stay
Table 42

Table shows that there are no differences on perception on the different categories on the economic benefits of protection among Group-length of stay with no p value lower than .05. This implies that the average perception on the different categories on the economic benefits of protection is not significantly different among respondents from different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	suslive	employment	Industry	ecotourism	coop
Chi-Square	2.837	.822	4.044	5.265	3.471
Df	3	3	3	3	3
Asymptotic Significance	.417	.844	.257	.153	.324

a. Kruskal-Wallis-Test

Economic Benefits: Education
Table 43

Table shows that there are no differences on perception on the different categories on the economic benefits of protection among Group-Education with no p value lower than .05. This implies that the average perception on the different categories on the economic benefits of protection is not significantly different among respondents with different educational background. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test ^{a,b}					
	suslive	employment	Industry	ecotourism	coop
Chi-Square	2.460	.249	.007	5.902	3.465
Df	2	2	2	2	2
Asymptotic Significance	.292	.883	.996	.052	.177

a. Kruskal-Wallis-Test

Economic Benefits: Occupation
Table 44

Table shows that there are no differences on perception on the different categories on the economic benefits of protection among Group-Occupation with no p value lower than .05. This implies that the average perception on the different categories on the economic benefits of protection is not significantly different among respondents with different occupation backgrounds. The test suggests that it **does not** reject the null hypothesis.

Hypothesis 3: There are differences on ecological orientation among different groups

Null Hypothesis

There are no differences on ecological orientation among different groups

Before testing the hypothesis against the new dimensions created through reducing the data on Ecological Perceptions, the researcher makes it sure, by looking into the histogram whether or not the new data set is normally distributed or not. Since it is not normally distributed, a non-parametric method was used.

Perception on Ecological Orientation

The data on the Perception on Ecological Orientation is reduced to four dimensions such as; dimension 1- human domination, dimension 2- balance of nature, dimension 3- limits to growth and dimension 4 – ecological crisis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	1.921	6.530	5.719	1.946
Df	4	4	4	4
Asymptotic Significance	.750	.163	.221	.746

a. Kruskal-Wallis-Test

Ecological Orientation : Age

Table 45

The p value is higher than .05 in all dimensions of the object values among the Group-Age. This implies that the dimensions of the object values are not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	1.331	.099	.429	.447
df	1	1	1	1
Asymptotic Significance	.249	.753	.513	.504

a. Kruskal-Wallis-Test

Ecological Orientation : Gender

Table 46

The p value is higher than .05 in all dimensions of the object values among the Group-Gender. This implies that the dimensions of the object values are not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	6.096	8.388	4.069	2.961
df	4	4	4	4
Asymptotic Significance	.192	.078	.397	.564

a. Kruskal-Wallis-Test

Ecological Orientation : Stay
Table 47

The p value is higher than .05 in all dimensions of the object values among the Group-Length of stay. This implies that the dimensions of the object values are not statistically different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	.749	3.412	2.051	2.979
df	3	3	3	3
Asymptotic Significance	.862	.332	.562	.395

a. Kruskal-Wallis-Test

Ecological Orientation : Education
Table 48

The p value is higher than .05 in all dimensions of the object values among the Group-Education. This implies that the dimensions of the object values are not statistically different across different educational backgrounds. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	.518	.906	1.982	1.499
df	2	2	2	2
Asymptotic Significance	.772	.636	.371	.473

a. Kruskal-Wallis-Test

Ecological Orientation : Occupation

Table 49

The p value is higher than .05 in all dimensions of the object values among the Group-Occupation. This implies that the dimensions of the object values are not statistically different across occupational groups. The test suggests that it **does not** reject the null hypothesis

Hypothesis 4: There are differences on ecological perception on different landscape features among different groups.

Null Hypothesis

There are no differences on ecological perception on different landscape features among different groups

Statistic for Test^{a,b}

	Rivers	Forest	hills	caves
Chi-Square	1.590	2.486	2.081	3.817
Df	4	4	4	4
Asymptotic Significance	.811	.647	.721	.431

a. Kruskal-Wallis-Test

Landscape Perception: Age

Table 50

The p value is higher than .05 on ecological perception on different landscape features among the Group-Age. This implies that the ecological perception on landscape features

is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis

Statistic for Test^{a,b}

	Rivers	Forest	hills	caves
Chi-Square	.840	.059	.340	1.392
Df	1	1	1	1
Asymptotic Significance	.359	.808	.560	.238

a. Kruskal-Wallis-Test

Landscape Perception: Gender
Table 51

The p value is higher than .05 on ecological perception on different landscape features among the Group-Gender. This implies that the ecological perception on landscape features is not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Rivers	Forest	hills	caves
Chi-Square	5.773	1.773	.342	3.183
df	4	4	4	4
Asymptotic Significance	.217	.777	.987	.528

a. Kruskal-Wallis-Test

Landscape Perception: Stay
Table 52

The p value is higher than .05 on ecological perception on different landscape features among the Group-length of stay. This implies that the ecological perception on landscape features is not statistically different across respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Rivers	Forest	hills	caves
Chi-Square	.424	2.592	1.047	1.345
df	3	3	3	3
Asymptotic Significance	.935	.459	.790	.719

a. Kruskal-Wallis-Test

Landscape Perception: Education
Table 53

The p value is higher than .05 on ecological perception on different landscape features among the Group-Education. This implies that the ecological perception on landscape is not statistically different across educational groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Rivers	Forest	hills	caves
Chi-Square	1.557	3.608	1.887	8.357
df	2	2	2	2
Asymptotic Significance	.459	.165	.389	.015

a. Kruskal-Wallis-Test

Landscape Perception: Occupation
Table 54

The p value is higher than .05 on ecological perception on landscape features (rivers, forests, and hills) among the Group-Occupation. This implies that the ecological perception on landscape features (rivers, forests, and hills) is not statistically different across occupational groups. The test suggests that it **does not** reject the null hypothesis. However, there are differences on the ecological perception on caves across occupational group with a p value .015 which is lower than .05. This means that the differences on ecological perception on caves across occupational group are statistically significant. The test rejects the null hypothesis.

A Mann-Whitney U test was further conducted to determine which among the occupational groups have significant differences with each other.

Range						
	Occupation	N	Middle Range	Total Range	Statistic for test	Caves
caves	1	11	19.50	214.50	Mann-Whitney-U	148.500
	2	49	32.97	1615.50	Wilcoxon-W	214.500
	Total	60			Z	-2.573
					Asymptotic Significance (2-sided)	.010

Landscape Perception: Occupation1
Table 55

Further tests would show that there are statistically significant differences between blue collared employed respondents and white collared employed respondents with a p value of .010 on their ecological perception on caves. It must be noted that the p value is lowered to .01667 by dividing .05 by the number of Mann-Whitney U tests conducted. There are differences between the responses of blue collared workers and white collared workers on their perception on the ecological condition of caves. This would imply that blue collared employed people whose job is primarily exposed on the natural environment have different ecological perception compared to white collared employed whose ecological perception may be academic and confine in schools or offices.

A Mann-Whitney U Test is conducted to determine which among the occupational groups do have significant differences with each other.

Range						
	Occupation	N	Middle Range	Total Range	Statistic for test	Caves
caves	1	11	15.59	171.50	Mann-Whitney-U	105.500
	3	39	28.29	1103.50	Wilcoxon-W	171.500
	Total	50			Z	-2.825
					Asymptotic Significance (2-sided)	.005

Landscape Perception: Occupation2

Table 56

Moreover tests would show that there are statistically significant differences between blue collared employed respondents and unemployed respondents with a p value of .010 on their ecological perception on caves. It must be noted that the p value is lowered to .01667 by dividing .05 by the number of Mann-Whitney U tests conducted. This would imply that blue collared employed people with the nature of their work primarily exposed to the natural environment have different ecological perception on caves compared to people who have no work.

Hypothesis 5: There are differences on perception on nature values, place attachment

Null Hypothesis

There are no differences on perception on nature values, place attachment

Before testing the hypothesis on the new dimensions created through reducing the data using the Principal Component Analysis on Cultural Perception (nature values, place attachment and community attachment), the researcher makes it sure, by looking into the histogram whether or not the new data set is normally distributed or not. Since it is not normally distributed, a non-parametric method was used.

Nature Values

Null Hypothesis 5.1: There are no differences on perception on nature values

The data on Perception on Nature Values is reduced to 4 dimensions namely; dimension 1-functional value, dimension 2-future use value, dimension 3- pragmatic value, dimension 4 Non use value.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	4.314	5.595	.700	8.280
df	4	4	4	4
Asymptotic Significance	.365	.232	.951	.082

a. Kruskal-Wallis-Test

Nature Values : Age
Table 57

The p value is higher than .05 in all dimensions of the object values among the Group-Age. This implies that the dimensions of the object values are not statistically different across different age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	.145	2.497	1.679	.216
df	1	1	1	1
Asymptotic Significance	.703	.114	.195	.642

a. Kruskal-Wallis-Test

Nature Values : Gender
Table 58

The p value is higher than .05 in all dimensions of the object values among the Group-Gender. This implies that the dimensions of the object values are not statistically

different across gender group. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	3.569	6.807	1.236	5.210
Df	4	4	4	4
Asymptotic Significance	.467	.146	.872	.266

a. Kruskal-Wallis-Test

Nature Values : Stay
Table 59

The p value is higher than .05 in all dimensions of the object values among the Group- Length of Stay. This implies that the dimensions of the object values are not statistically different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	2.848	1.492	1.232	9.973
df	3	3	3	3
Asymptotic Significance	.416	.684	.745	.019

a. Kruskal-Wallis-Test

Nature Values : Education
Table 60

The p value is higher than .05 in 3 dimensions of the object values among the Group- Education. This implies that the 3 dimensions of the object values are not statistically different across different educational backgrounds. The test suggests that it does not reject the null hypothesis. However, the fourth dimension reveals a p value lower than .05 which is .019. This implies that dimension 4- Non Use Value is statistically different among educational groups. Dimension 4 of the nature values is represented by Non – use Value. The test implies that there are differences on perception of people from

different educational background on the non-use of natural areas. It must be remembered that in its component loading, non –use value registered high negative loadings.

A Mann-Whitney U test was further conducted to determine which among the educational groups have significant differences with each other.

Range					
	Education	N	Middle Range		Dimension of the object values 4
Dimension of the object values 4	1	51	39.98	Mann-Whitney-U	713.000
	2	43	56.42	Wilcoxon-W	2039.000
	Total	94		Z	-2.911
				Asymptotic Significance (2-sided)	.004

Nature Values : Education1
Table 61

Table shows there are differences on non use value between elementary graduates and high school graduates. The opposition to the non-use value differs between elementary and high school respondents.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	2.356	1.395	.947	.136
Df	2	2	2	2
Asymptotic Significance	.308	.498	.623	.934

a. Kruskal-Wallis-Test

Nature Values : Occupation
Table 62

The p value is higher than .05 in all dimensions of the object values among the Group-occupation. This implies that the dimensions of the object values are not statistically different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Perception on Place Attachment

Null Hypothesis 5.2: There are no differences on perception on place attachment

The data on perception on place attachment is likewise reduced to 4 dimensions, these are dimension 1 –place identity, dimension 2 no attachment, dimension 3 place dependence, dimension 4 –community identity.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	11.051	4.246	3.001	7.571
Df	4	4	4	4
Asymptotic Significance	.026	.374	.558	.109

a. Kruskal-Wallis-Test

Place Attachment : Age
Table 63

The p value is higher than .05 from dimensions 1 to 4 of the object values among the Group-Age. This implies that the dimensions of the object values are not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis. But dimension 1 shows a significant level of .026 which is lower than .05. This implies that there are differences in the perception on dimension 1 (place identity) across age groups.

Further test was conducted using the Mann Whitney U test to determine which among the age groups are statistically different from each other.

Range						
	Age	N	Middle Range	Total Range	Statistics for test	Dimension of the object values 1
Dimension of the object values 1	1	26	21.33	554.50	Mann-Whitney-U	30.500
	5	9	8.39	75.50	Wilcoxon-W	75.500
	Total	35			Z	-3.265
					Asymptotic Significance (2-sided)	.001
					Exact Significance [2*(1-sided Sig.)]	.001 ^a

Place Attachment : Age1
Table 64

Table shows that age groups (21 to 30 years old) and (61 years old and above) have statistically significant differences on the perception on place identity. This observation goes to show that perception on place identity differ between people ages 21 to 30 years old and 61 years old and above. This implies that younger people could identify themselves differently to the karst area compared to the older ones.

Range						
	Age	N	Middle Range	Total Range	Statistic for test	Dimension of the object values 1
Dimension of the object values 1	3	32	23.69	758.00	Mann-Whitney-U	58.000
	5	9	11.44	103.00	Wilcoxon-W	103.000
	Total	41			Z	-2.709
					Asymptotic Significance (2-sided)	.007
					Exact Significance[2*(1-sided Sig.)]	.006 ^a

Place Attachment : Age2
Table 65

Furthermore, age groups (41 to 50 years old) and (61 years old and above) have statistically different perception on place identity. This further explains that each age group has different perception on place identity.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	.270	.836	.270	1.023
Df	1	1	1	1
Asymptotic Significance	.603	.360	.603	.312

a. Kruskal-Wallis-Test

Place Attachment : Gender
Table 66

The p value is higher than .05 in all dimensions of the object values among the Group-Gender. This implies that the dimensions of the object values are not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	16.518	4.319	4.235	5.542
df	4	4	4	4
Asymptotic Significance	.002	.365	.375	.236

a. Kruskal-Wallis-Test

Place Attachment : Stay
Table 67

The p value is higher than .05 from dimensions 2 to 4 of the object values among the Group-Length of Stay. This implies that the dimensions of the object values are not statistically different among respondents with different length of stay. The test suggests that it does not reject the null hypothesis. However, the p value of .002 in dimension 1 which is apparently lower than .05 implies that dimension 1 of the object value

represented by place identity is statistically different among respondents with different length of stay. This is consistent with the previous results on age, that people who have lived longer in the karst area could identify themselves more to the landscape. People's attachment and identity to the protected area are different because of factors such as length of stay, emotional attachment and economic dependence to the karst area.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	3.835	1.259	1.913	1.139
df	3	3	3	3
Asymptotic Significance	.280	.739	.591	.768

a. Kruskal-Wallis-Test

Place Attachment : Education

Table 68

The p value is higher than .05 in all dimensions of the object values among the Group-Education. This implies that the dimensions of the object values are not statistically different across all educational groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Dimension of the object values 1	Dimension of the object values 2	Dimension of the object values 3	Dimension of the object values 4
Chi-Square	1.192	.556	1.599	.758
df	2	2	2	2
Asymptotic Significance	.551	.757	.449	.684

a. Kruskal-Wallis-Test

Place Attachment : Occupation

Table 69

The p value is higher than .05 in all dimensions of the object values among the Group-Occupation. This implies that the dimensions of the object values are not statistically

different across all occupational groups. The test suggests that it **does not** reject the null hypothesis.

Hypothesis 6: There are differences on perception on policies on protected areas among different groups

Null Hypothesis

There are no differences on perception on policies on protected areas among different groups

Hypothesis 6.1: There are differences on the perception on the favorability of the policies protecting the karst landscape of Bohol, the Philippines

Null Hypothesis

There are no differences on the perception on the favorability of the policies protecting the karst landscape of Bohol, the Philippines

Since the data is ordinal, a Kruskal Wallis test is used to determine if there are differences on the perception among the groups on the favorability of the policies protecting the karst landscape of Bohol, the Philippines since the type of data is ordinal.

Statistic for Test^{a,b}

	FavPol
Chi-Square	3.594
df	4
Asymptotic Significance	.464

a. Kruskal-Wallis-Test

Favorability of Policies : Age

Table 70

The test shows a p value of .464 which is larger than .05. This implies that the favorability on the karst protection policies is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	FavPol
Chi-Square	.265
Df	1
Asymptotic Significance	.606

a. Kruskal-Wallis-Test

Favorability of Policies : Gender

Table 71

The test shows a p value of .606 which is larger than.05. This implies that the favorability on the karst protection policies is not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	FavPol
Chi-Square	1.164
Df	4
Asymptotic Significance	.884

a. Kruskal-Wallis-Test

Favorability of Policies : Stay

Table 72

The test shows a p value of .884 which is larger than.05. This implies that the favorability on the karst protection policies is not statistically different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	FavPol
Chi-Square	7.264
df	3
Asymptotic Significance	.064

a. Kruskal-Wallis-Test

Favorability of Policies : Education

Table 73

The test shows a p value of .064 which is larger than .05. This implies that the favorability on the karst protection policies is not statistically different across educational groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	FavPol
Chi-Square	1.163
df	2
Asymptotic Significance	.559

a. Kruskal-Wallis-Test

Favorability of Policies : Occupation

Table 74

The test shows a p value of .559 which is larger than .05. This implies that the favorability on the karst protection policies is not statistically different across occupational groups. The test suggests that it **does not** reject the null hypothesis.

Hypothesis 6.2 There are differences on perception on the statements relating to the reasons why some local people are not fully in favor of the karst protection policies. The following are statements used to measure the reasons why some respondents are not fully in favor of the protection policies:

1. There is no need to protect the karst area

2. There is a need for the amendment of the law on protected areas
3. There is too much politics in the administration of protected areas
4. People rights are not well protected in protected area policies
5. There is lesser room for grassroots cooperation in protected area policies

Null Hypothesis

There are no differences on perception on the statements relating to the reasons why some local people are not fully in favor of the karst protection policies.

A Kruskal Wallis is used since the type of data is ordinal.

Statistic for Test^{a,b}

	State1	State2	State3	State4	State5
Chi-Square	2.676	1.825	.957	5.509	2.970
df	4	4	4	4	4
Asymptotic Significance	.613	.768	.916	.239	.563

a. Kruskal-Wallis-Test

Perception on Policies: Age
Table 75

The test shows a p value of higher than .05. This implies that the perception on all these statements on the protection of the karst landscape is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	State1	State2	State3	State4	State5
Chi-Square	.248	.351	.310	5.840	1.931
df	1	1	1	1	1
Asymptotic Significance	.618	.554	.577	.016	.165

a. Kruskal-Wallis-Test

Perception on Policies: Gender
Table 76

The table shows that the p value revealed in statements 1,2,3 and 5 higher than .05. This implies that the perception on these statements on the protection of the karst landscape is not statistically different across male and female respondents. However, the p value on statement 4 which is .016 is clearly lower than .05 suggesting that the perception on statement number 4 is statistically different across male and female respondents. Statement number 4 which says that "People's rights are not well protected in protected area policies" reveals the differing views of women and men concerning people's rights in protected area policies.

Statistic for Test^{a,b}

	State1	State2	State3	State4	State5
Chi-Square	1.321	.264	3.018	4.307	2.148
df	4	4	4	4	4
Asymptotic Significance	.858	.992	.555	.366	.709

a. Kruskal-Wallis-Test

Perception on Policies: Stay
Table 77

The test shows a p value of higher than .05. This implies that the perception on all these statements on the protection of the karst landscape is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

	State1	State2	State3	State4	State5
Chi-Square	8.684	1.982	10.238	1.528	1.105
df	3	3	3	3	3
Asymptotic Significance	.034	.576	.017	.676	.776

a. Kruskal-Wallis-Test

Perception on Policies: Education
Table 78

The test shows a p value of higher than .05. This is reflected in statement 2, statement 4 and statement 5 respectively among respondents with different educational backgrounds. This implies that the perception on these statements (2, 4 and 5) on the protection of the karst landscape is not statistically different across educational groups. However, statement 1 –“There is a need to protect the karst area” shows a lower p value,.034 across educational groups. This means that the perception on statement 1 is statistically different across educational groups. This means that there are varying perceptions of respondents coming from different educational backgrounds of whether or not there is a need to protect the karst landscape. Moreover, statement 3 -“There is too much politics in the administration of the protected areas” reflects a p value of .017, very much lower than .05. This means that there are different perceptions of respondents coming from different educational backgrounds. On the perception that “There is too much politics in the administration of the protected areas”

Statistic for Test^{a,b}

	State1	State2	State3	State4	State5
Chi-Square	1.643	1.107	2.775	6.226	.078
df	2	2	2	2	2
Asymptotic Significance	.440	.575	.250	.044	.962

a. Kruskal-Wallis-Test

Perception on Policies: Occupation
Table 79

The test shows a p value of higher than .05 in statements 1, 2, 3, and 5. This implies that the perception on all these statements on the protection of the karst landscape is not statistically different across age groups. However, statement 4 reveals a lower p value of .044, lower than .05. This implies that the perception on "People's rights are not well protected in protected area policies are significantly different across occupational groups. This means that perceptions on peoples rights in protected area policies are viewed differently among white collared worker, blue collared worker and unemployed people. Rights are differently perceived by different classes depending on how they perceive rights relevant to the landscape.

Hypothesis 7: There are differences on perception on the perception on the different impact of protection policy to the local people among different groups

Null Hypothesis

There are no differences on perception on the different impact of protection policy to the local people among different groups.

Different Impact on:

- Livelihood
- Settlement
- Recreation
- Use of Water
- Use of the Forest
- Cultural Identity

Statistic for Test^{a,b}

	ImpLive	ImpSet	ImpRec	ImpWat	ImpFor	ImpCul
Chi-Square	3.626	.780	3.434	2.739	5.265	1.712
df	4	4	4	4	4	4
Asymptotic Significance	.459	.941	.488	.602	.261	.788

a. Kruskal-Wallis-Test

Impact of Policy: Age
Table 80

The test shows a p value of higher than .05 on all different categories for impact of the protection policy across age groups. This implies that the perception on different impact of protection policy to the local people is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	ImpLive	ImpSet	ImpRec	ImpWat	ImpFor	ImpCul
Chi-Square	2.977	4.247	.687	4.755	11.303	.899
df	4	4	4	4	4	4
Asymptotic Significance	.562	.374	.953	.313	.023	.925

a. Kruskal-Wallis-Test

Impact of Policy: Stay
Table 81

The perception on the impact of the protection policy to the forest reveals a p value lower than .05 which is .023. This implies that the perception on the impact to the forest is statistically different among respondents with different length of stay in the karst area. This logically would mean that people who stayed longer in the karst area would see more impact to the forest compared to those who have stayed not so long. The test shows a p value of higher than .05 on the perception on the impact to livelihood, settlement, recreation, water use and culture across among respondents with different length of stay in the karst area. This implies that the perception on the impact to livelihood, settlement, recreation, water use and culture to the local people is not statistically different among respondents with different length of stay in the karst area.

Range						
	Stay	N	Middle Range	Total Range	Statistic for test	ImpFor
ImpFor	1	13	46.31	602.00	Mann-Whitney-U	165.000
	3	52	29.67	1543.00	Wilcoxon-W	1543.000
	Total	65			Z	-2.973
					Asymptotic Significance (2-sided)	.003

Impact of Policy: Stay1
Table 82

A Mann-Whitney U test was conducted to determine which among the group are statistically different from each other. Of the test conducted, the group 21 – 30 years old and 41- 50 years old revealed to be statistically different from each other with a p value of .003, lower than .005. . The .05 p value was reduced to .005 by dividing it by the number of Mann-Whitney U test conducted. This implies that younger group (21 – 30 years old) may have different perception on the impact of the protection policy to the forest from the older group (41- 50 years old).

Range						
	Stay	N	Middle Range	Total Range	Statistic for test	ImpFor
ImpFor	1	13	13.92	181.00	Mann-Whitney-U	14.000
	4	8	6.25	50.00	Wilcoxon-W	50.000
	Total	21			Z	-2.859
					Asymptotic Significance (2-sided)	.004
					Exact Significance [2*(1-sided Sig.)]	.005 ^a

Impact of Policy: Stay2
Table 83

A Mann-Whitney U test was conducted to determine which among the group are statistically different from each other. Of the 10 test conducted, the group 21 – 30 years old and 51- 60 years old revealed to be statistically different from each other with a p value of .004, lower than .005.. The 05 p value was reduced to .005 by dividing it by the number of Mann-Whitney U test conducted. This implies that younger group (21 – 30 years old) may have different perception on the impact of the protection policy to the forest from the protection policies from the older group (51- 60 years old).

Statistic for Test^{a,b}

	ImpLive	ImpSet	ImpRec	ImpWat	ImpFor	ImpCul
Chi-Square	2.827	.591	3.487	3.781	1.011	4.556
df	2	2	2	2	2	2
Asymptotic Significance	.243	.744	.175	.151	.603	.102

a. Kruskal-Wallis-Test

Impact of Policy: Occupation

Table 84

The test shows a p value of higher than .05 on all different categories for impact of the protection policy across occupational groups. This implies that the perception on different impact of protection policy to the local people is not statistically different across occupational groups. The test suggests that it **does not** reject the null hypothesis

Statistic for Test^{a,b}

	ImpLive	ImpSet	ImpRec	ImpWat	ImpFor	ImpCul
Chi-Square	1.896	1.911	1.492	1.152	1.616	2.960
df	3	3	3	3	3	3
Asymptotic Significance	.594	.591	.684	.764	.656	.398

a. Kruskal-Wallis-Test

Impact of Policy: Education

Table 85

The test shows a p value of higher than .05 on all different categories for impact of the protection policy across educational groups. This implies that the perception on different impact of protection policy to the local people is not statistically different across educational groups. The test suggests that it **does not** reject the null hypothesis

Statistic for Test^{a,b}

	ImpLive	ImpSet	ImpRec	ImpWat	ImpFor	ImpCul
Chi-Square	.222	1.497	.002	.276	.764	.022
df	1	1	1	1	1	1
Asymptotic Significance	.638	.221	.966	.599	.382	.883

a. Kruskal-Wallis-Test

Impact of Policy: Gender
Table 86

The test shows a p value of higher than .05 on all different categories for impact of the protection policy across male and female respondents. This implies that the perception on different impact of protection policy to the local people is not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Hypothesis 8: There are differences on the perception on the mediation efforts extended by the government in resolving conflicts that arouse because of the karst protection policies among different groups.

Null Hypothesis

There are no differences on the perception on the mediation efforts extended by the government in resolving conflicts that arouse because of the karst protection policies among different groups

Statistic for Test^{a,b}

	MedGov
Chi-Square	4.961
Df	4
Asymptotic Significance	.291

a. Kruskal-Wallis-Test

Conflict: Age
Table 87

Test shows a p value of .291 which is higher than .05. This implies the perception on government mediation on conflict is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	MedGov
Chi-Square	.877
Df	1
Asymptotic Significance	.349

a. Kruskal-Wallis-Test

Conflict: Gender
Table 88

Test shows a p value of .349 which is higher than .05. This implies the perception on government mediation on conflict is not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	MedGov
Chi-Square	1.860
Df	4
Asymptotic Significance	.761

a. Kruskal-Wallis-Test

Conflict: Stay
Table 89

Test shows a p value of .761 which is higher than .05. This implies the perception on government mediation on conflict is not statistically different among respondents with different length of stays. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	MedGov
Chi-Square	3.340
Df	3
Asymptotic Significance	.342

a. Kruskal-Wallis-Test

Conflict: Education
Table 90

Test shows a p value of .342 which is higher than .05. This implies the perception on government mediation on conflict is not statistically different across educational groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	MedGov
Chi-Square	1.829
Df	2
Asymptotic Significance	.401

a. Kruskal-Wallis-Test

Conflict: Occupation
Table 91

Test shows a p value of .401 which is higher than .05. This implies the perception on government mediation on conflict is not statistically different across occupational groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Involvement
Chi-Square	4.618
Df	4
Asymptotic Significance	.329

a. Kruskal-Wallis-Test

Involvement: Age
Table 92

Test shows a p value of .329 which is higher than .05. This implies the perception on government involvement of local officials in conflict resolution is not statistically different across age groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Involvement
Chi-Square	.002
Df	1
Asymptotic Significance	.965

a. Kruskal-Wallis-Test

Involvement: Gender
Table 93

Test shows a p value of .965 which is higher than .05. This implies the perception on government involvement of local officials in conflict resolution is not statistically different across male and female respondents. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Involvement
Chi-Square	2.134
Df	4
Asymptotic Significance	.711

a. Kruskal-Wallis-Test

Involvement: Stay

Table 94

Test shows a p value of .711 which is higher than .05. This implies the perception on government involvement of local officials in conflict resolution is not statistically different among respondents with different length of stay. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Involvement
Chi-Square	5.648
Df	3
Asymptotic Significance	.130

a. Kruskal-Wallis-Test

Involvement: Education

Table 95

Test shows a p value of .130 which is higher than .05. This implies the perception on government involvement of local officials in conflict resolution is not statistically different across educational groups. The test suggests that it **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Involvement
Chi-Square	.562
df	2
Asymptotic Significance	.755

a. Kruskal-Wallis-Test

Involvement: Occupation

Table 96

Test shows a p value of .755 which is higher than .05. This implies the perception on government involvement of local officials in conflict resolution is not statistically different across occupational groups. The test suggests that it **does not** reject the null hypothesis

Hypothesis 9: There are differences on the involvement of the local people in protected area management among different groups.

Null Hypothesis

There are no differences on the involvement of the local people in protected area management among different groups.

Null Hypothesis 9.1: There are differences on the perception on the factors affecting the participation of the local people on protected area management among different groups.

Factors affecting the participation of the local people on protected area management:

- Lack of Enabling Mechanism
- Lack of Information Dissemination
- Distrust in the government
- Feeling of neglect
- Lack of political will of the public administrators to establish participation mechanism

Statistic for Test^{a,b}

	Part1	Part2	Part3	Part4	Part5
Chi-Square	16.389	5.397	5.841	13.331	15.894
Df	4	4	4	4	4
Asymptotic Significance	.003	.249	.211	.010	.003

a. Kruskal-Wallis-Test

Participation: Age

Table 97

Tests show the p value of .003 which is lower than .05 suggests that the factor on lack of enabling mechanism on people's participation in protected area management is statistically different across age groups. This rejects the null hypothesis. Tests also indicate the p value of .010 which is lower than .05 suggests that the feeling of neglect on people's participation in protected area management is statistically different across age groups. This rejects the null hypothesis. Tests reveal the p value of .003 which is lower than .05 suggests that the factor on lack of political will of public administrators to establish participations mechanism in protected area management is statistically different across age groups. This rejects the null hypothesis. The factor on the Lack of Information Dissemination is not statistically different on age groups. This does not reject the null hypothesis. The factor on the distrust on government is not statistically different among age groups. This does not reject the null hypothesis.

Statistic for Test^{a,b}

	Part1	Part2	Part3	Part4	Part5
Chi-Square	8.455	3.280	4.666	7.181	4.722
df	4	4	4	4	4
Asymptotic Significance	.076	.512	.323	.127	.317

a. Kruskal-Wallis-Test

Participation: Stay

Table 98

Tests show the p value is higher than .05 suggests that the factors affecting participation of local residents in protected area management are not statistically different among respondents with different length of stay. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Part1	Part2	Part3	Part4	Part5
Chi-Square	2.531	2.311	2.619	.818	1.320
df	2	2	2	2	2
Asymptotic Significance	.282	.315	.270	.664	.517

a. Kruskal-Wallis-Test

Participation: Education

Table 99

Tests show the p value is higher than .05 suggests that the factors affecting participation of local residents in protected area management are not statistically different among respondents with educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	Part1	Part2	Part3	Part4	Part5
Chi-Square	3.163	2.208	.661	.031	.888
df	2	2	2	2	2
Asymptotic Significance	.206	.332	.719	.984	.642

a. Kruskal-Wallis-Test

Participation: Occupation

Table 100

Tests show the p value is higher than .05 suggests that the factors affecting participation of local residents in protected area management are not statistically different among respondents with different occupational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^a

	Part1	Part2	Part3	Part4	Part5
Mann-Whitney-U	523.500	453.500	512.500	473.500	476.000
Wilcoxon-W	1019.500	918.500	1107.500	1068.500	1037.000
Z	-.054	-.943	-.206	-.700	-.593
Asymptotic Significance (2-sided)	.957	.346	.837	.484	.553

Participation: Gender

Table 101

Tests show the p value is higher than .05 suggests that the factors affecting participation of local residents in protected area management are not statistically different among male and female respondents. This does not reject the null hypothesis.

Hypothesis 9.2: There are differences on the participation on the different levels of governance (policy-making, planning, resource mobilization, implementation, monitoring and evaluation) among different groups.

Null Hypothesis: There are no differences on the participation on the different levels of governance (policy-making, planning, resource mobilization, implementation, monitoring and evaluation) among different groups

F-tests are recommended to questions which have a 1 and 0 responses. These responses are comparable to yes and no responses, which only reflect two possible values, 1 and 0.

Participation in Different Levels (ONEWAY ANOVA) by age
Table 102

		Sum of squares	df	Middle of Squares	F	Significance
polmaking	Between the Groups	.174	4	.043	.756	.557
	Within the Groups	5.466	95	.058		
	Total	5.640	99			
planning	Between the Groups	.496	4	.124	.911	.461
	Within the Groups	12.944	95	.136		
	Total	13.440	99			
resourcemob	Between the Groups	.115	4	.029	.590	.671
	Within the Groups	4.635	95	.049		
	Total	4.750	99			
implementation	Between the Groups	2.174	4	.544	2.548	.044
	Within the Groups	20.266	95	.213		
	Total	22.440	99			
monievaluation	Between the Groups	.117	4	.029	1.502	.208
	Within the Groups	1.843	95	.019		
	Total	1.960	99			

Test shows that the p value on the participation on the area of implementation is .044 which is lower than .05. This suggests that the participation in the area of implementation is statistically different across age groups. People from different age brackets have different perception on their participation in the implementation of protected area management. This rejects the null hypothesis. The tests also show that the p value on the participation on other areas of governance is higher than .05. This suggests that the participation in the area of implementation is not statistically different across age groups. This does not reject the null hypothesis.

Participation in Different Levels (ONEWAY ANOVA) by gender
Table 103

		Sum of squares	df	Middle of Squares	F	Significance
polmaking	Between the Groups	.068	1	.068	1.201	.276
	Within the Groups	5.572	98	.057		
	Total	5.640	99			
planning	Between the Groups	.196	1	.196	1.447	.232
	Within the Groups	13.244	98	.135		
	Total	13.440	99			
resourcemob	Between the Groups	.003	1	.003	.052	.820
	Within the Groups	4.747	98	.048		
	Total	4.750	99			
implementation	Between the Groups	.747	1	.747	3.375	.069
	Within the Groups	21.693	98	.221		
	Total	22.440	99			
monievaluation	Between the Groups	.033	1	.033	1.664	.200
	Within the Groups	1.927	98	.020		
	Total	1.960	99			

Test shows that the p value on the participation on the different areas of governance is higher than .05. This suggests that the participation in the area of implementation is not statistically different among male and female respondent. This **does not** reject the null hypothesis.

Participation in Different Levels (ONEWAY ANOVA) by stay
Table 104

		Sum of squares	df	Middle of Squares	F	Significance
polmaking	Between the Groups	.217	4	.054	.950	.439
	Within the Groups	5.423	95	.057		
	Total	5.640	99			
planning	Between the Groups	.325	4	.081	.588	.672
	Within the Groups	13.115	95	.138		
	Total	13.440	99			
resourcemob	Between the Groups	.090	4	.022	.457	.767
	Within the Groups	4.660	95	.049		
	Total	4.750	99			
implementation	Between the Groups	1.123	4	.281	1.251	.295
	Within the Groups	21.317	95	.224		
	Total	22.440	99			
monievaluation	Between the Groups	.104	4	.026	1.334	.263
	Within the Groups	1.856	95	.020		
	Total	1.960	99			

Test shows that the p value on the participation on the different areas of governance is higher than .05. This suggests that the participation in the area of implementation is not statistically different among respondents with different length of stays. This **does not** reject the null hypothesis.

**Participation in Different Levels (ONEWAY ANOVA) by education
Table 105**

		Sum of squares	df	Middle of Squares	F	Significance
polmaking	Between the Groups	.241	3	.080	1.428	.239
	Within the Groups	5.399	96	.056		
	Total	5.640	99			
planning	Between the Groups	.865	3	.288	2.202	.093
	Within the Groups	12.575	96	.131		
	Total	13.440	99			
resourcemob	Between the Groups	.087	3	.029	.597	.619
	Within the Groups	4.663	96	.049		
	Total	4.750	99			
implementation	Between the Groups	.667	3	.222	.981	.405
	Within the Groups	21.773	96	.227		
	Total	22.440	99			
monievaluation	Between the Groups	.003	3	.001	.047	.986
	Within the Groups	1.957	96	.020		
	Total	1.960	99			

Test shows that the p value on the participation on the different areas of governance is higher than .05. This suggests that the participation in the area of implementation is not statistically different among respondents with different educational backgrounds. This **does not** reject the null hypothesis.

Participation in Different Levels (ONEWAY ANOVA) by occupation
Table 106

		Sum of squares	df	Middle of Squares	F	Significance
polmaking	Between the Groups	.185	2	.093	1.647	.198
	Within the Groups	5.455	97	.056		
	Total	5.640	99			
planning	Between the Groups	.520	2	.260	1.950	.148
	Within the Groups	12.920	97	.133		
	Total	13.440	99			
resourcemob	Between the Groups	.057	2	.028	.585	.559
	Within the Groups	4.693	97	.048		
	Total	4.750	99			
implementation	Between the Groups	.825	2	.412	1.851	.163
	Within the Groups	21.615	97	.223		
	Total	22.440	99			
monievaluation	Between the Groups	.071	2	.036	1.831	.166
	Within the Groups	1.889	97	.019		
	Total	1.960	99			

Test shows that the p value on the participation on the different areas of governance is higher than .05. This suggests that the participation in the area of implementation is not statistically different among respondents with different occupational backgrounds. This **does not** reject the null hypothesis.

Online Visual Landscape Assessment

Results of the online visual landscape assessment were collated and cleaned. Hypothesis was tested in four different categories namely; beauty, variety, uniqueness and well being consistent to the categories of the on-field visual landscape assessment against four groups, such as age,gender,educational background and occupation.

Hypothesis 10: There are differences on the perception of the online survey respondents on Karst landscapes based on pictures presented among different groups.

Null Hypothesis 10.1: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 1 among different groups

Statistic for Test^{a,b}

	b1	v1	u1	w1
Chi-Square	10.625	6.202	6.442	5.805
Df	4	4	4	4
Asymptotic Significance	.031	.185	.169	.214

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 1: age
Table 107

Test shows that the p value on the perception of beauty is .031 which is lower than .05. This indicates that the perception of beauty is statistically different across age groups. This rejects the null hypothesis. Tests further show that on the perception of variety, uniqueness and well-being, indicates a higher p value than .05. This **does not** reject the null hypothesis.

Range						
	age	N	Middle Range	Total Range	Statistic for test	b1
b1	2	15	17.07	256.00	Mann-Whitney-U	29.000
	4	11	8.64	95.00	Wilcoxon-W	95.000
	Total	26			Z	-2.818
					Asymptotic Significance (2-sided)	.005
					Exact Significance [2*(1-sided Sig.)]	.004 ^a

Visual Perception on Online Picture 1: age1
Table 108

A Mann Whitney U test is used to determine which among the age groups under the category: Beauty is statistically different from each other. Test shows that age groups between 31- 40 years old and 51 to 60 years old has a p value equal to .005. The p value is reduced to .005 by dividing .05 by the number of Mann-Whitney U-Test conducted. The test rejects the null hypothesis. This implies that perception on beauty differs on middle age group and older group.

Statistic for Test^{a,b}

	b1	v1	u1	w1
Chi-Square	.000	.979	.103	.117
df	1	1	1	1
Asymptotic Significance	.996	.322	.748	.732

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 1: gender

Table 109

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among male and female respondents. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b1	v1	u1	w1
Chi-Square	2.715	4.703	1.314	1.322
df	2	2	2	2
Asymptotic Significance	.257	.095	.518	.516

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 1: occupation

Table 110

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety,

uniqueness and well-being is not statistically different among respondents of different occupational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b1	v1	u1	w1
Chi-Square	3.198	2.904	2.683	1.583
df	3	3	3	3
Asymptotic Significance	.362	.407	.443	.663

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 1: education

Table 111

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Tests were no longer conducted on the group on length of stay since none of the respondents have lived in a karst area.

Null Hypothesis 10.2: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 2 among different groups.

Statistic for Test^{a,b}

	b2	v2	u2	w2
Chi-Square	5.454	9.704	4.579	8.171
df	4	4	4	4
Asymptotic Significance	.244	.046	.333	.085

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 2: age

Table 112

Test shows that the p value on the perception of beauty, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This does not reject the null hypothesis. However, the perception on variety is

statistically different across age groups as its p value is .046, apparently lower than .05. Perception on variety is affected by individual orientation to the landscapes of the respondents. Some respondents see more details on the variety of the landscape. This was verified in the qualitative research.

Statistic for Test ^{a,b}				
	b2	v2	u2	w2
Chi-Square	1.137	1.383	.036	.283
df	1	1	1	1
Asymptotic Significance	.286	.240	.849	.594

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 2: gender
Table 113

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test ^{a,b}				
	b2	v2	u2	w2
Chi-Square	.945	1.255	.282	1.137
df	2	2	2	2
Asymptotic Significance	.623	.534	.869	.566

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 2: occupation
Table 114

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test ^{a,b}				
	b2	v2	u2	w2
Chi-Square	4.177	3.286	4.932	3.780
df	3	3	3	3
Asymptotic Significance	.243	.350	.177	.286

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 2: education
Table 115

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Hypothesis 10.3: There are differences on the perception of the online survey respondents on Karst landscapes based on picture 3 among different groups.

Statistic for Test ^{a,b}				
	b3	v3	u3	w3
Chi-Square	3.079	6.022	4.082	4.444
df	4	4	4	4
Asymptotic Significance	.545	.198	.395	.349

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 3: age
Table 116

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b3	v3	u3	w3
Chi-Square	1.054	.036	1.722	.000
df	1	1	1	1
Asymptotic Significance	.305	.849	.189	.984

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 3: gender

Table 117

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b3	v3	u3	w3
Chi-Square	.512	2.403	4.364	2.994
df	2	2	2	2
Asymptotic Significance	.774	.301	.113	.224

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 3: occupation

Table 118

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test ^{a,b}				
	b3	v3	u3	w3
Chi-Square	7.203	2.937	4.437	4.235
df	3	3	3	3
Asymptotic Significance	.066	.401	.218	.237

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 3: education
Table 119

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Null Hypothesis 10.4: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 4 among different groups.

Statistic for Test^{a,b}

	b4	v4	u4	w4
Chi-Square	2.065	5.498	3.690	5.659
df	4	4	4	4
Asymptotic Significance	.724	.240	.450	.226

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 4: age
Table 120

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b4	v4	u4	w4
Chi-Square	.417	1.183	.143	.174
df	1	1	1	1
Asymptotic Significance	.518	.277	.705	.676

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 4: gender
Table 121

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b4	v4	u4	w4
Chi-Square	2.864	1.817	1.234	.088
df	2	2	2	2
Asymptotic Significance	.239	.403	.539	.957

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 4: occupation
Table 122

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b4	v4	u4	w4
Chi-Square	4.229	1.303	1.326	1.226
df	3	3	3	3
Asymptotic Significance	.238	.728	.723	.747

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 4: education
Table 123

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Null Hypothesis 10.5: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 5 among different groups.

Statistic for Test^{a,b}

	b5	v5	u5	w5
Chi-Square	8.684	6.971	6.947	9.826
df	4	4	4	4
Asymptotic Significance	.070	.137	.139	.043

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 5: age
Table 124

Test shows that the p value on the perception of beauty, variety, and uniqueness is higher than .05. This indicates that the perception of beauty, variety, uniqueness is not statistically different among respondents of different educational backgrounds. This does not reject the null hypothesis. However, the perception on well-being in picture 5 reveals that there is a statistically significant difference across age groups. This is explained on the fact that some respondents were not able to fully understand what well-being is in the context of visual landscape assessment. There were some feedbacks received by the researcher that most of the respondents have different criteria and definition of well-being. The point why the different categories were not operationally defined by the researcher in the study is to sort out individual meanings of respondents to the mentioned categories.

Statistic for Test^{a,b}

	b5	v5	u5	w5
Chi-Square	.549	.105	.451	.062
df	1	1	1	1
Asymptotic Significance	.459	.746	.502	.803

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 5: gender
Table 125

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b5	v5	u5	w5
Chi-Square	4.627	.991	.821	5.968
df	2	2	2	2
Asymptotic Significance	.099	.609	.663	.051

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 5: occupation
Table 126

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b5	v5	u5	w5
Chi-Square	7.024	4.151	4.613	2.622
df	3	3	3	3
Asymptotic Significance	.071	.246	.202	.454

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 5: education
Table 127

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Null Hypothesis 10.6: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 6 among different groups.

	b6	v6	u6	w6
Chi-Square	9.667	7.384	8.343	7.942
df	4	4	4	4
Asymptotic Significance	.046	.117	.080	.094

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 6: age
Table 128

Test shows that the p value on the perception of variety, uniqueness and well-being is higher than .05. This indicates that the perception of, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This does not reject the null hypothesis. However the perception on beauty on picture 6 is statistically significant different among age groups as its p value, .046 is lower than .05. In this picture, beauty is perceived differently among age groups. This rejects the null hypothesis.

A Mann Whitney U test is conducted to determine which among the age groups is statistically significant different from each other.

Range					Statistic for test	b6
	age	N	Middle Range	Total Range		
b6	1	30	22.70	681.00	Mann-Whitney-U	54.000
	4	9	11.00	99.00	Wilcoxon-W	99.000
	Total	39			Z	-2.779
					Asymptotic Significance (2-sided)	.005
					Exact Significance [2*(1-sided Sig.)]	.006 ^a

Visual Perception on Online Picture 6: age1
Table 129

Test shows that age groups between 21- 30 years old and 51 to 60 years old has a p value equal .005. The p value was reduced to .005 by dividing .05 by the number of Mann-Whitney U-Test conducted. The test rejects the null hypothesis. This implies that perception on beauty is different between young people (21- 30 years old) and relatively older people (51-60 years old).

Statistic for Test^{a,b}

	b6	v6	u6	w6
Chi-Square	.012	.028	.012	.111
df	1	1	1	1
Asymptotic Significance	.912	.868	.913	.739

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 6: gender

Table 130

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b6	v6	u6	w6
Chi-Square	6.064	2.360	7.921	4.062
df	2	2	2	2
Asymptotic Significance	.048	.307	.019	.131

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 6: occupation

Table 131

Test shows that the p value on the perception of variety, uniqueness and well-being is higher than .05. This indicates that the perception of variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This does not reject the null hypothesis. However, Picture 6 in the category beauty

registered a score .048 lower than .05 which implies that perception on beauty in this picture is statistically different among occupational groups.

A Mann Whitney U test is used to determine which among the occupational groups is statistically significant different from each other.

Range					Statistic for test	b6
	occupation	N	Middle Range	Total Range		
b6	2	41	26.02	1067.00	Mann-Whitney-U	206.000
	3	17	37.88	644.00	Wilcoxon-W	1067.000
	Total	58			Z	-2.500
					Asymptotic Significance (2-sided)	.012

Visual Perception on Online Picture 6: occupation1
Table 132

The p-value is reduced to .01667 by dividing .05 by the number of Mann-U Whitney tests conducted. The result, .012 is apparently lower than the p-value, .01667. The test results reveals that white collared employed and the unemployed people have statistically different perception on beauty on picture 6. The test rejects the null hypothesis.

Statistic for Test ^{a,b}				
	b6	v6	u6	w6
Chi-Square	4.521	2.778	3.909	3.522
df	3	3	3	3
Asymptotic Significance	.210	.427	.271	.318

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 6: education
Table 133

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Null Hypothesis 10.7: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 7 among different groups.

Statistic for Test ^{a,b}				
	b7	v7	u7	w7
Chi-Square	5.672	7.798	5.255	6.476
df	4	4	4	4
Asymptotic Significance	.225	.099	.262	.166

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 7: age
Table 134

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test ^{a,b}				
	b7	v7	u7	w7
Chi-Square	.201	2.863	.780	.360
df	1	1	1	1
Asymptotic Significance	.654	.091	.377	.548

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 7: gender
Table 135

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

	b7	v7	u7	w7
Chi-Square	6.915	1.473	9.386	2.681
df	2	2	2	2
Asymptotic Significance	.032	.479	.009	.262

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 7: occupation
Table 136

Test shows that the p value on the perception of variety and well-being is higher than .05. This indicates that the perception of variety and well-being is not statistically different among respondents of different educational backgrounds. This does not reject the null hypothesis. However, the table also shows a statistically significant difference on the perception of beauty among occupational groups with .032. Moreover, the table also shows statistically significant difference on the perception of uniqueness among occupational groups with .009. The results of both tests reject the null hypothesis.

A Mann Whitney U test is also conducted to determine which among the occupational groups have statistically significant perception on beauty.

	occupation	N	Middle Range	Total Range	Statistic for test	b7
b7	2	41	26.20	1074.00	Mann-Whitney-U	213.000
	3	17	37.47	637.00	Wilcoxon-W	1074.000
	Total	58			Z	-2.410
					Asymptotic Significance (2-sided)	.016

Visual Perception on Online Picture 7: Occupation1
Table 137

Results reveal that there is statistically significant difference between white collared employed and unemployed people. This is explained through considering the different orientations of beauty between the groups. White collared employed people seem to see natural beauty differently based on the kind of work that they do or based on the developmental framework they have. This was observed in the qualitative research.

Range						
	occupation	N	Middle Range	Total Range		u7
u7	2	41	25.46	1044.00	Mann-Whitney-U	183.000
	3	17	39.24	667.00	Wilcoxon-W	1044.000
	Total	58			Z	-3.042
					Asymptotic Significance (2-sided)	.002

Visual Perception on Online Picture 7: occupation2

Table 138

Results reveal that white collared employed people and unemployed people have statistically significant difference on their perception on uniqueness. White collared people who are more exposed to different landscapes which are brought by factors such as education and travels may have different perception and may see more uniqueness in the landscape than unemployed people. This was likewise observed in the qualitative research.

Statistic for Test^{a,b}

	b7	v7	u7	w7
Chi-Square	5.935	4.271	6.604	1.351
df	2	3	3	2
Asymptotic Significance	.051	.234	.086	.509

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 7: education

Table 139

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Null Hypothesis 10.8: There are no differences on the perception of the online survey respondents on Karst landscapes based on picture 8 among different groups.

Statistic for Test^{a,b}

	b8	v8	u8	w8
Chi-Square	4.019	3.630	4.905	3.306
df	4	4	4	4
Asymptotic Significance	.403	.458	.297	.508

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 8: age
Table 140

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b8	v8	u8	w8
Chi-Square	.032	.216	.187	.009
df	1	1	1	1
Asymptotic Significance	.859	.642	.665	.925

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 8: gender
Table 141

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b8	v8	u8	w8
Chi-Square	1.394	1.280	3.449	2.038
df	2	2	2	2
Asymptotic Significance	.498	.527	.178	.361

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 8: occupation

Table 142

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

Statistic for Test^{a,b}

	b8	v8	u8	w8
Chi-Square	1.247	.704	1.561	.747
df	2	2	2	2
Asymptotic Significance	.536	.703	.458	.688

a. Kruskal-Wallis-Test

Visual Perception on Online Picture 8: education

Table 143

Test shows that the p value on the perception of beauty, variety, uniqueness and well-being is higher than .05. This indicates that the perception of beauty, variety, uniqueness and well-being is not statistically different among respondents of different educational backgrounds. This **does not** reject the null hypothesis.

VII. Chapter VII

This chapter discusses the results of the research together with the corresponding theories which has been used in the analysis of the study. Finally, it discusses conclusions and policy recommendations to improve stakeholder- government partnership in the implementation of protected area management.

VII.1 Discussions and Conclusions

In line with the research problem, perceptions of the local people are analyzed in seven different but complementing dimensions, namely;

- Aesthetic
- Livelihood
- Ecology
- Culture
- Social Impact of policies
- Conflict in protected area management
- Participation

In the next pages, quantitative and qualitative results shall be summarized and compared. After which, a set of concluding discussions will be presented elaborating the results and findings of both research methods. The theories supporting the seven different dimensions will be presented against the findings hence the conclusion whether to affirm or refute the claims of the supporting theories. The last part is the table on policy recommendation where existing international and municipal policies are presented against the dimensions, and in the process providing discussions, comments and recommendations for the improvement of existing policies or the formulation of policies which respond to the needs of the protected landscape.

VII.1.1 Results of Qualitative and Quantitative Data

Visual Landscape Perception Beauty

In the course of the qualitative research, it has been found out that the concept of beauty is culturally reflective. Parallel to is the finding of the online data. Perception on beauty on different ages differs significantly because of the variety of respondents coming from different countries and culture.

White collared employed people have a different view on beauty compared with the unemployed people.

Beauty is relative to age. Modernity influences the concept of beauty on young people. Middle aged people (31-40 years old) have a different perception on beauty compared to older people (61 years old and above).

Middle aged people (21-30 years old) have a different perception on beauty compared to older people (51 years old to 60 years old).

People who are more exposed to nature could better appreciate the beauty of nature. This is consistent with the place-dependence theory.

Beauty is influenced by external factors such as colonial mentality, education and media. People in far flung barangays have lesser access to the media. However the western colonialism is strong and still plays an important role in people's lives.

Urban people reconnect with nature through nature tours. Most people in the cities always see to it that they always try to

reconnect with nature to unwind from the urban stress.

Variety

Perception on variety is affected by individual orientation to the landscapes of the respondents. Some respondents see more details on the variety of the landscape. Particularly white collared workers who are more exposed to different landscapes which are brought by factors such as education and travels may have different perception on uniqueness.

The different varieties of the landscape is better appreciated by the blue collared workers because, they are more familiar with the landscape and their livelihood and daily needs are dependent to the different features of the landscape.

Perception on variety is seen through the exposure of male and female to the variety of the landscape in their day to day life. Men are more attuned to explore the variety of the landscape because of their livelihood.

Uniqueness

The concept of uniqueness differ between white collared employed people and blue collared employed people

Perception in uniqueness is based on individual personal experiences of male and female in the landscape.

Uniqueness is basically identified by external participants such as tourists, NGO workers and facilitators.

Uniqueness of the place is better appreciated by people who have travelled more. Most of the tourist's interview could relate uniqueness of a place through comparisons. Uniqueness is influenced by point of comparisons, and criteria created by society. Local people have different criteria of uniqueness and beauty. Through comparison of similarities people are able to see its uniqueness.

Well-being

Well-being is perceived differently by NGOs, GOs and the local people.

Well-being is a broad term, differently understood by a lot of people. There are different factors to consider such as, ecological health, social and economic conditions. The harmonization of these factors is perceived as well-being.

Well-being of the landscape is better understood by the people living and working in the area of concern. Local people are able to identify the lost of some endemic species of flora and fauna.

Perception on well-being in picture 5 reveals that there is a statistically significant difference across age groups. This is explained on the fact that some respondents were not able to fully understand what well-being is in the context of visual landscape assessment. The point why the different categories were not operationally defined by the researcher in the study is to sort out individual meanings of respondents to the mentioned categories.

Perception on well-being differs between white collared employed people and unemployed people. White collared employed people may have academically-oriented perception on the well-being.

Livelihood and tourism

Place Dependence

Most of the people rely on the karst landscape as means of livelihood since most of them are farmers, hunters and weavers

Eco-tourism is not so popular compared to commercial tourism. Local people are not comfortable of the huge influx of tourist. Local businessmen however who benefit from the influx of tourists are happy of the increasing number of tourists in the

province. Commercial tourism must be controlled according to some experts.

Local people perceived that tourism development in Karst areas must be regulated by the government. Built infrastructures must correspond to the natural environment.

Poverty Reduction Programs of the local government are partnered with international institutions and governments. One of which is FOCAS, which is partnered with the Aus Aid.

Eco-tourism is not so popular compared to commercial tourism. Some problems include; Lesser facilities and lesser promotion and campaign.

The results of local perception on livelihood and tourism in the quantitative survey are not statistically different among different groups- age, gender, length of stay, education, occupation. This means that since most of the respondents are farmers and is below poverty line, their use and valuation of the natural resources of the karst landscape is basically the same.

Ecological Health

There is a deep relationship between the local people and the karst landscape because it is the source of their livelihood, source of their daily needs, water, food, firewoods for cooking etc, the karst forest is also the source of their alternative medicine. Herbal medicines are popular alternative medicines. In the quantitative survey, it has been found out that blue collared employed people whose job is primarily exposed on the natural environment has different ecological perception compared to white collared employed whose ecological perception may be academic, theoretical, sedentary and bureaucratic.

People resort to alternative medicines because of lack of health services from the government. The karst landscape is also meaningful to them because it is their place for enjoyment and recreation.

The ecological problems that that seen in this area are commercial farming, monoculture -replacement of native plants with exotic ones.

- Illegal collection of wildlife
- The rise of oil palm plantations

Blue collared employed people with the nature of their work primarily exposed to the natural environment have different ecological perception on caves compared to people who have no work.

Cultural Identity

There are some values reflected in the ethnography that are eminent among the local people. One of which is the bayanihan (cooperation) and pakikisama (camaraderie) values. These values are closely intertwined with each other. This value is a value needed in local participation in protected area management.

Daginot (conservation) is a value shown by the Boholanos. This also reflects their creativity in reuse and recycling of things.

High respect for revered sites- This value only shows the Boholanos respect of nature, the forests and mountains since they believed that these are dwelling places of their ancestors and other environmental spirits.

The Boholano living in this place greatly identifies themselves with the features of the landscape and in fact is very proud of the Chocolate Hills and the forests of the Raja Sikatuna.

Nature Values

In the quantitative survey, it was found out that there are differences on non use value between elementary graduates and high school graduates. The opposition to the non-use value differs between elementary and high school respondents.

Place Identity

Moreover, perception on place identity differs between people ages 21 to 30 years old and 61 years old and above. Older people could identify themselves more to the karst area compared to the younger ones. Each age group has different perception on place identity. People who have lived longer in the karst area could identify themselves more to the landscape.

Perception of the local people on policies protecting the karst landscape of Bohol and how do these affect them?

People think that the main goal of the government is tourism promotion not protection

Businessmen benefit from the tourism campaign

White collared workers are in favor of protection, because they see the need to protect and conserve the natural resources of the area

Only few benefit from the alternative livelihood programs initiated by NGOs because of lack of funds

Protection mechanism are protectionist in nature, not truly welcoming local participation.

Results of the quantitative survey shows that there are differences in the perception of people on policies protecting the karst landscape of Bohol.

Statement number 4 which says that " People's rights are not well protected in protected area policies" reveals the differing views of women and men concerning people's rights in protected area policies

Statement 1 –“There is a need to protect the karst area” Perception on statement 1 is statistically different across educational groups. This means that there are varying perceptions of respondents coming from different educational backgrounds of whether or not there is a need to protect the karst landscape. Moreover, statement 3 -“There is too much politics in the administration of the protected areas” reflects a p value of .017, very much lower than .05. This means that there are different perceptions of respondents coming from different educational backgrounds. on the perception that “ There is too much politics in the administration of the protected areas”

However, statement 4 reveals a lower p value of .044, lower than .05. This implies that the perception on “People’s rights are not well protected in protected area policies are significantly different across occupational groups. This mean that perceptions on peoples rights in protected area policies are viewed differently among white collared worker, blue collared worker and unemployed people. Rights are differently perceived by different classes depending on how they enjoyed their rights to the landscape.

The perception on the impact of the protection policy to the forest reveals a p value lower than .05 which is .023. This implies that the perception on the impact to the forest is statistically different among respondents with different length of stay in the karst area.

Younger group (21 – 30 years old) may have different perception on the impact of the protection policy to the forest from the older group (41- 50 years old).

The same test was conducted to determine which among the group are statistically different from each other. Of the 10 test

conducted, the group 21 – 30 years old and 51- 60 years old revealed to be statistically different from each other with a p value of .004, lower than .005. This implies that younger group (21 – 30 years old) may have different perception on the impact of the protection policy to the forest from the protection policies from the older group (51- 60 years old).

What are the problems experienced by the implementing agencies in protecting the karst landscape? What are the efforts of the government to resolve such conflicts?

Lands within, around the Chocolate Hills protected areas were previously private alienable lands, but upon the promulgation of the protection law, private ownership rights were abrogated. This has caused social conflict which worsened the insurgency problem of the area. This was resolved through the restoration of private property rights in the Chocolate Hills protected areas however this posed a great threat of uncontrolled development of the area.

Tenured Migrant Communities in the Raja Sikatuna Protected are in fear of being covered by the new provisions of the Protected Area Community Based Management Agreement (PACBRMA) which defines a new zoning system – restoration zones. . Under the provisions of PACBRMA, restoration zones are not eligible for tenure

Other problems include:

- Distrust between NGOs and the government;
- Confusion between NGOs, DENR, PAMB and the government on the control and authority over the protected areas;
- Devolved functions of the DENR are overlapping local functions

- DENR is highly centralized, hierarchical bureaucratic;
- Incidence of corruption and misuse of funds.

In the quantitative survey, tests show the p value of .003 which is lower than .05 suggests that the factor on lack of enabling mechanism on people's participation in protected area management is statistically different across age groups. This rejects the null hypothesis.

Tests also indicate the p value of .010 which is lower than .05 suggests that the feeling of neglect on people's participation in protected area management is statistically different across age groups. This rejects the null hypothesis.

Tests reveal the p value of .003 which is lower than .05 suggests that the factor on lack of political will of public administrators to establish participations mechanism in protected area management is statistically different across age groups.

Are the local people involved in the protected area management of the karst landscape of Bohol? What are the factors that may hinder participation?

Local Critic on Multi-stake holder participation :

- stakeholders are not truly representative of the local people
- Resource users-tenured migrants and local residents within the karst vicinity are not well represented
- Other shareholders only speak of their own concern
- Real people participation is the minimalization of influence of policy makers, public administrators, planning experts in the decision making, giving people their right to decide.

Problems that are seen by the local people on participation:

- Lack of information dissemination

- Lack of consultation
- Lack of enabling mechanism
- Distrust in the government
- Lack of political will
- Lack of participation in the conceptualization of plan

Quantitative research shows that the results of local perception on participation in the protected area management are not statistically different among different groups- age, gender. This implies that the local peoples participation in all level of governances not significantly different among groups. Local people are basically enjoined to participate in consultations and public hearings which are mandated by law, other than that, there is a very slim participation of local people in other areas of development work.

VII.1.2 Discussion of Results

VI.1.2.1 Visual Landscape Perception

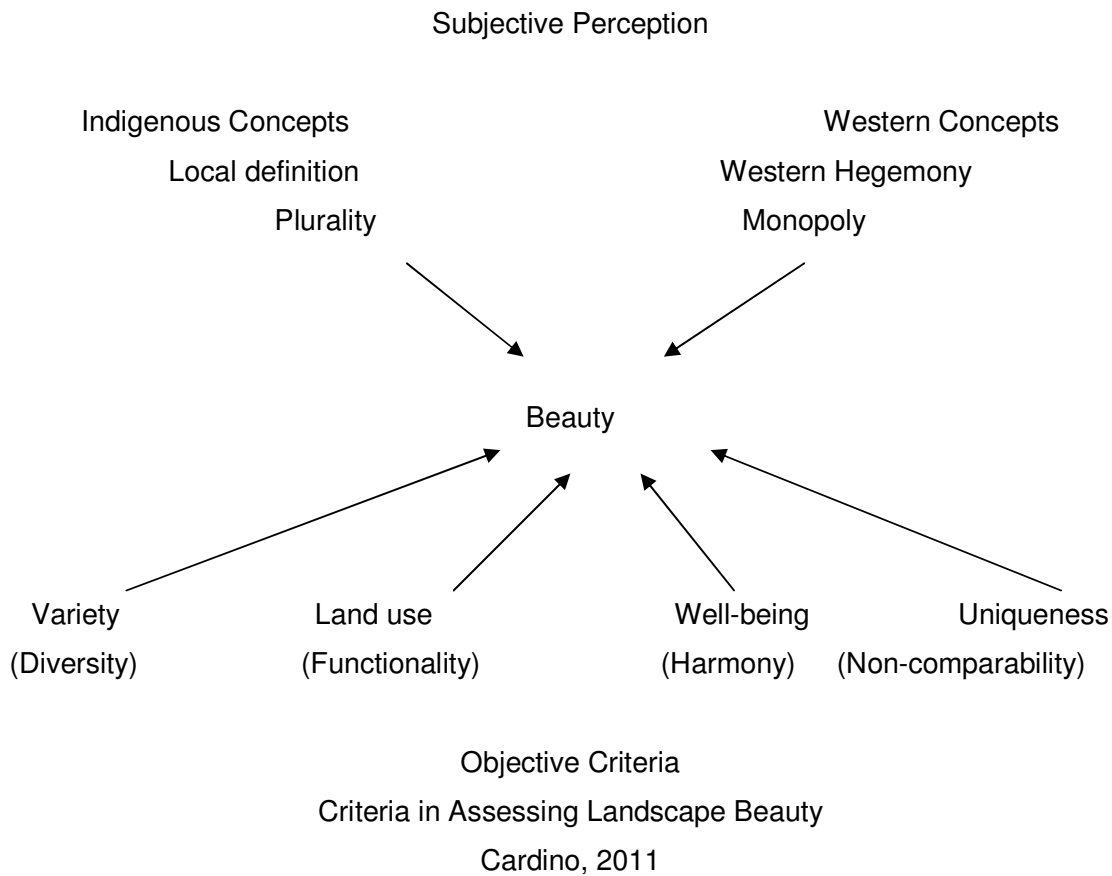


Figure 14

The above figure illustrates the subjective perception of beauty, divided into two sub-sections, namely: indigenous concepts- which promotes local culture and definition of beauty and in the process develops plurality of culture, and; western concepts which has been brought by western colonizers and continues to exist through western hegemony (Post colonial premise) and in the process encourages, western monopoly of culture. Above anything else, there are objective properties/criteria of beauty which are observable, measurable and comparable. These are; Variety, Land-use, Well-being, and Uniqueness.

There were three methodologies used in the Visual Landscape Assessment. One is the on-site visual landscape assessment with the use of field questionnaires and pictures. Second is the focus group discussion which aims to sift out a deeper meaning of beauty,

variety, uniqueness and well being through sharing of thoughts, ideas and experiences. Third is the online- visual landscape assessment which is done through internet survey, with the help of pictures from the landscape. The internet survey was generally effective however, it has some limitations. People's senses are very much attracted to stimuli like color, smell, sound, ambiance and taste. This is important in qualitative experience/phenomenological modules of gathering data on visual landscape assessment. These stimuli are not at all effectively present except for color in pictures. This would not conform to a holistic judgment on beauty, variety, well-being and uniqueness which requires other senses. Ecological well-being may not at only be judged on pictures, but could be felt and smelled. The landscape moreover has variety of features which would not be effectively captured in the camera. Landscape appreciation is a personal experience through entire ambiance of the landscape and does matter in the actual assessment of perception of the landscape. However, the use of photographs in the online-visual landscape assessment is a good alternative when target respondents are not directly available on the landscape.

The idea of which is to collect data and information from people coming from different walks of life on their perception on the landscape. Consequently, the results were complementing to each other.

It draws to a common observation that:

- The concept of beauty is culturally reflective. In contrast to Kant's argument on the universality of beauty in this sense, the concept of beauty is cultural. People have strong emotional bond with their landscape. People tend to appreciate more on landscapes which are ecologically healthy, having vibrant colors, and variety of features.
- People who are more exposed to nature could better appreciate the beauty of a natural landscape. Nature loving people, development workers, scientists, teachers, farmers, foresters, hunters etc. tends to appreciate the beauty of nature more because of their personal experience with it.
- Beauty is influenced by external factors such as colonial mentality, education and media. This is an important factor to consider, since the Philippines as a former colony of two western countries, western cultural influence is very strong. Though not totally neglecting the ethnic concept of beauty, it changes the

- people's mentality on development as more people are attracted to industrial development and modernity. More people are leaving their fields and going to cities, in the hope of a better life.
- Uniqueness is elaborately seen by external participants- the tourists and NGO workers. Well-travelled tourists appreciated the uniqueness of the landscape better because they could compare the landscape to many places they have been to. Unlike other categories, uniqueness is more often times appreciated through points of comparison. Some of the local people living in the landscape most of their lives, find the landscape ordinary, however, this have no correlation on their visual aesthetic appreciation on the landscape. In the online forum, some local people who have already migrated to other places found the landscape unique. Uniqueness can only be seen when there are many bases of comparison.
 - Uniqueness of the place is better appreciated by white collared workers. White collared workers who were comprised of teachers, office workers and development workers have opportunity to travel and have better access to books and other materials which would expose them to other landscapes.
 - Well-being is perceived differently by NGOs, GOs and the local people. There are so many factors that may contribute to this. One is the understanding of the term well-being. Most of the respondents have a difficult understanding of well-being. It was intentionally not defined by the researcher so that respondents would eventually construct the concept of well-being themselves. Well being was understood in many different contexts. Popular use of the term well-being related to health. Hence, some referred well being to ecological well being and others understood it in a socio-economic sense. More educated people are more aware of the concepts of ecological well-being, thus could identify ecological problems better. Well-being impliedly is the harmonization of the ecological, social and economic conditions of a landscape. All of these three factors contribute to the well-being of a landscape and are complementary to each other. Well-being of the landscape is better understood by the people living and working there. Though the local people are primarily composed of farmers, and are lowly educated they were able to identify some native species of flora and fauna. The local people knew better of the behavior, features and geography of the

landscape. Moreover, the local people were able to notice some changes of the landscape in terms of; slowly decreasing number of such endemic specie like tarsier, flying lemur and the local civet cat, and the slowly decreasing number of native trees such as molave, tugas and yakal. These hard woods are popularly used as fundamentals in building homes. The local people served as forest guides because they knew more about the terrains and topography of the landscape. Knowledge sits in places. The local people were the key informant in the researcher because of their local knowledge to the place.

Comparison of the results of on-site visual landscape assessment and on-line visual landscape does not reveal many differences. This is because surveys deals with close ended questions. The categories in rating the landscape were basically broad and sometimes vague. The concept of beauty for instance though universal as it suggest, is actually broad because of the so many classifications and consideration of the concept of beauty. First, it is culturally relative and second, it is influenced by other factors like mental colonialism, media, education, religion etc. But, in the end, the results manifest a clearer definition of beauty. Beauty in local concept would mean natural fresh and idyllic. The local people though welcome any form of development intervention, would largely want to preserve the natural beauty of the landscape. The discussions in the on-field focus group discussion and the on-line forum produced varied opinions. Some people initially welcomed the idea of theme parks but later realized that it would damage their landscape. Some people hated the very main idea of commercial tourism since it would disturb their simple way of life. Some suggested that more resorts and rehabilitation clinics be established to improve local economy and provide more jobs. Tourism development in protected areas must be carefully controlled and regulated. It must conform to the natural setting of the place. A sustainable eco-tourism would demand, a pro poor tourism, where the well being of both the environment and the local people is being well taken cared of.

VI.1.2.2 Livelihood

Most of the local people rely on the karst landscape as means of livelihood since most of them are farmers, hunters, weavers. The local people have functional dependence on the karst landscape. Functional dependence would not only connote on livelihood

dependency but most importantly on the different functions of the landscape, which include basic resources such as water, food and anything which the landscape has to offer. Employment on the other hand was difficult to define. Local residents had the tendency to consider only jobs with formal employers and contracts to be real employments. Other jobs like laundry washing, and selling snacks, cigarettes and candies were not considered to be an employment. Government agencies are confronted with many problem when the karst landscape was declared a natural monument and all human activities where prohibited. The lost of livelihood resulted to social unrest. This situation was appeased when the lands surrounding the hills of the chocolate hills were considered alienable. In the case of the Raja Sikatuna Protected Landscape, a Tenure System was developed where the local people are given the right to occupy and use the resources of the land within the terms and conditions of the tenure. The Certificate of Stewardship/ Protected Area Community Based Resource Management Agreement/ Community Based Forest Management Agreement cannot be sold or turned over to a third party. People's attachment to the karst landscape is not only based on livelihood but more or less on sentimental and affinity values. Most of the people are closely attached to the landscape because of close-family ties, and the sentimental value of the landscape.

Eco-tourism is not so popular compared to commercial tourism. Eco-tourism is so designed that environmental resources be sustainable while promoting tourism. There are some critics coming from the civil society that the media package of the tourism campaign in the province of Bohol is misleading. It tags itself as an Eco-tourism hub but in actual practice, a commercial tourism. Eco-tourism would mean control on the massive influx of tourists, a controlled tourism development which considers categories such as sustainability, ecological, social and economic soundness. Eco-tourism has basically a smaller market compared to commercial tourism. The province of Bohol does not have a comprehensive eco-tourism package which would showcase the natural beauty of province. Tours are not so well coordinated and managed. Most of the target tourists in Eco-tourism are students, teachers, academicians, families, and nature-loving groups.

Local people are not comfortable of the huge influx of tourist. Ironically, while the Raja Sikatuna Protected Landscape is being marketed as an eco-tourism spot, the Chocolate Hills Natural Monument enjoys its fame as a commercial tourist attraction. Though tourism in the Chocolate Hills has provided a boost in the local economy and provided

jobs through the creation of tourism facilities, some local people are not comfortable of the presence of so many tourists in the area. They demand that tourism must be controlled. The uncontrolled and uncoordinated arrival of tourists caused some disturbance to the local people. The commercialization of tourism has caused the erection of built tourism facilities which are not conforming to the natural setting of the karst landscape.

The Poverty Reduction Program of the province is based on the sustainable livelihood approach. Most of the livelihood programs of the government is partnered or funded by international organization like GTZ, USAid, World Bank, Asian Bank, European Commission and many others. The PACAP (Philippines – Australia Community Assistance Program) of the AUSaid recently concluded a five year community development program in the province of Bohol. The FOCAS (Focal Community Assistance Scheme) is restricted grant assistance by PACAP. There are four FOCAS in the province of Bohol : 1; Sustainable Agri-Business and Enterprise Development in Northwestern Bohol, 2; Enhancing Ecological-Cultural Tourism in Central-Eastern Bohol, 3; Sustainable Agriculture for Food Security and Economic Development and 4; Water and Sanitation. The province of Bohol is in partnership with several local non-government organizations in alleviating poverty in the province. The FOCAS project provides, financial assistance, capability building opportunities in product development and marketing of local resources. It also likewise promotes the sustainable use of local resources by conserving native flora and fauna.

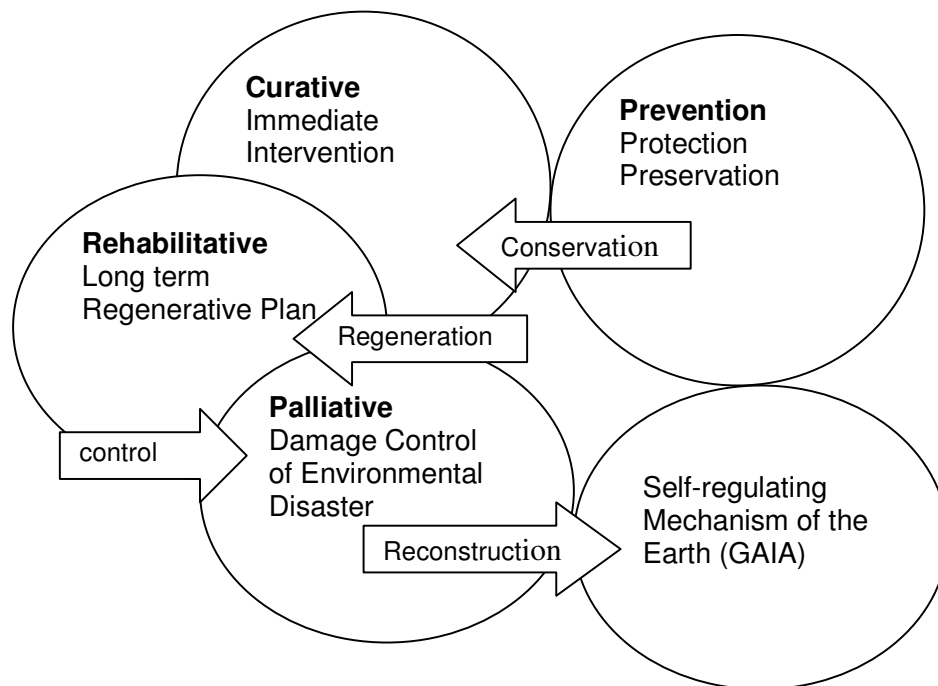
There are some social factors which poses a challenge on the poverty reduction program of the government. The Philippines is still a patriarchal society. Some men who are generally bread winners of the family still practice the *querida* (concubine) system. The *querida* system is embedded in the Macho image of men in the Philippines. Though not generally construed, this is a socially accepted practice in rural areas in the Philippines. There are even homes with two families with the same patriarch. Instead of feeding only one family, a man needs to make both ends meet for two or even more families. The problem on family planning is a good point to consider. The family planning campaign of the government has not really penetrated to the roots of society. Most of the people in the rural areas are conservative catholics and firmly believes in the dogmas of the church. A father who earns three hundred pesos a day would budget his

earning for the food, clothing, education of his (eight to ten) 8-10 children or even more. This is not to include typical man's typical vices like drinking and smoking. Population must be curbed in order to better address poverty.

Filipinos are used to the dole-out system. People think when they received something from the government or any other institutions; it is given for free without any obligation to pay. The local people also lack entrepreneurship. Most of the local people would rather save their earning for the education of their children, or for other purpose rather than taking the risk of investing their money. Capability trainings on livelihood and entrepreneurship must be intensified to solve this problem.

The survey results of local perception on livelihood and tourism are not statistically different among different groups- age, gender, length of stay, education, occupation.

VI.1.2.3 Ecology



Phases of Environmental Intervention

Cardino, 2011

Figure 15

The above figure presents the Phases of Environmental Intervention. These interventions are based on the consideration of the environment as a living organism, a

human being. In the assumption that the environment is a human being, interventions similar to therapeutic-medical approaches are used.

Preventive- the activity of protecting the environment from loss or danger. This would include protection, preservation and conservation and other approaches which tend to prevent catastrophic effects on the environment.

Curative- are immediate interventions to "cure" the environment. These are normally short term interventions.

Rehabilitative- are interventions which are long term in nature which aims to restore, revive and reestablish original conditions of the environment

Palliative –are interventions which try to relieve, lessen, and mitigate serious environmental disaster. Environmental disasters which are believed to be non-rehabitable would be strictly controlled or a complete prohibition of human encroachment. Healthy parts would be preserved and developed, while "dead" and "dying" parts would be strictly isolated from human intervention.

Self-Regulating Mechanism of the Earth- the GAIA theory suggests that mother earth and the environment would eventually recover from all environmental damages brought by mankind. This process however would take centuries, or even millennia.

There is a deep relationship between the local people and the karst landscape because the landscape is the source of their livelihood and their daily needs, water, food, firewoods for cooking etc, the karst forest is also the source of their alternative medicine. Herbal medicines are popular alternative medicines. People resort to alternative medicines because of lack of health services from the government. The karst landscape is also meaningful to them because it is their place for enjoyment and recreation.

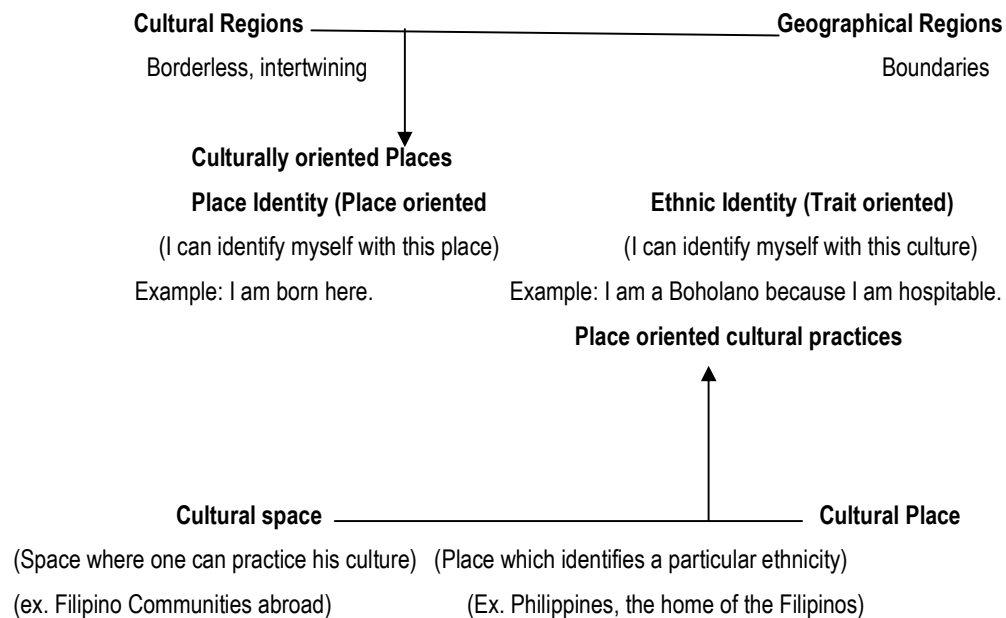
The ecological problems that are seen in this area are commercial farming, threat of monoculture (i.e. mono-cropping, oil palm) and illegal collection of wildlife.

Blue collared workers e.g. farmers, hunters, birds nest collectors etc. view the landscape in its functional value. Functional value would mean the credits attributed to the functions and uses of the landscape. This may also refer to the purpose of the landscape the results also reveal that there is a strong response on human domination of nature, that humans should be stewards of nature. This would refute the world view on nature's intrinsic value, that nature has value on its own independent of men. This is because majority of the respondents are Christians, and it is a judeo-christian doctrine that men

are the stewards of earth (Genesis, the Holy Bible). Through this doctrine, men are given the right to exploit natural resources based on their needs and also have the responsibility to take care of nature. Humans moreover are by nature political, who have more tendencies to rule and dominate. Academicians, development workers do consider nature to have intrinsic value, or a value of its own independent of human existence. This is very much elaborated in the GAIA thesis, and other pro-ecological theories. The theorists of the GAIA thesis contend that mother earth can survive on its own, independent of human intervention and that while men may have finite end, the earth would always have a self regulating mechanism. Without human intervention, nature would invade and rule cities, (i.e Chernobyl, Ukraine). It can be noted that in the theory of creation, plants and animals existed first before men.

The rise of oil palm plantations posed a great threat on the proliferation of exotic plants. Oil Palms are not endemic to the province, hard to cultivate and requires more chemical fertilizers to maintain. It would also cause the destruction of secondary forests surrounding in the karst landscape. It is important to note that forests are important in the karst landscape because it helps in the preservation and accumulation of water resources. More and more farmers are encouraged to plant oil palms since it is more profitable and they have immediate buyers.

Cultural Identity



Place Identity, Cultural Identity Relations Diagram

Cardino, 2012

Figure 16

A person may identify himself with the culture of the place -culturally oriented places. (ex.I am a Filipino because I come from the Philippines). The Philippines is not only a political territory but a nation which identifies the Filipino culture. A person may identify himself with the culture of a particular ethnicity – place oriented practices. (ex. A Filipino born in Germany identifies himself as a Filipino although he has a German citizenship because he practices Filipino culture.)

There are some values reflected in the ethnography that are eminent among the local people. The *bayanihan* (cooperation) and *pakikisama* (camaraderie) values are just some of which. These values are closely intertwined with each other. Identifying and developing these values would facilitate a better participation.

Daginot (conservation) is a value shown by the Boholanos. This also reflects their creativity in reuse and recycling of things.

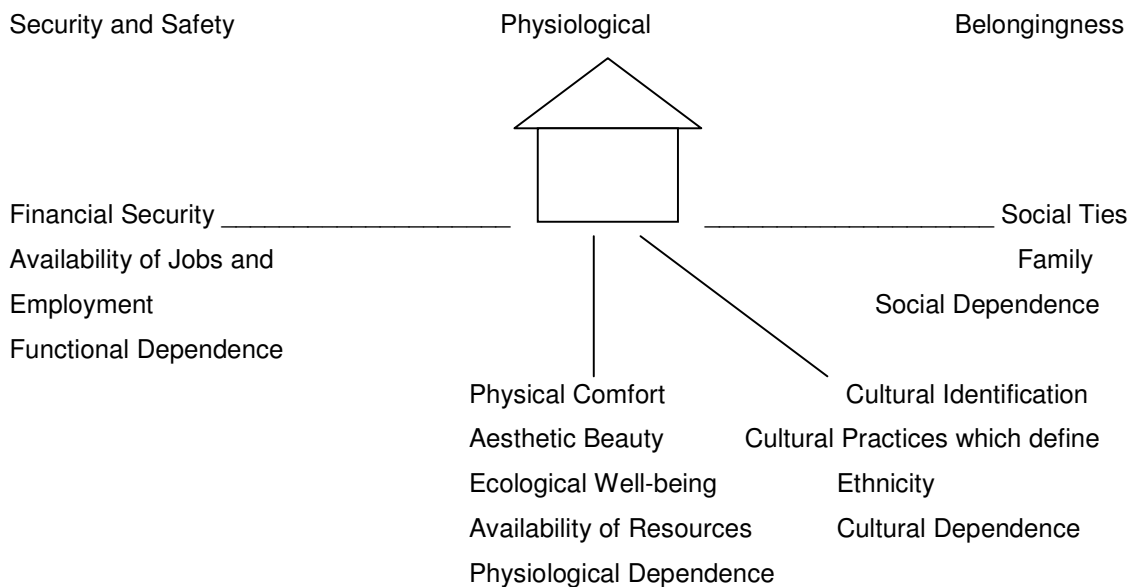
The local people have high respect for revered sites. This value only shows the Boholanos respect of nature, the forests and mountains since they believed that these are dwelling places of their ancestors and other environmental spirits. Because of such belief, people are hesitant to cut old trees or disturb the forest. Basically the threat on the landscape and its forest comes from people outside the landscape.

There are differences between education levels and the non use value of protected landscapes. Better educated respondents do agree on the non use value of the landscape that it be preserved and be protected from human exploitation through prohibition in the area so that flora and fauna could regrow and replenish. This is articulated through the creation of Buffer Zones and Prohibited Zones. Human encroachment and intervention is limited or totally prohibited in these special zones so that nature would recover, and restore its important attributes.

Age and length of stay are important categories to consider on peoples attachment to their environment. Older people and people who have lived longer in the karst area have stronger ties with the environment and could identify themselves with the area better. Place Identity is formed, established and strengthened through other factors which include, social ties (man is a social animal), cultural adjustment (man's adaptability to the way of life in the locality), financial security (Maslow's Hierarchy of Needs, survival and security needs) and physical attachment to nature (man prefers to live in a comfortable

place, with beautiful ambiance aesthetic view and ecological well being of the environment). Although these factors are subject to bargains, like for instance, man may bargain social ties with financial security.

The Boholano living in this place greatly identifies themselves with the features of the landscape and in fact is very proud of the Chocolate Hills and the forests of the Raja Sikatuna. There are three modes of place identity manifested by the Boholanos. These are: their association to the physical space, the region and the landscape; their association to the social space, the neighborhood ties, and the community and their association to the cultural space, the local way of life.



Dependence Diagram on Place Identity and Attachment

Cardino, 2011

Figure 17

The above diagram presents the dimensions of dependency on the landscape; these are functional, physiological, cultural and social dependence. These dependences are ordered according to the Maslow's Human Needs Model.

VI.1.2.4 Social Impact of Policies

People think that the main goal of the government is tourism promotion not protection of the karst landscape. There has been growing mistrust among stakeholders regarding the management and the use of funds for the promotion and development of the Karst landscape. Allegations of corruption have surfaced, and the government-civil society trust has been partially damaged. People are distrustful of government motives and people trust private organizations and non-organizations more than the government. Most of the policies on protected areas are purely focused on natural resource protection and less is mentioned on scenic quality.

Most of the businessmen benefit from the tourism campaign of the government. The promotion of tourism prompted the erection of tourism facilities. Only few benefit from the alternative livelihood programs initiated by NGOs because of limited funds. Protected area policies in the province are protectionist in nature, not truly welcoming local participation. Government executives are used to monopoly and control and participation is conducted in compliance with the mandates of law and oftentimes nominal and rubber stamped. Stakeholder representation is not legitimately identified by the local people themselves. Local people demand direct participation through the creation of strengthened people's organization. The DENR is still in full control over the karst landscape.

Statement number 4 which says that "*People's rights are not well protected in protected area policies*" reveals the differing views of women and men concerning people's rights in protected area policies. Women and men's rights, since time immemorial is a critical issue in the legal system of the country. Women demand more laws that promote their welfare and protect their rights.

There have been differences of opinion if there is a need to protect the karst area among educational groups. This is because some people deny any ecological crisis in the karst landscape.

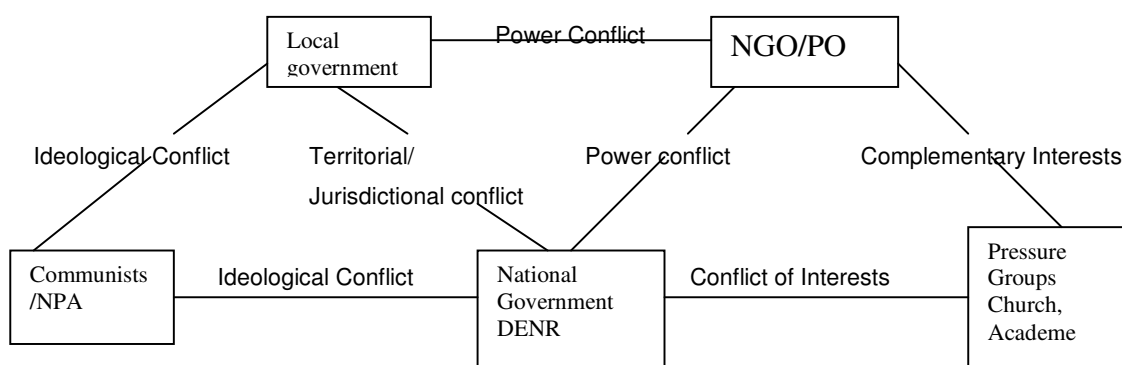
There have been differences of perceptions among the education- group of whether there is too much politics in the administration of the protected areas". This is because there are some people who are optimistic and apathetic about the government. Though most people in far flung barangays are apathetic to the government, there are still some sectors who believe in the government and the people governing the karst area.

There is also a noticeable differences of opinion among occupational groups if "*People's rights are not well protected in protected area policies*" Those who benefited from the protection, particularly those who were able to avail of some livelihood programs are

amendable to protection but those who did not benefit from it are doubtful about the real intentions of the government

People who live longer in the protected area could easily see the impact of the protection policy to the forest and other features of the landscape. Since the prohibition of quarrying, the karst landscape has slowly recovered from human exploitation.

Conflict – property management



Conflict Relationships between Key Sectors of Governance in the Province of Bohol
Cardino, 2011

Figure 18

The above diagram presents the conflict relations between the different sectors present in the protected landscape.

Power is a very important factor to consider conflict relations between sectors/stakeholders. These power relations relate to the political spheres of influence of each sector. To these sectors, these spheres of influence are sacred, and an intrusion to these spheres would lead to conflict.

VI.1.2.5 Social Background of Conflict

Lands within, around the Chocolate Hills protected areas were previously private alienable lands, but upon the promulgation of the protection law, private ownership rights were abrogated. This has caused social conflict which worsened the insurgency problem of the area. This was partially resolved through the restoration of private property rights in the Chocolate Hills protected areas however this posed a great threat

of uncontrolled development of the area. Since the lands around the hills are now private lands, the government does not have direct control over it. The Chocolate Hills Natural Monument is a compact landscape, and the lands around the hills form part of the landscape. The tenure migrant system should have also been applied to this effect, so that private individuals, though they are free to occupy, and exploit the landscape at a certain limitation, would not have a direct control over the landscape, thus the fear of uncontrolled building of structures will be minimized.

The tenure migrant system is used in the Raja Sikatuna Protected landscape but still faces problems and challenges. Tenured Migrant Communities in the Raja Sikatuna Protected are in fear of being covered by the new provisions of the Protected Area Community Based Management Agreement (PACBARMA) which defines a new zoning system – restoration zones. Under the provisions of PACBARMA, restoration zones are not eligible for tenure. This fear was minimized when only a small portion of the Raja Sikatuna was declared a restoration zone.

The problem on insurgency however, has been existing in the province for almost half a century. Most of these problems emanate from land disputes and social injustice. Most of the farmers do not own their lands and the Comprehensive Land Reform Law has been ineffective as a law in terms of implementation. Vast lands owned by rich town people have not been effectively redistributed to farmers who are actually tilling the land as the law provides. The Communist movement is gaining power in the rural area because of government's failure to provide adequate basic social services to the people. The Communist's arm, the New People's Army is very influential particularly in far flung *barangays* (villages). The Communist's movement takes advantage on people's dilemma, proliferating campaign that the government's real motive on protection measures is tourism, and land grabbing. If clearly analyzed, the protection mechanism would not out rightly disperse people from their domain, rather, would set borders on the use of the landscape, thereby limiting their private property rights. Land owners may still use/till their lands according to the requirements set by the law. Moreover, they are not allowed to sell their lands to other people. It has been long observed that people coming from different political spectrum would instigate conflict and unrest to overthrow an existing government. This is initially done through a protracted campaign which establishes its foundations from the periphery to the center.

There are several problems within the landscape which surfaced during the ethnography, these include:

- Distrust among stakeholders, between NGOs (Non-government Organizations) and the DENR (Department of Environment and Natural Resources)
- Confusion between NGOs, PAMB (Protected Area Management Board) and the government on the control and authority over the protected areas
- Confusion on their stakeholder's respective roles. The DENR, Local governments and PAMB have overlapping functions. Though functions may be overlapping, roles must be well defined to avoid confusion.
- DENR is highly centralized, hierarchical, and bureaucratic. The top-down approach fails to identify and address local issues and concern. The DENR as a national government would impose its direct authority over the protected areas. This expectedly comes into conflict with the Local governments because they would also assert their autonomy from the national government. DENR functions must be devolved.
- Allegations of corruption and misuse of funds
- Lack of enabling mechanism on people's participation in protected area management. There are minimal avenues available for local people's participation. Consultations are conducted since this is mandated by law. Local people demand participation in all areas of governance.

Sector	Source of Power
Government	Legal Authority (de Jure)
NGO	Technical Expertise
Business Funding Organizations	Money
Church	Dogma, Religious Influence
Academe	Theoretical Knowledge
People	Unseen, Unrecognized, Ignored Local Knowledge

Sectors and their Source of Powers

Cardino, 2011

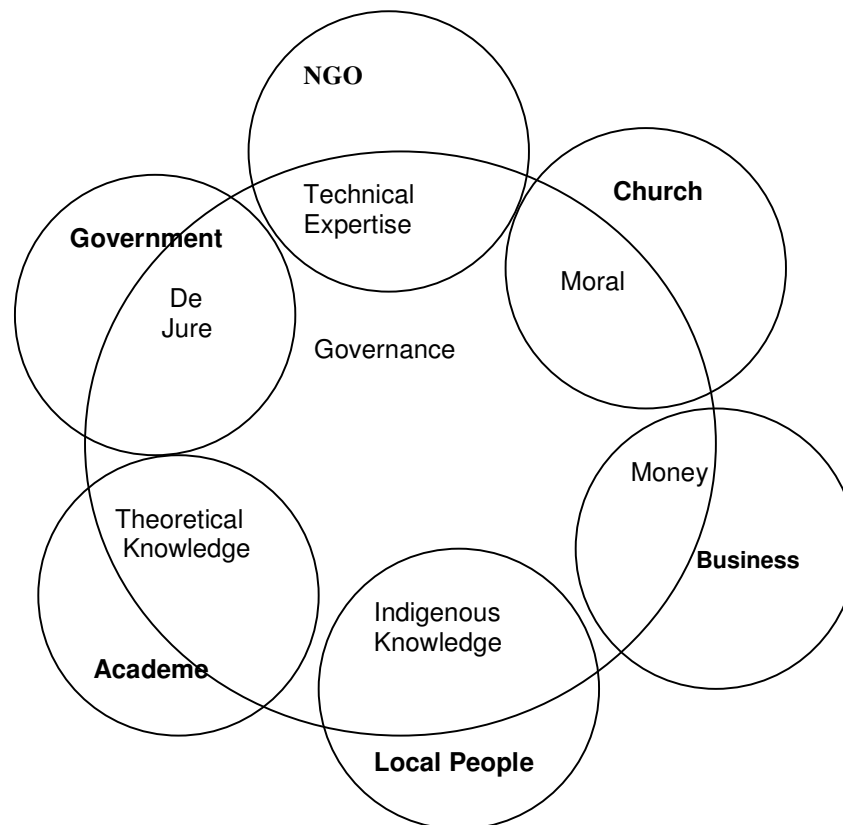
Table 144

This table explains the source of power of each corresponding sector which plays an important role in community governance. In this table, it can be clearly seen that though government has legal authority on governance, it would prove to be futile and ineffective without the help of other sectors which has strong influence over their claimed power.

Non-government organizations hold control of the technical expertise which they have gained through trainings, scholarships capability building supported by external influences such funding donors and international organizations. Non-government organizations have the social responsibility on the "transfer of technology" through re-echoing their learned expertise to insure sustainability.

The church has the moral authority in governance. Though under the Philippine constitution, there is a doctrine of church and state, the church still plays an important role in governance since 95 percent of the Filipinos are Catholics.

While in democracy, the power of the State emanates from the people, this power is however unseen, unrecognized and ignored through different means of disempowerment.



Spheres of Influence in Governance

Cardino, 2011

Figure 19

Each sector has its own realm of influence. An overlap or intrusion to this realm would instigate conflict. Every sector wants to take a big share of the governance pie, which consequently leads to conflict.

The above table presents the different sectors with their respective source of power. The identification of these powers is very much critical in analyzing conflict and power relations between the sectors.

VI.1.2.6 Participation

Elinor Ostrom primarily focused her research on the influence of public choice on production of goods and services. Inspired by the democratic principles of autonomy and self governance, Ostrom claims that humans play a very important role in maintaining

economic resources or common pool resources such as forests, fisheries, oil fields, grazing lands, and irrigation systems.

Ostrom identified eight "design principles" of stable local common pool resource management:

1. Clearly defined boundaries (effective exclusion of external un-entitled parties);

There are definite boundaries outlined by legal instruments in the management and protection of the Karst Landscape of Bohol. Problematic however is that these boundaries are overlapping with political territories of each municipality. Therefore the management and control of the karst area is difficult because of the political interests of each municipality over the landscape.

2. Rules regarding the appropriation and provision of common resources that are adapted to local conditions;

As a protected area the rules that govern the exploitation and use of the Karst Landscape are more prohibitive rather than inclusive. Prohibition stirred social unrest which continues to exist until this day.

3. Collective-choice arrangements that allow most resource appropriators to participate in the decision-making process;

There are measures defined by law to establish a collective choice arrangement; however participation is not sufficient and political influences on people's choices remains to be a problem.

4. Effective monitoring by monitors who are part of or accountable to the appropriators;

Since the Karst Management is financially supported by international funding organizations, a systematic monitoring system conducted by external auditing firm is established. Monitoring is however not locally in placed. The community should establish a monitoring and evaluation system which involves the people so that they themselves would reflect on the shortcoming and failures of implementation.

5. A scale of graduated sanctions for resource appropriators who violate community rules;

While the regard for the environment may be high, corruption still lingers in the system which makes the implementation of the sanctions to be difficult.

6. Mechanisms of conflict resolution that are cheap and of easy access;

Mechanisms of conflict resolution remain to be expensive. Conflict unresolved normally escalates into a swelling social problem and even to arm struggle.

7. Self-determination of the community recognized by higher-level authorities;

Communities are nominally recognized by higher authorities however are still underestimated and even disempowered. Local people's views remain to be unimportant and irrelevant.

8. In the case of larger common-pool resources, organization in the form of multiple layers of nested enterprises, with small local CPRs at the base level.

A multiple layer of nested enterprises would be ideal in the management of the karst landscape. Management and control should not be monopolized by the DENR. Component barangays should be given responsibility in the management and promotion of their own karst landscape.

Most local governments in the Philippines have been trumpeting their achievements in promoting local participation. Participation is required by law, no less than the Local Government Code of 1991 and the Philippine constitution. But laws on participation are still unclear and not responsive to local concerns. The inclusive policies of the province of Bohol are popular among the civil society because it allows participation of stakeholder in governance. Some sectors also question the legitimacy of stakeholder representation, if these groups truly represent the local people. The critics of participation challenge the question as to what really genuine people participation is. Is attendance in *barangay* (village) assemblies, participation in political processes like election enough? Do stakeholders or groups representing different sectors truly represent the people, and are truly representative of the population? Are their interests

also the interest of the people? Are the processes of participation democratic enough that it includes all sectors?

It has been observed that the representation of sectors is not exhaustive of the different sectors existing in the population. Trimming down thousands of people into five or six sectors, would jeopardize the rights of the other sectors not identified. The youth for instance, though represented in legislative councils are not represented in the Protected Area Management Board. Women have minimal participation in governance of the karst landscape. The critical point in participation through representation is the choice and selection of representative stakeholders. One of the stakeholders is the Catholic Church, but there is no representation of other Christian denominations and religions. Groups and organizations though mostly bring people's concern but in many cases have their own political interest. Most of the NGOs struggle for control in the governance of the protected area. NGOs have special political interests and most often are more concerned of the interest of their organization and the donor institutions. This has been critic on participation, that it is a form of conscious (on the part of the NGOs) and unconscious (on the part of the local people) manipulation.

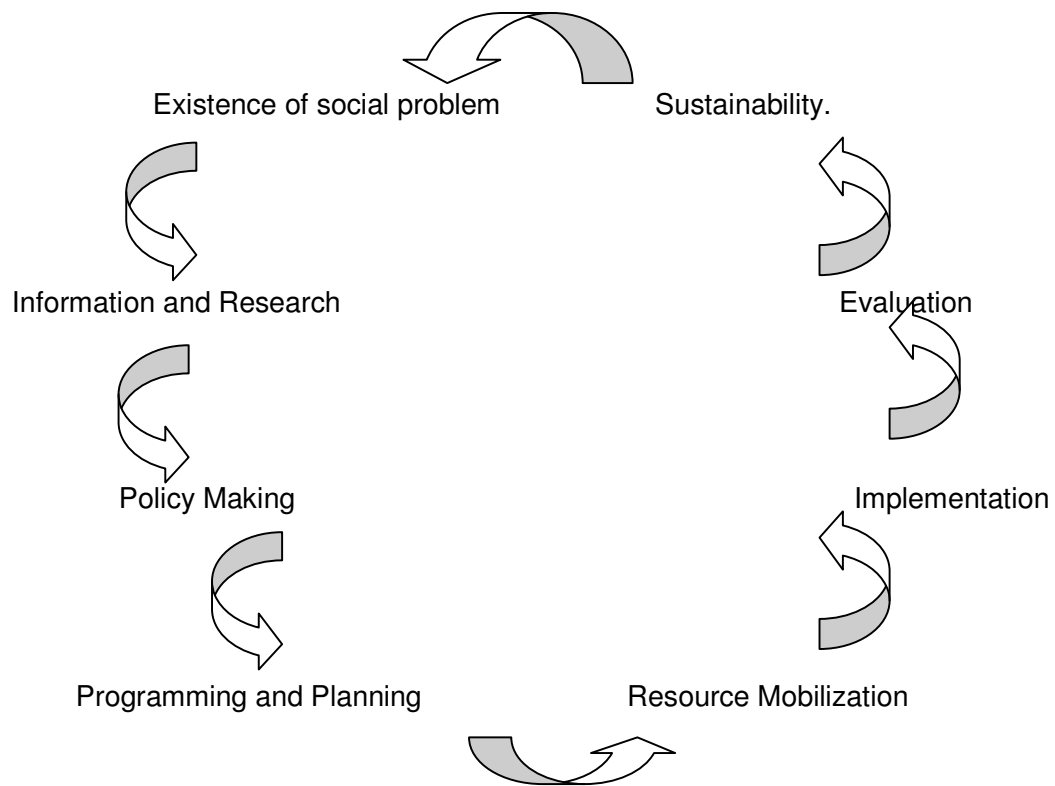
The methods and strategies of participation is a great challenge in planning. Foucault objected to the idea of Habermas on a power free communication. In communication, no matter how it is conducted and delivered, because of the pre-existing power relationship, it is still prone to abuse and manipulation. The use of spoken language in participation would also discourage people who are not good in argumentation and debate. The Post Colonial theories emphasized the hegemony of western knowledge. The concepts of participation came from thinkers coming from the west. The US aid, Ausaid and the World Bank and other funding organizations have their own "participatory" methods.

Participation and the methods that it applies must come from the community themselves. The first step in a real participation is the recognition of the locality of knowledge and the recognition of people's cognitive, analytical and reflective skills. The poor are already disempowered because of their socio-economic status in life. A token participation would further disempower them, instead of empowering them.

In real people participation, the influence of policy makers, public administrators, interest groups and planning experts in the decision making must be minimized, giving the people their right to decide.

Other problems in the participation of local people are:

- Lack of information dissemination
- Lack of consultation
- Lack of enabling mechanism
- Distrust in the government
- Lack of political will
- Lack of participation in the conceptualization of plan



Governance Cycle

Cardino, 2011

Figure 20

The above diagram illustrates the cycle of governance. Policies are normally created because of an existing social problem. Before policies are drafted, information and research are required to substantiate a particular policy. If there are existing policies which may respond to the social problem, the process then directly proceed to programming and planning. Plans and programs may be short, medium or long term. After programs are formulated, resources shall be mobilized. These resources may include, financial resources (funding) and human resource (technical skills). After resources are identified and sought, the program may now be implemented. After the implementation, a thorough evaluation may be conducted by an independent auditing organization. Eventually, sustainability measures shall be formulated for the continuity of the program. Since programs are not static, and social, economic and environmental conditions change, new problems may arise, or could be that the program may not any more be relevant to the existing conditions; hence a new governmental process begins.

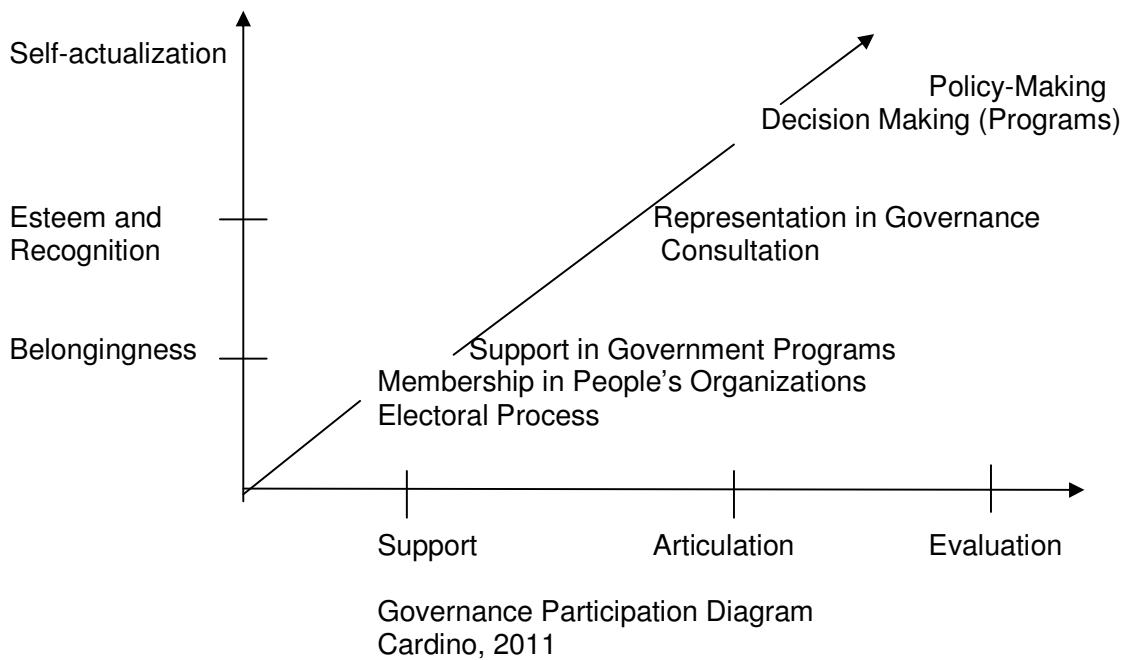
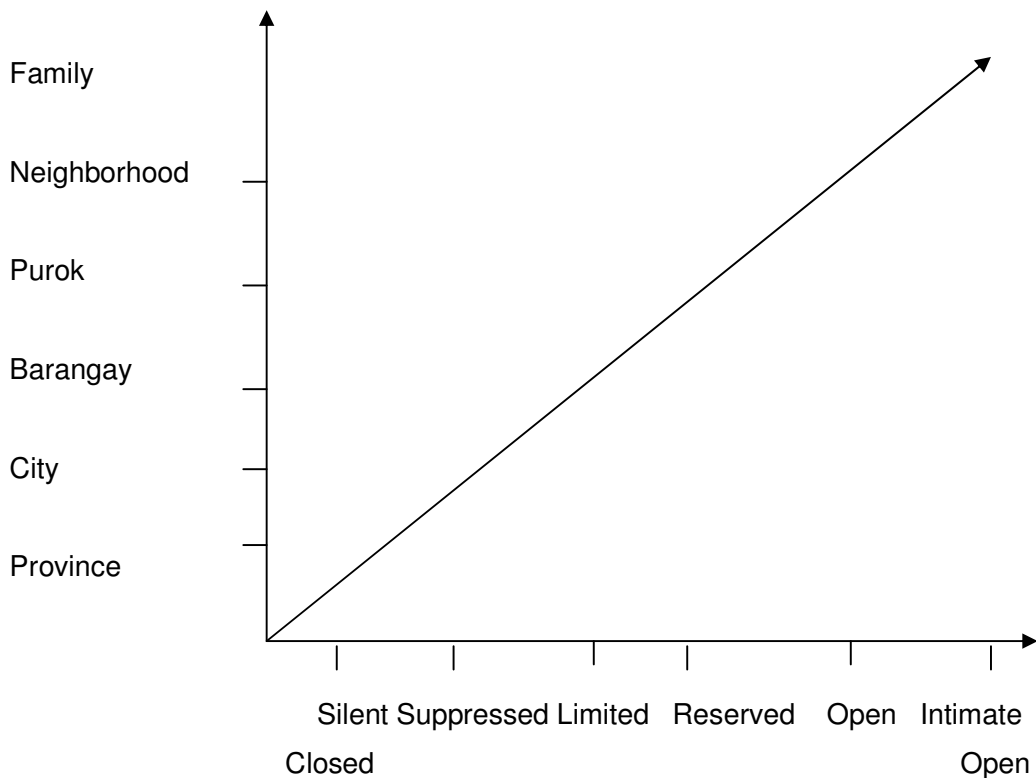


Figure 21

The above diagram highlights the importance of participation as a human need comparable with the social needs illustrated in the Maslow's Hierarchy of Needs. From a simple belongingness need, participation develops into a need for esteem and recognition and then eventually into self-actualization, the highest level of the Maslow's Hierarchy. On the horizontal axis, are the skills required to fulfill these needs. First is, the support skills which come hand in hand with affective and emotional abilities. Second is the articulation skill, which requires communication ability. And third is the evaluation skills which includes analytical –synthesis expertise. As shown, the participation in electoral process belongs to the lowest form of participation. Participation in political undertaking through voting in elections is the first step to involvement. People have been given the power to choose their leaders through a political exercise called election. Suffrage is the inherent right of the people guaranteed by a democratic government. Second is membership in people's organization. This may not necessarily be formal organizations. This could simply be neighborhood organizations, women's organizations, farmer's organization etc. The third level is, support in government programs. This would mean for instance supporting the clean and green program of the government, family planning, education etc. Moving on the next level is consultation. The local people's participation in consultation, their opinions solicited, would connote



Closed and Open Communication

Cardino, 2011

Figure 23

The above diagram presents the flow of close and open communications. Communication within the family is more open and intimate, since this is based on trust. Communication within neighborhoods is normally free-flowing and casual. Communication within *Puroks* (Village units) are normally casual but with some degree of reservation. Communication within barangays has slight decrease of conversation and articulation. Communication within city/ municipality levels is characterized by control, and suppression. Communication in provincial level manifest an observable monopoly, the majority are thereby silenced.

VI.1.2.7 Multiple Identities Analysis

In order to understand the plight of the local people in their struggle to a decent home, a sustainable livelihood, a healthy and clean environment, the intersectionality framework is being used. The multiple identities must be well exhausted through examining intersections of categories. In defining these identities, it must be noted that the relationship between categories is very important. In social science, in understanding disempowerment and oppression, all categories and their relationship with each other is carefully considered. One cannot study for example gender, independent of class (education, occupation) or race. Feminists argue that in analyzing women's condition, one must not take one category independent of the other. So, gender is analyzed along with class, race, religion etc. But studies are limited, that's why not all categories are well exhausted. Different identities surfaced throughout the course of the study. There is a picture of an unemployed, undereducated, married young woman. Moreover, there is a picture of a womanizing, macho husband. In far flung localities in the Philippines, it is normal for an undereducated young woman to marry at an early age. Poor families would consent their female children to marry early because this would lessen the burden at home. Most women are also less educated, because parents think there is no purpose in sending them to school when they will become housewives later, a high school diploma would be just fine for them. It must be realized that, the disempowerment of the local people is aggravated by some methodologies which tends to be socially exclusive. Methodologies which require discourses, argumentation, etc, would marginalize people who do not possess such extroversive public speaking qualities, thereby, neglecting their views and opinion. Women who are brought up to be submissive of the male power would find a hard time participating in argumentation. The disempowerment is also caused by lack of education. Education is a status symbol in the Philippines. It is each families pride when one is able to finish college. Ordinary people already take much pride when they finish high school. There is a certain degree of social respect when one finishes a degree in the Philippines. Disempowerment is also perpetuated within the patriarchal system in the Philippines. Women's socially constructed role is to be the house keeper and must be submissive to the demands of her husband. Employment and livelihood does not at all times empower women. In rural areas, women though taking over the role of the bread winner must still submit to the authority of their husbands. A typical picture in a local

village would be a drunkard man, stealing away the earnings of his wife to buy more alcohol. In the Philippines, there is high regard for old people. Age is an important category to consider in order winning social support for a particular program or project. Because villages in the protected areas have small population, the local people know each other well despite the geographic barrier (this is because houses are far away from each other in far flung municipalities). The local people are distrustful to somebody who is new; hence the longer you stay in the area, the more you will have the possibility to win their heart. If we try to sew the different categories, we could discover different pictures of identities. These identities are critical in analyzing power struggles. The identities in the research could not be scientifically classified because of its varied images and combination of identities. But images of oppression would surface, and in developing a livelihood program, these images are taken utmost consideration. The late Philippine President Ramon Magsaysay said, *"Those who have less in life should have more in law"* This only suggests that in a true democracy, equitability, and not outright equality is of higher value.

VI.1.3 Summary of Theories, Concept and Conclusions

Perception	Theory	Concept	Conclusions
Visual	Aesthetic Theory according to Kant Diwa, according to Jocano	Disinterested Universal Necessary Purposive without purpose Diwa- making sense of beauty	Beauty is not a matter of individual taste but as of collective culture The judgment of beauty cannot be separated from taste and interest. Local people emphasized sensibility in defining beauty. This includes colors, taste, smell etc. Local beauty was refined through sharing of individual experiences. Beauty was judged based on its purpose Western colonialism through the media influenced the local definition of beauty Field visual landscape assessment allowed respondents to experience nature and appreciate environmental aesthetics through human senses, ambiance, fresh air and smell On-line visual landscape assessment is affected by factors such as color, picture quality.
Livelihood	Maslow's Hierarchy of Needs	<ul style="list-style-type: none"> • Self-actualization • Esteem • Belonging 	<p>Self-worth can be achieved through the local peoples participation in all levels of governance, and not be limited to consultation</p> <p>Esteem is achieved through decent homes, sustainable livelihood and education</p> <p>Belongingness is enriched through cooperative systems, in</p>

		<ul style="list-style-type: none"> • Safety and security • Physiological 	<p>weaving and farming activities. Self-determining organizations should be encouraged</p> <p>Settlements must be secured. The tenured migrants are distrustful of the DENR and are insecure of other Tenure Instruments</p> <p>Livelihood must be secured to develop an effective protected area management</p> <p>Education and other basic services must be improved and reach the grassroots</p> <p>The physiological-biological survival of the local people depends on a clean environment, fresh air, sanitary water etc.</p>
	Place Dependence Theory	Functional dependence on places	People depend on the karst landscape because it is their source of livelihood
	Natural capitalism	Humans must invest on replenishing and regrowing the environment	Conservation measures facilitated in the development of 11 barangays partially evaluation
	Sustainable Livelihoods Approach	People oriented livelihood	<p>People have a positive collective orientation on livelihood through formal and informal organizations. The socio economic space is widen through opportunities and services provided by institutions and organizations. The knowledge is improved through capability training.</p> <p>Most local people have dole out thinking, and are not so responsible in paying their debts. A responsible paying scheme</p>

			must be drawn out to discourage dole out mentality and dependency. Local people lack sense of entrepreneurship. Most poor people need fast money in order to survive. External assistance through credit mechanism and trainings should be conducted to promote entrepreneurship.
Ecological	Sustainable Development Ecological Orientation Nature values	Balance of biophysical, ecosystem and social systems Human domination Domination of nature Balance of Nature Intrinsic, instrumental Non-use	Local people see both intrinsic, instrumental, and non use values Nature has its own moral status independent of human existence Human domination would also connote human control and stewardship of nature Nature has a value on its own. Nature's functions to humanity and to other life forms is the instrumental value of nature Non-use value of nature is daunting in protected areas of countries in transition economies
Culture	Place Attachment	People are attached to places	People are attached to their ecology because of cultural, emotional and practical reasons People identify themselves to the social space, physical space and cultural space.
Policies	Ecological World view	Anthropocentric Eco centric Bio centric	Policies are basically Eco-centric and Anthropocentric
Conflict	Post colonial	Struggle to end domination	Domination will not stop so long as indigenous concepts of knowledge be rediscovered Decentralization is not achieved in protected area management as recommended in international law. National governments should turn over responsibility to local governments, however

	<p>Property Theory</p> <p>Layered conflict model</p>	<p>Ownership based on the proper use of resources</p> <p>People have different</p> <ul style="list-style-type: none"> • Needs • Values • Interests 	<p>supervising and giving support is technically essential.</p> <p>Transparency, accountability among stakeholders</p> <p>People claim their de facto right to lands they actually till and occupy Land is the root cause of social injustice. The Comprehensive Land Reform Program must be religiously implemented. Adequate consultations and public hearing should be done prior to any expropriation.</p> <p>The needs, values, interests of the local people must be determined to resolve conflict</p> <p>Land disputes is historical, aggravated by continued social injustice</p> <p>Needs –livelihood necessary for human survival, recognition Values- intrinsic, instrumental, and non use values Interests- wants, ownership , security</p>
Participation	<p>Ladder of Participation</p> <p>Warfield public policy conflict model</p>	<p>Manipulation and Tokenism</p> <p>More consensus, higher social inclusiveness</p>	<p>No real participation because of disempowering influences of agencies, policy makers</p> <p>Identified stakeholders do not represent the local people</p> <p>Token participation</p> <p>“win-win” approach but not sustainable so long as old issues are resolved through participation of the “non-existent”</p>

	Communicative Action	in policy making Mutual Understanding	(underrepresented, unrepresented) Not all people have argumentative skills, though seeks mutual learning, this could in effect provoke disempowerment
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Summary of Theories, Concept and Conclusions

Table 146

In order to understand the plight of the local people in their struggle to a decent home, a sustainable livelihood, a healthy and clean environment, the intersectionality framework is being used. The multiple identities must be well exhausted through examining intersections of categories. In defining these identities, it must be noted that the relationship between categories is very important. In social science, in understanding disempowerment and oppression, all categories and their relationship with each other is carefully considered. One cannot study for example gender, independent of class (education, occupation) or race. Feminist argue, that in analyzing women's condition, one must not take one category independent of the other. So, gender is analyzed along with class, race, religion etc. But studies are limited, that's why not all categories are well exhausted. Different identities surfaced throughout the course of the study. There is a picture of an unemployed, undereducated, married young woman. In far flung localities in the Philippines, it is normal for an undereducated young woman to marry at an early age. Poor families would consent their female children to marry early because this would lessen the burden at home. Most women are also less educated, because parents think there is no purpose in sending them to school when they will become housewives later, a high school diploma would be just fine for them. There is also an image of an overwhelmed father, who has the social responsibility of bringing the food on the table, providing a good shelter for his family and educating his children.

It must be realized that, the disempowerment of the local people is aggravated by methodologies which tends to be socially exclusive. Methodologies which require discourses, argumentation, etc, would marginalize people who do not possess such extroversive public speaking qualities, thereby, neglecting their views and opinion. Women who are brought up to be submissive of the male power would fine a hard

time participate in argumentation. The disempowerment is also caused by lack of education. Disempowerment is also perpetuated within the patriarchal system in the Philippines. Employment and livelihood does not at all times empower women. In rural areas, women though earning still submit to the authority of their husbands. In the Philippines, there is high regard for old people. Age is an important category to consider in order winning social support for a particular program or project. Because villages in the protected areas have small population, the local people know each other well despite the geographic barrier (this is because houses are far away from each other in far flung municipalities). The local people are distrustful to somebody who is new; hence the longer you stay in the area, the more you will have the possibility to win their heart. If we try to sew the different categories, we could discover different pictures of identities. These identities are critical in analyzing power struggles. The identities in the research could not be scientifically classified because of its varied images and combination of identities. But images of oppression would surface, and in developing a livelihood program, these images are taken utmost consideration.

VII.1.4 Policy Recommendation

Beauty (Aesthetics)

The concept of aesthetics has been mentioned in both national and municipal laws in the Philippines particularly:

- The Philippine Constitution
 - Article II, Declaration of Principles and State Policies Principles
 - Section 16. The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.
- Presidential Decree No. 1151, Philippine Environmental Policy
 - Section 2. (b) assure the people of a safe, decent, healthful, productive and aesthetic environment,

The IUCN goals clearly identified preservation of aesthetics and the use of the environment for recreational purposes.

The NIPAS Act included it in its goals to protect scenic beauty.

However there have been no guidelines on the definition of an aesthetic environment

Local culture and values must be integrated in the definition of environmental aesthetics

Pagkakatatugma or harmony must be a criterion in planning the aesthetic dimension of the protected area.

The environment reflects the cultural identity of the local people. Tourism must be repackaged in consonance with the local concept of beauty

Livelihood

In several international, national and municipal laws, they have acknowledged the use of the environment for livelihood purposes.

Part IV of the Millennium Declaration states, "Protecting and managing the natural resource base of economic and social development" addresses marine, wetlands and forest protection, sustainable development, and biological diversity, amongst other areas of environmental needs.

The Presidential Decree No. 1151, Philippine Environmental Policy in section 1. Paragraph (b), states in one of core policies "to fulfill the social, economic and other requirements of present and future generations of Filipinos,

Section 2 of the same decree paragraph (c) encourages the widest exploitation of the environment without degrading it, or endangering human life, health and safety or creating conditions adverse to agriculture, commerce and industry.

Some of the IUCN goals include:

- Preservation of genetic material for human industry
- Economic reasons such as tourism

NIPAS Goals includes; The production of protein from wildlife; of timber, forage, or similar extractive commodities and the provision of provide recreation and tourism services.

It has been recommended that Sustainable Development Principles must trickle down to the municipal levels and be adequately reinforced through international treaties and national laws.

Livelihood activities of the community must be in conformity with the sustainable development principles. Sustainable development must be a guiding principle not only in the management of natural resources but of governance as well.

An alternative livelihood program must be designed by the government in order to

minimize pressure on the use of resources.

Capability-building must be initiated by the government and/or partnered with NGOs in developing a livelihood program that is sustainable and encompassing social, cultural economic and environmental well being of the local people

Eco-tourism projects must be handed over to the community. Eco-tourism development must be community-based.

Tourism must be controlled. Infrastructures built must harmonize with the natural setting of the protected area. Local tourism must also showcase local culture- food, handicrafts, and traditions.

Farm to market roads must be built in order to further development in these areas.

Basic services such as health, education, food security, safe drinking water, sanitation, and a decent shelter must be promoted by the government.

Ecology

There are countless international treaties and conventions which tally to the body of law which aims to protect the environment. One of which is the Stockholm Declaration, which aims to protect and improve the human environment. The capacity of the earth to produce vital renewable resources must be maintained and where practicable, restored or improved," contains the seeds implicit in the concept of sustainable development. A systematic, research oriented approach must be conducted to renew or replenish natural resources. The use of invasive exotic species should be discouraged. Local people should be deeply involved in the data collection and preservation mechanism.

Rio Declaration states that "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." *Environmental resources are economic resources which have tangible economic values. When people realize the economic importance of the environment, then it would be easier to convince them to preserve and protect the environment.*" (United Nations, 1992-C)

Agenda 21 contains chapters on Combating Deforestation, Managing Fragile Ecosystems, Combating Desertification and Drought, and Conservation of Biological Diversity. This important international document illustrates human effort in fighting natural and human ecological threats. (United Nations, 1992-A)

The Convention on Biodiversity declared in Article 8 " In Situ Conservation "that, Protected areas play a vital role in preserving biodiversity. Without protected areas, it would be difficult to maintain biodiversity at ecosystem, species and genetic levels.

Within this Article, subsections directly relevant to protected areas require the Contracting Parties to:

- (d) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;
- (e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas."

The Philippine Constitution in its Declaration of Principles and State Policies Principles provided in Section 16 that the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

President Marcos issued the Presidential Decree No. 1151, Philippine Environmental Policy which nailed down the country's environmental policy. It declares that it is a continuing policy of the State:

to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other;

And to insure the attainment of an environmental quality that is conducive to a life of dignity and well-being.

Section 2, paragraph (e) of the same decree pursues to attain a rational and orderly balance between population and resource use, and (f) to improve the utilization of renewable and non-renewable resources.

Section 3. of the same decree provided the people's right to a healthy environment. It stated "In furtherance of these goals and policies, the Government recognizes the right of the people to a healthful environment. It shall be the duty and responsibility of each individual to contribute to the preservation and enhancement of the Philippine environment."

The National Integrated Protected Areas System (NIPAS) Act of 1992 states;

"....., it is hereby declared the policy of the State to secure for the Filipino people of present and future generations the perpetual existence of all native plants and animals through the establishment of a comprehensive system of integrated protected areas within the classification of national park as provided for in the Constitution.

IUCN goals include:

- Preservation of species diversity

- Preservation of genetic diversity
- Preservation of ecosystem diversity
- Preservation of ecosystems' functions and values, including areas supporting human activity such as watersheds

NIPAS goals include:

- To maintain sample ecosystems in their natural state.
- To maintain ecological diversity and environmental regulation.
- To conserve genetic resources.
- To conserve the watershed and thereby control floods.
- To control erosion and minimize sedimentation of rivers and other water bodies.

The researcher recommends that there should be socially responsive population management system. Population management is important in managing the ecology. Native flora and fauna must be protected against the proliferation of exotic species

Oil Palm Industry must be monitored, controlled and eventually discouraged in the karst protected area. Oil palms are not endemic in the province since more fertilizers are needed for its sustenance.

Large based quarrying must be prohibited in karst lands.

Local species particularly the Philippine tarsier and the flying lemur must be protected against the harm of tourism, illegal smuggling, etc.

Adjacent areas of the protected area must serve as a buffer zone. It must be well-monitored.

Tenure Instruments such as the Certificate of Stewardship, Protected Area Community-based Resource Management Agreement, Community-Based Forest Management Agreement must be strengthened

Migrant communities have a critical role in managing the protected area. There must be

a continuing education on their role as stewards of the protected area.

Conservation areas and natural sanctuaries must be advanced. Karst landscape management program must be developed to protect underground water resources.

Mining in geologically sensitive formations such as cave areas must be banned.

Traditional farming practices must be promoted. Use of pesticides must be controlled.

Reinforcement of laws against illegal collection and selling of wildlife.

Reinforce scientific research as to flora and fauna species, population size and location in Bohol.

Water conservation sites in agricultural areas must be strengthened.

Solid, liquid and hazardous waste management must be institutionalized.

Burning of crop residues must be prohibited (rice hulls, straw) household wastes and dumpsites.

Culture

There are some key provisions of the World Heritage Convention which imply the importance of culture and heritage in environmental management. Article 4 of the said convention states "Each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage... situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation... which it may be able to obtain."

Furthermore Article 5 of the same convention states, "To ensure that effective and active measures are taken for the protection, conservation, and presentation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall Endeavour, in so far as possible, and as appropriate for each country

The Agenda 21 also recognizes the important dimension on culture in

environmental management and protection. It encourages to establish, expand and manage, as appropriate to each national context, protected area systems that includes systems of conservation units for their environmental, **social and spiritual functions and values...**"

In the Philippines, the Presidential Decree No. 1151 otherwise known as Philippine Environmental Policy mandated in Section 2 paragraph (d) to preserve important historic and cultural aspects of the Philippine heritage.

In the IUCN protected area definition, it clearly mentions culture to be an important of protected areas:

'An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources and managed through legal or other effective means. One of the IUCN goal is the preservation of sites of cultural significance.

Two of the NIPAS Goals clearly implies cultural aspects of preservation, such as;

- to maintain indigenous use of habitation.
- And to protect sites and objects of cultural, historical or archaeological heritage.

The researcher recommends that cultural practices in the protected area must be maintained and developed. Culture is an important component of humanity, society and nature. Cultural beliefs, and traditions which are proves to be effective in protecting the area must be integrated in the development of the capability-building **and advocacy** program. Educational campaigns in school could be reinforced through short stories of local environmental legends. This could be in a form of a cartoon illustration in brochures or integrated in text books. Environmental protection and awareness should be integrated in subjects like science, history and arts. Cultural values such as bayanihan (association, helpfulness), pakikisama (camaraderie) daginot (conservation and resourcefulness), kahapsay (orderliness), kalimpyo (cleanliness) must be promoted in schools.

Sacred sites must be respected and be protected from exploitation and abuse. A stricter sanctioning system should be drawn for those who violate.

Cultural and archaeological sites though maybe developed because of its tourism value must be protected.

Enrichment of culture must be integrated in development plans, like the Comprehensive Land Use Plan, etc.

Policy Orientation

There are so many facets to consider in defining and drafting policies. These facets are reflective of the different environmental world views which are earlier mentioned in this research. Moreover, these intertwine with cultural, economic and social dimension. A policy on environment must be inclusive of all disciplines, since there is a big socio-cultural context attached to it. Much of these policies demand flexibility that enables to accommodate the demands of each component dimensions.

In the document, "Our Common Future" It stated that "Development patterns must be altered to make them more compatible with the preservation of the extremely valuable biological diversity of the planet." It clearly demands the adjustments of economic and social agenda to accommodate environmental view point. This however, does not imply that the survival and basic needs of the society be neglected.

NIPAS goals aims to provide opportunities for education, research, and environmental monitoring, to maintain open options, management flexibility, and multiple use and to contribute to rural development. A careful research base is therefore needed in environmental management and protection.

It is recommended that it should be the policy of the government to provide technological, logistic and financial assistance for research and development of protected areas

Policy makers and development managers must be knowledgeable of the environmental policies and must be technologically equipped in order to manage the protected areas better.

Plans drafted by the Protected Area Management Board must be integrated in the Comprehensive Land Use Plan and other relevant plans of the respective city or municipality.

Conflict Management

The stewardship role of human kind is recognized in Millennium Declaration, WSSD Political Declaration & WSSD Plan of Implementation. It implies this crucial human responsibility when it states, "A new ethic of conservation and stewardship" is necessary and that the first steps to do so is by reaffirming the UN's support for Agenda 21, the Kyoto Protocol and the CBD.

There are policies nailed down in the Philippine constitution which tends to lessen conflict in the management of natural resources. Through the principle of *parens patriae*, it exclaims in Article XII, National Economy and Patrimony:

Section 2.With the exception of agricultural lands, all other natural resources shall not be alienated. The exploration, development, and utilization of natural resources shall be under the full control and supervision of the State. This provision lacks enabling mechanism and religious implementation. The State, whose powers emanate from the people, should protect its resources and ensure the sustainability therefore to guarantee the future of the next generation.

Section 3.Alienable lands of the public domain shall be limited to agricultural lands.

These definitions though clear in the Philippine constitution, are not well understood by the common people. There are still lands of public domain which are alienated not for the purpose of agriculture.

The *parens patriae* principle is also reflected in the Presidential Decree No. 1151, otherwise known as Philippine Environmental Policy, Section 2, which declares the important role of government in securing the future of the next generation. It states "the state *may recognize, discharge and fulfil the responsibilities of each generation as trustee and guardian of the environment for succeeding generations,*

Raja Sikatuna Protected Landscape (RSPL) employs the Tenure-stewardship system Chocolate Hills Natural Monument. (CHNM) Declared that the lands around and in

between the Chocolate Hills as private lands and no longer part of the national monument. It further encourage to protect what needs to be protected, and develop what needs to be developed

In order to resolve conflict, the Tenure System must be developed. Tenants should be given the certificate of ownership, rather than a mere certificate of stewardship. Granting them the certificate of ownership does not automatically give them the absolute right to exploit and expropriate their lands at their own interest. It would still be under prohibitive clause within the NIPAS Act and local enabling ordinances. If such would be realized, there should be a provision prohibiting the sale of lands within the protected landscapes. In the transition period, tenure instruments, such as the Certificate of Stewardship, Protected Area Community-based Resource Management Agreement, and Community-Based Forest Management Agreement must be reinforced through a better guideline. Roles and obligations of the government, the NGOs and the migrant communities must be well defined.

The government should win the trust of the migrant communities. Migrant communities must know their role in the protected area management.

Private property ownership is a daunting problem in a protected area. The local people must therefore absorb their critical role in the management of the protected area. As stewards to the protected area, they must also know their rights and obligations.

The land conversion process was done in haste. There was no proper grounding done. There should be a good communication scheme developed by the government in order to inform and educate the people about protecting the natural resources.

The reconversion of the lands around and in between the Chocolate hills and declaring them as private lands is placing the landscape beauty of CHNM at danger. The Chocolate Hills landscape is a compact landscape and the hills are not appreciated individually, but as a group of hills within a landscape. The phrase "... *develop what needs to be develop*" also places a corresponding danger in an uncontrolled development from the probable erection of concrete built structures which does not harmonize with the natural setting of the area.

Participation

Presidential Decree No. 1151, otherwise known as the Philippine Environmental Policy requires the government to involve the civil society in the planning and implementation of environmental policies. It clearly states in one of its goals, “ In pursuing this policy, it shall be the responsibility of the Government, in cooperation with concerned private organizations and entities, to use all practicable means, consistent with other essential considerations of national policy, in promoting the general welfare to the end that the Nation may (a) recognize, discharge and fulfil the responsibilities of each generation as trustee and guardian of the environment for succeeding generations.”

The Local Government Code of 1991, Chapter II Article I, “Intergovernmental Relations”, Section 26, “Duty of National Government Agencies in the Maintenance of Ecological Balance” states,

“It shall be the duty of every national agencyto consult with the local government units, nongovernmental organizations, and other sectors concerned ...”

Chapter IV, Article I, “Relations With People's and Non-Governmental Organizations”, Section 36. “ Assistance to People's and Non-governmental Organizations” of the same code promulgates, “ A local government unit may, provide assistance, financial or otherwise, to such people's and non-governmental organizations for economic, socially-oriented, environmental, or cultural projects to be implemented within its territorial jurisdiction.

Participation in governance must be institutionalized through a local ordinance which requires the participation of different stakeholders before a policy is being passed by the local council.

Representation must not be a “token” representation or a dummy representation to further individual or party interests.

Representation should be validated through the demographic profile of the area. It should be noted that all sectors existent in the demographic profile must be duly

represented.

Participation must be encouraged in all levels of governance- planning, programming, resource mobilization, implementation, monitoring and evaluation, sustainability.

Participatory techniques must be developed to realize genuine participation of the local people

As much as possible, there should be no influence on the part of the planner on the decision made in a participatory process.

This could be achieved through exhausting all methodologies possible.

In the focus group discussions, planners should have a very little participation. Results of the focus group discussion must be validated through a survey questionnaire.

People should be encouraged to write suggestions and this must be either dropped or collected by the "*purok*" or unit leaders.

It must be recognized that participation as a democratic undertaking, the process is equally important to the end result.

The process in itself should have own indicators. Participation must be both process-oriented and result-oriented.

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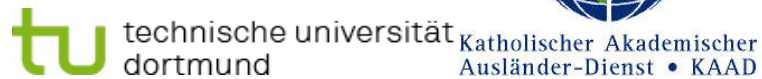
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Appendices

Questionnaire



Voices from the Mountains: Local People's Perceptions on Policies Protecting the Karst Landscape of Bohol, the Philippines

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Survey Questionnaire

(translated in the Boholano dialect)

Demographic Data

Please check the blank lines should the choice correspond to you answer:

Under which age bracket do you belong?

___ 21 to 30 years old

___ 31 to 40 years old

___ 41 to 50 years old

___ 51 to 60 years old

___ 61 years old and above

What is your gender?

___ Male ___ Female

How long is your length of stay in the karst area?

5 to 10 years

11 to 22 years

23 years or more

What is the level of your educational attainment?

primary/elementary

highschool

college/university

post graduate

What is your current occupation? Please check within the following categories

White collared jobs

Blue collared jobs

Unemployed

Springboard question

1. Do you know that your place is a Karst area?

yes

no

1.1 What do you know of a Karst area?

soluble limestone bedrock

hollow underground (presence of caves and sinkholes)

underground streams

delicate ground water

2. What is the main source of livelihood of the people in your community?

agriculture

hunting

logging, wood collection

limestone quarrying and other mining activities

office related

please specify if not mentioned

3. What are the socio-economic uses of the Karst area to the local community in terms of:

1. Livelihood

Rice plantation

Fire woods gathering

Logging

Root crops plantation

Hunting

Handicrafts (please specify)

Limestone quarrying

Stone gathering

Birds nest gathering

Mining other minerals

Others please specify

2. Use of Water

Drinking

Bathing

- Cleaning
- Washing the carabaos
- Irrigation
- Others please specify

3. Recreation

- Nature trekking
- Cave spelunking
- Swimming
- Others please specify

4. What do you know of the National Park Status of the Raja Sikatuna Karst Area?

- environmental protection and conservation
- promotion of local tourism
- others please specify

4.1 What do you know of the Natural Monument status of the Chocolate Hills?

- environmental protection and conservation
- promotion of local tourism
- others please specify

5. What do you think is the social and economic impact of the karst protection policies? Please rate the following (1= complete lost or total prohibition)

	1 = Very high 2 = High 3 = Moderate 4 = Low 5 = No Impact
Livelihood	
Settlement	
Recreation	
Use of water resources	
Use of the forest	
Cultural identity	

If you think that the karst protection policies have affected you in ways not mentioned above, please provide on the blank space provided: _____

7. Please rate the following categories of economic benefits which could be brought about by the karst protection in your area from 1-5, with 1 as the highest and 5 as the lowest.:

Sustainable Livelihood	
Employment	
Industry	
Ecotourism	
Cooperative	

8 Are you aware of the protection policies governing the karst area? ___ Yes ___ No

9.1 If yes, are you in favor of the regulations provided by the protection policies of the karst area?

___ Strongly In favor	___ in favor	___ Neutral	___ not in favor	___ Strongly Not in favor
--------------------------	--------------	-------------	---------------------	------------------------------

10. If you answered, disagree to strongly disagree: please rate the following statements (with 1 as the highest and 5 as the lowest):

There is no need to protect the karst area	
There is no need for the amendment of laws on protected areas	
There is too much politics in the administration of protected areas	
People's rights are not well protected in protected area policies	
There is lesser room for grassroot cooperation in protected area policies	
Please provide in this blank other reason which you might think	

11. Do you participate in the protection of the karst landscape in your area? ___ Yes ___ No

12. If no, what do you think of the factors that affect participation of local residents in karst protection? Please rate this factors (1=highest, 5=lowest),

	1= Very High 2= High 3= Moderate 4=low 5= Very Low
Lack of enabling mechanism (avenues for participation)	

Lack of information dissemination	
Distrust in the government	
Feeling of Neglect	
Lack of political will of the public administrators to establish participation mechanism	

13 Please write on the blank space provided should there be any other factors you have thought about.

If given the chance to participate, which level of governance would you like to participate?

Please check the following level of governance of which you are interested to participate (1=highest, 5=lowest) :

Policy-making	
Planning	
Resource-mobilization	
Implementation	
Monitoring and Evaluation	

14. Have you observed that conflicts have arise because of the karst protection policy?,

___ Yes ___ No

If yes, are there any mediating efforts extended by the government in resolving these conflicts?

___ Yes ___ No

15 If yes, What do you think of the mediating efforts extended by the government in resolving these conflicts?

___ Very effective	___ Effective	___ Neutral	___ poorly effective	___ not effective
--------------------	---------------	-------------	----------------------	-------------------

16. What do you think of the involvement of your local officials (municipal and barangay officials) in conflict resolution? (1=highest, 3=lowest)

_____Very Involved	_____Involved	_____Moderately involved	_____poorly involved	_____no involvement
-----------------------	---------------	-----------------------------	-------------------------	------------------------

17. Please rate the landscape in the picture (with 10 as the highest and 1 as the lowest) according to these categories

1. beauty
2. variety
3. well-being
4. uniqueness

(pictures of the karst landscape will be shown to the respondent)

18. Please rate the following karst features from 1 – 5 (with 1 as the highest and 5 as the lowest) which do you think have been deteriorating over the years:

Rivers	
Forests	
Hills	
Caves	

19. Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers. Please rate the statements below using the scale 1 Strongly Agree, 2 agree, 3 Neutral, 4 disagree, 5 Strongly disagree

Code Place	Place Attachment	1	2	3	4	5
1	This Karst Landscape is the best place for what I like to do					
2	I feel no commitment to this Karst Landscape					
3	Doing what I do in this karst landscape is more important to me than doing it in any other place					
4	I identify with lifestyle and values of the people who live here (or come) this Karst Landscape					
5	This karst landscape is very special to me					
6	I do not feel that I relate at all to this Karst Landscape					
7	I feel like Bohol Karst Landscape is a part of me					
8	Living in this Karst Landscape says a lot about who I am.					
9	Doing what I do in this Karst Landscape is more important to me than doing it in any other place.					
10	No other place can compare to this Karst landscape					

Code Eco	Ecological Orientation	1	2	3	4	5
1	Human beings don't have the inherent right to rule over nature.					
2	Humans have full control over the stewardship of nature					
3	The so called "ecological crisis" we are facing is completely exaggerated.					
4	Despite our special abilities, humans are still subject to the laws of nature					
5	There would be a time that the earth cannot support the huge number of people.					
6	The ecological problems we are facing right now is because of human beings neglect of nature					
7	Plants and animals have as much right as humans exist					
8	When humans interfere with nature it normally if often produces disastrous consequences					
9	Humans are severely abusing the environment					
10	There would be a time that all of our resources will run out because of human consumption					

Code Nat	Nature Values	1	2	3	4	5
1	Everything in the environment has a value on its own because of its existence					
2	This Karst Landscape is valuable for me because it supports					

	my daily living.					
3	This karst landscape is not ours, it belong to our children's children.					
4	People love to come to the karst landscape because of its beauty.					
5	The karst landscape shall be totally closed to all human activities to preserve its biodiversity.					
6	Certain activities within the Karst landscape should be prohibited because ist harming nature.					
7	The Karst landscape provides a dwelling place for our dead ancestors.					
8	Without the rich environment of the Karst landscape, all life forms within it will not survive.					
9	People should not use the resources of the Karst landscape so that it could regrow and reproduce.					
10	Without people, nature has no value.					

In the space below, please explain any other views you have about the natural environment that you consider important *(you may use the back of this sheet if you need more space).*

On field –Visual Landscape Assessment
 Instructions: Please rate the following pictures below.

Picture 1



Beauty

1	2	3	4	5	6	7	8	9	10

Variety

1	2	3	4	5	6	7	8	9	10

Uniqueness

1	2	3	4	5	6	7	8	9	10

Well-being

1	2	3	4	5	6	7	8	9	10

Picture 2



Beauty

1	2	3	4	5	6	7	8	9	10

Variety

1	2	3	4	5	6	7	8	9	10

Uniqueness

1	2	3	4	5	6	7	8	9	10

Well-being

1	2	3	4	5	6	7	8	9	10

Picture 3



Beauty

1	2	3	4	5	6	7	8	9	10

Variety

1	2	3	4	5	6	7	8	9	10

Uniqueness

1	2	3	4	5	6	7	8	9	10

Well-being

1	2	3	4	5	6	7	8	9	10

Picture 4



Beauty

1	2	3	4	5	6	7	8	9	10

Variety

1	2	3	4	5	6	7	8	9	10

Uniqueness

1	2	3	4	5	6	7	8	9	10

Well-being

1	2	3	4	5	6	7	8	9	10

On-line Visual Landscape Assessment

The screenshot shows a Windows Internet Explorer browser window. The address bar displays the URL: http://www.llp.uni-dortmund.de/web_survey/cxtzaanj/. The page title is "Online Visual Landscape Assessment on Karst Landscapes in Bohol (Philippines)".

Online Visual Landscape Assessment on Karst Landscapes in Bohol (Philippines)

Hello Visitor

My name is Roy Robert T. Cardino, a Ph.d student at the Department of Landscape Planning and Landscape Ecology , Faculty of Spatial Planning at the Dortmund University of Technology. I would like to lend some of your time in rating Karst Landscape of Bohol in photos subsequently provided. This is necessary for the realization of my dissertation paper entitled: "The Social Impact on Policies Protecting the Karst Landscape of Bohol, the Philippines". A major part of the investigation is to determine local and international visual perception of the Karst Landscape. Although policies on protected landscapes are based primarily on local participation, international perception is necessary as the Karst landscape of the province of Bohol have gained international recognition because of its unique land forms, river and caves system. On this end, it is my aim to level- off understanding of international and local perception of Karst Landscape.

Purpose of the Study

The study aims to determine social impacts on policies protecting the Karst Landscape of Bohol, the Philippines. Necessary to understanding these impacts is a broad consideration of visual landscape perception of local resident and the international community. The integration of visual landscape perception is purposely suggested to be integrated in policies. Whether current policies faithfully consider visual landscape perception or not, impacts on spatial use can at first be physically evaluated on a visual landscape assessment. The entire study makes use of three methodologies namely: normative survey (which includes on-site visual landscape assessment), focus group discussions and on-line survey (which is for both Philippine and International respondents).

Data Protection and Security

All information collected in this research is for academic use only. Personal data and other relevant information of respondent shall be treated with high confidentiality. For socio-demographic purpose, you are to be asked of certain information about yourself. To ensure your confidence, you may not indicate your name but may as well leave your email address if you wish for any feedback of the results. You are only to rate eight landscapes in four categories (beauty, variety, uniqueness and well-being) in photos subsequently shown.

Raffle

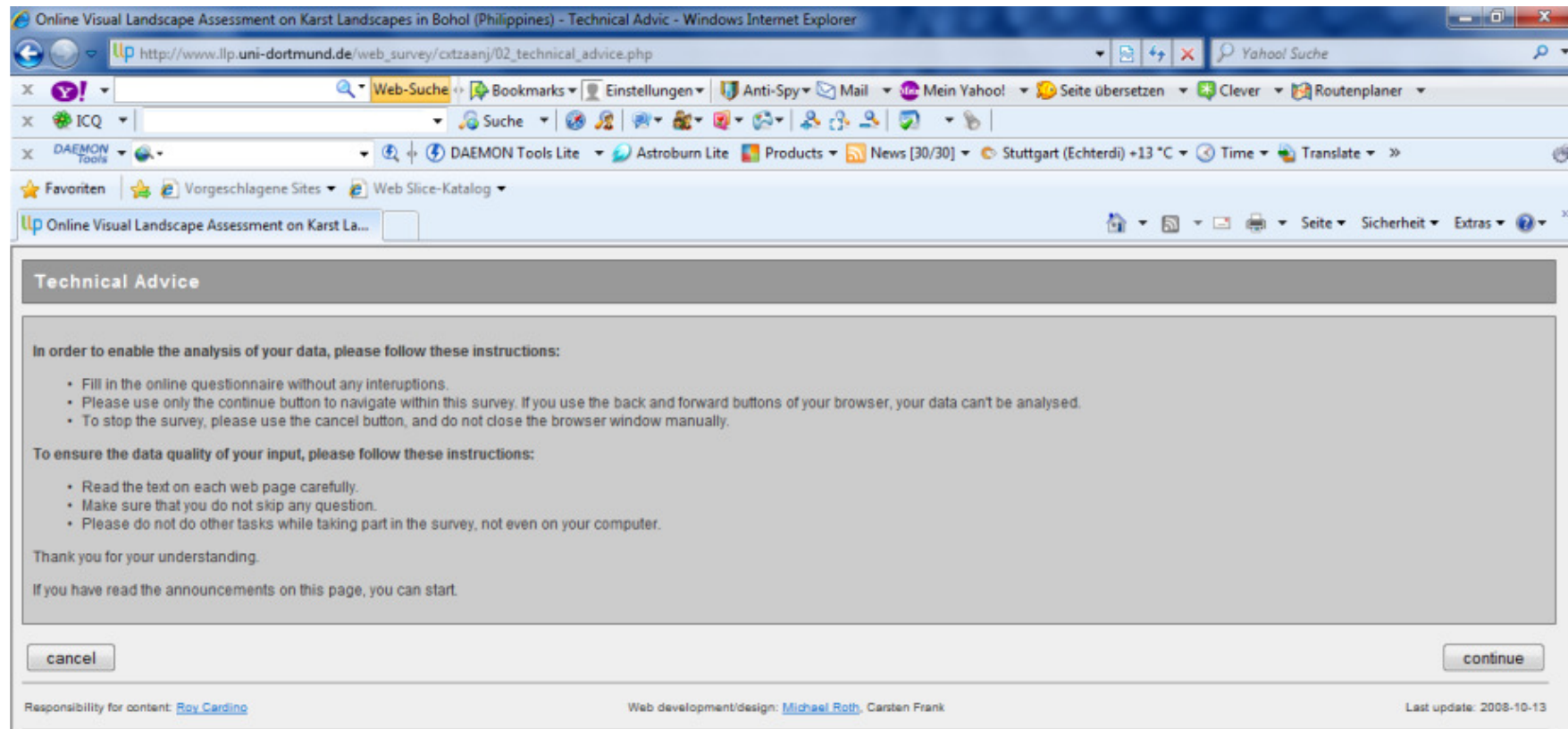
In appreciation of your participation in the on-line survey, you have the chance to win postcard and posters of the Karst Landscape of Bohol (The Chocolate Hills). Such would serve as souvenir in your participation and as a beautiful Karst image which you can send to your friends.

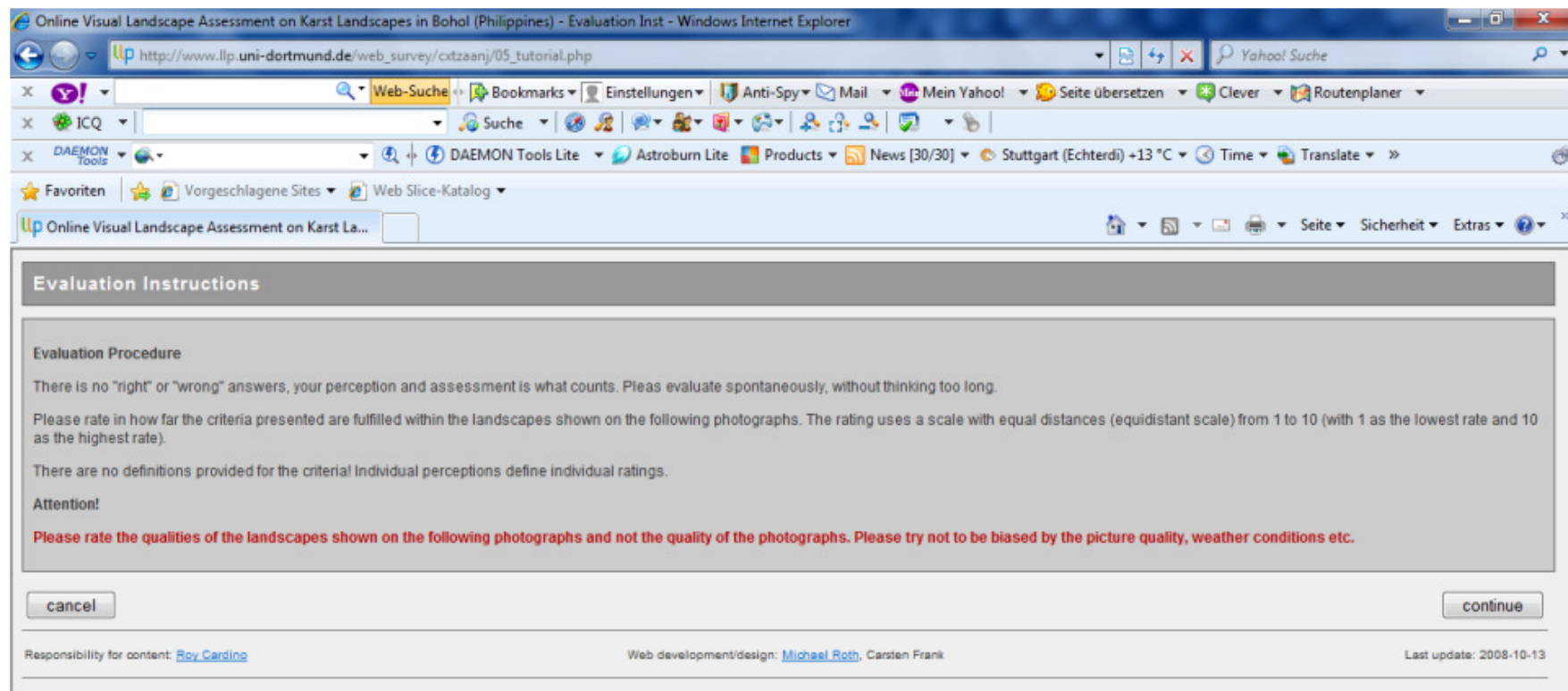
Duration of the Rating

The span of the rating would just take some 7-10 minutes in all eight pictures. You can of course at any time stop. The ratings which you have entered will be automatically saved every time you wish to end the rating.

Please click the Start button on the right side if you wish to participate in this on-line survey and click Cancel button if you don't. Thank you very much.

Responsibility for content: [Roy Cardino](#) Web development/design: [Michael Roth](#), Carsten Frank Last update: 2008-10-13





Online Visual Landscape Assessment on Karst Landscapes in Bohol (Philippines) - Übungsfoto - Windows Internet Explorer

http://www.llp.uni-dortmund.de/web_survey/cxtzaan/07_survey.php


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Online Visual Landscape Assessment on Karst La...

Photograph 1 of 8 - Raja Sikatuna Protected Landscape, Bohol, Philippines



Please rate the landscape in the picture above based on the following criteria:

Variety minimum = 1 / maximum = 10

cancel continue

Responsibility for content: [Roy Cardino](#) Web development/design: [Michael Roth](#), Carsten Frank Last update: 2008-10-13

Online Visual Landscape Assessment on Karst Landscapes in Bohol (Philippines) - Übungsfoto - Windows Internet Explorer

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Online Visual Landscape Assessment on Karst La...

Photograph 2 of 8 - Valley, Chocolate Hills, Bohol, Philippines

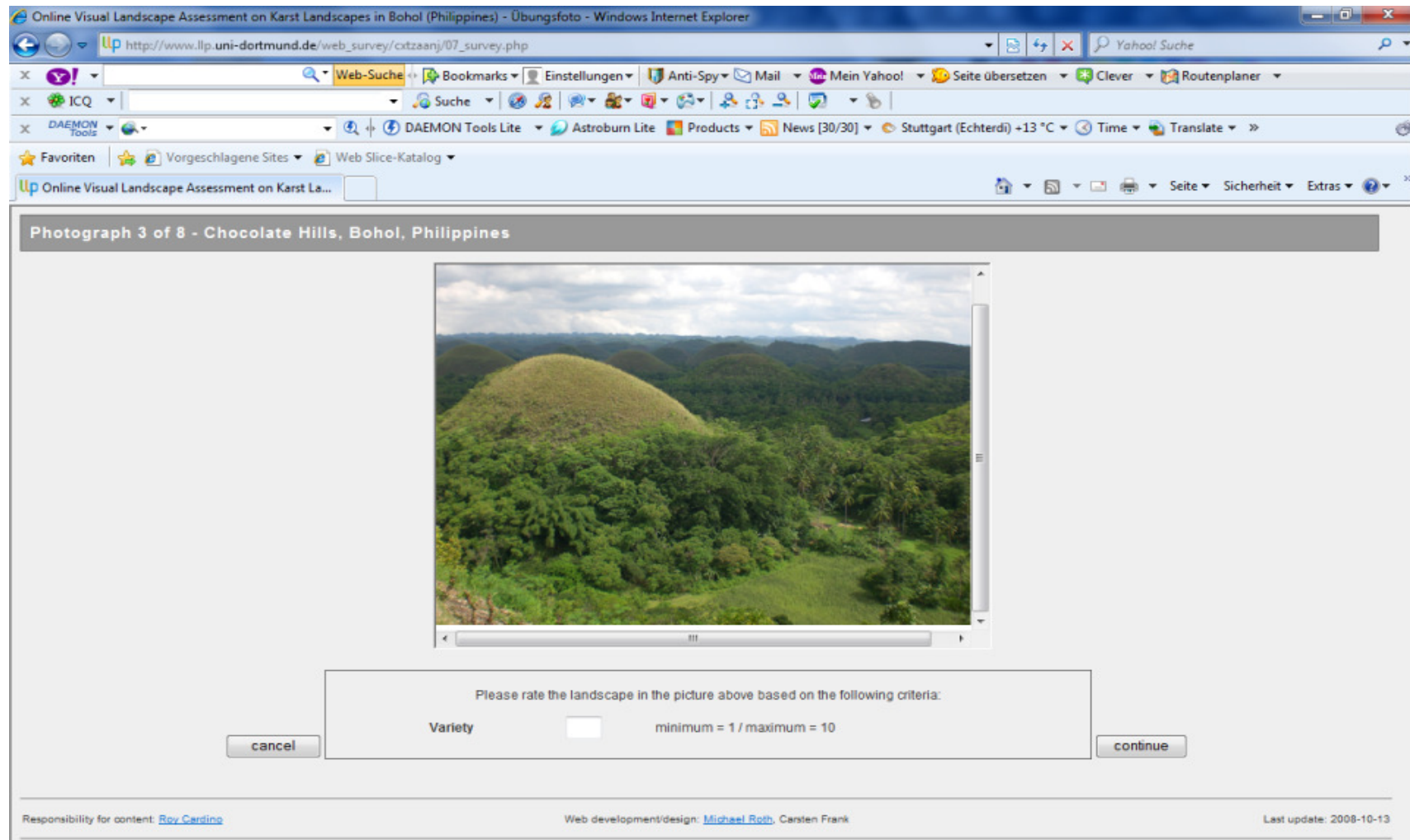


Please rate the landscape in the picture above based on the following criteria:

Variety minimum = 1 / maximum = 10

cancel continue

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Online Visual Landscape Assessment on Karst La...

Photograph 4 of 8 - Veranda, Sagbayan Park, Bohol, Philippines

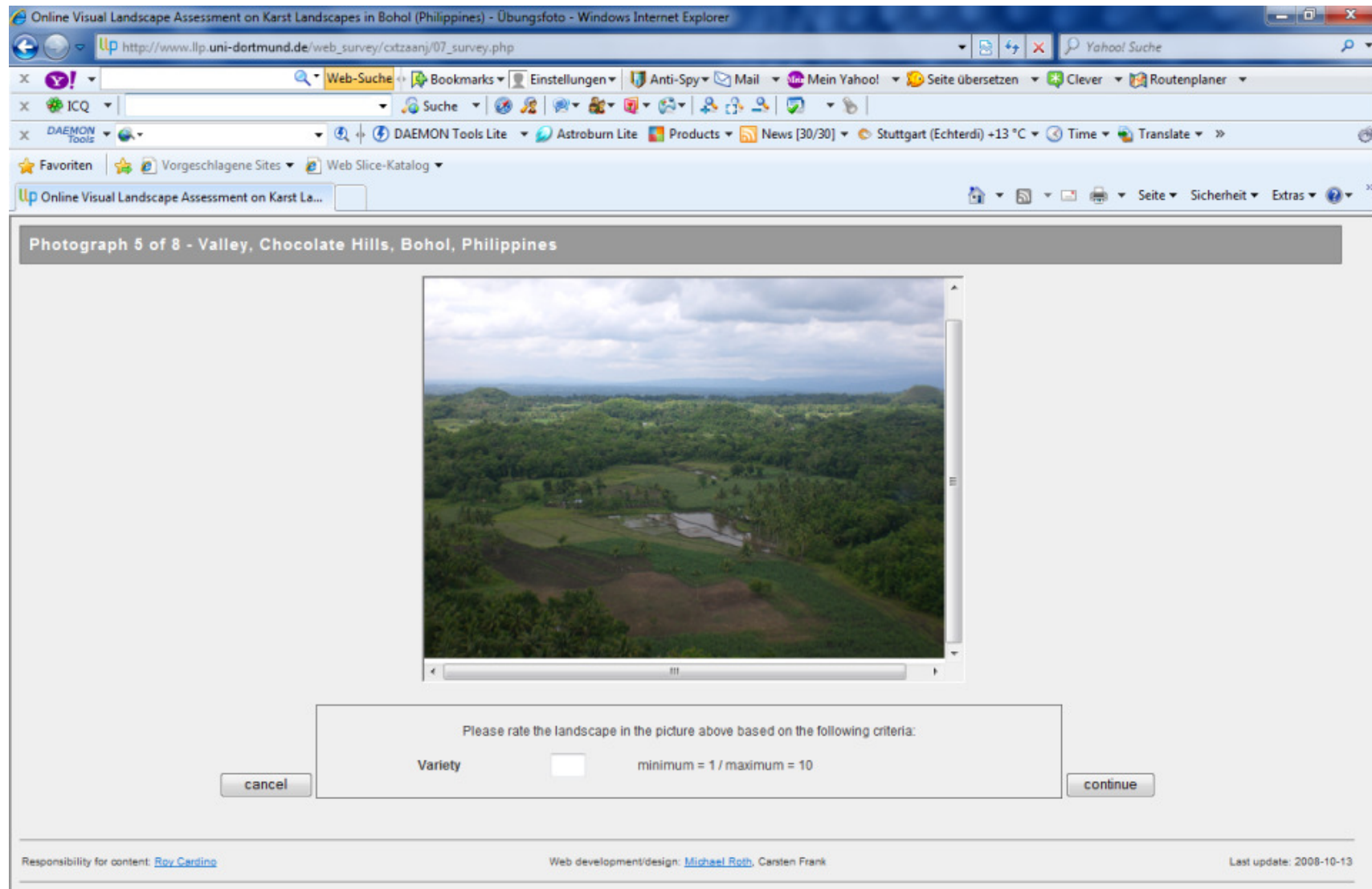


Please rate the landscape in the picture above based on the following criteria:

Variety minimum = 1 / maximum = 10

cancel continue

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Online Visual Landscape Assessment on Karst Landscapes in Bohol (Philippines) - Übungsfoto - Windows Internet Explorer

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Online Visual Landscape Assessment on Karst La...

Photograph 6 of 8 - Top view, Chocolate Hills, Bohol, Philippines

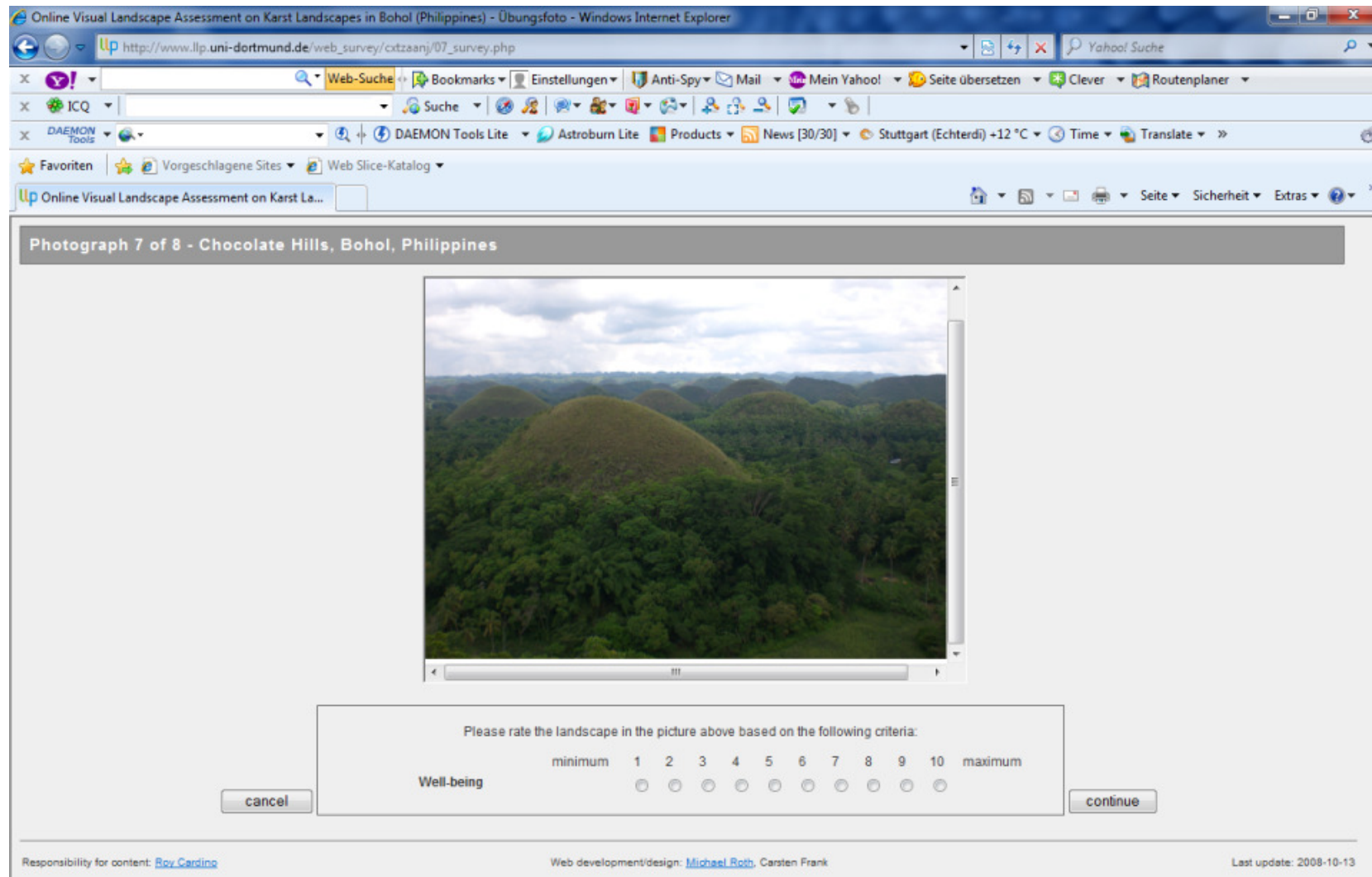


Please rate the landscape in the picture above based on the following criteria:

Variety minimum = 1 / maximum = 10

cancel continue

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Online Visual Landscape Assessment on Karst Landscapes in Bohol (Philippines) - Übungsfoto - Windows Internet Explorer

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Online Visual Landscape Assessment on Karst La...

Photograph 8 of 8 - Chocolate Hills, Bohol, Philippines



Please rate the landscape in the picture above based on the following criteria:

Variety minimum = 1 / maximum = 10

cancel continue

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