

*Maria Rebecca A. Campos, 2019*

*Volume 5 Issue 2, pp. 928-947*

*Date of Publication: 17<sup>th</sup> October 2019*

*DOI- <https://dx.doi.org/10.20319/pijss.2019.52.928947>*

*This paper can be cited as: Campos, M. R. A., (2019). Environmental Adaptation of Upland Indigenous Peoples in the Philippines: Basis for Local Resilience to Climate Change. PEOPLE: International Journal of Social Sciences, 5(2), 928-947.*

*This work is licensed under the Creative Commons Attribution-Non Commercial 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.*

## **ENVIRONMENTAL ADAPTATION OF UPLAND INDIGENOUS PEOPLES IN THE PHILIPPINES: BASIS FOR LOCAL RESILIENCE TO CLIMATE CHANGE**

**Maria Rebecca A. Campos**

*Faculty of Management and Development Studies, University of the Philippines Open  
University, Los Banos, Laguna, Philippines*

*[cmaribec@yahoo.com](mailto:cmaribec@yahoo.com)*

---

### **Abstract**

*The study dealt with the literary works of Ifugaos, upland indigenous peoples in the Philippines to describe their environmental adaptation as basis for local resilience to climate change. It focused on their beliefs, traits and values; their approach and prevailing practices to environment with its strengths and weaknesses; their adaptive management in response to environmental conditions; and from the findings the local resilience strategy framework to climate change was established. The study used qualitative descriptive method which was narrative in nature using literary analysis.*

*The use of spiritual beliefs, rituals and ceremonies; ecological wisdom; forest protection; kinship orientation; sense of tribal awareness and peace pacts; artistic in temperament; and survival as manifested in their literary works were the approach and prevailing practices to environment of the indigenous peoples. The strengths and weaknesses of their beliefs, traits, values, practices and subsistence; and the adaptation process of their adaptive management and community were the bases of local resilience strategy to climate change. The heritage of the indigenous peoples in terms of effective and efficient environmental adaptation should be preserved and dignified by all*

*sectors of the society. Ecological wisdom, forest protection and resourcefulness should be practiced by all. These practices should be integrated in environmental awareness with public dissemination of information and documentation to be initiated by environmental agencies and educational institutions. The Philippine government and non-governmental organizations should enrich the strengths of the indigenous peoples in terms of environmental adaptation; and initiate projects that will improve the modes of subsistence and knowledge; and reduce the beliefs in supernatural, heavy dependence on physical environment, conservatism and shyness of the indigenous peoples. The strategy framework to climate change for local resilience is proposed and highly recommended to all institutions and communities concerned for environmental adaptation to climate change.*

**Keywords**

Ifugaos, Indigenous Peoples, Philippines, Environmental Adaptation, Climate Change, Resilience

---

**1. Introduction**

The United Nations defines indigenous peoples (IP's) as “indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them.

Indigenous peoples are sometimes referred to as aborigines, natives, first peoples, savages, or uncivilized. In the Philippines, there are many groups of upland indigenous peoples, each having a set of traditions and way of life that is distinct from the others. In the island of Luzon, there are several groups of indigenous peoples basically in the areas of mountainous regions. Luzon, being the largest island in the Philippines is the center of industrialization, tourism and varied residential and commercial human activities. These indigenous peoples pride themselves for not being under colonial rule and the influence of modernization, which helped them preserve their culture and unique practices with the environment.

The relationship of many upland indigenous peoples to natural environment such as the land, plants and animals incorporates them as part of the same environment. Environmental adaptation is important to upland indigenous peoples to consider how they perceive their communities construct their nature, adaptation and survival.

Indigenous belief systems that emphasize the interconnected of the human and non-human world are now influencing thought in how we interact with nature. The raft of environmental problems that now face global society dictate that a new paradigm (or model) of how we interact with nature is demanded (Holden, 2008). The cultural and religious belief systems of indigenous peoples influence their interaction with the natural environment to shape their environmental adaptation.

The climate in the environment of the Earth is always changing. Environmental adaptation is vital for indigenous peoples to cope with a changing climate. Adapting to climate change will entail adjustments and changes from community-based to national.

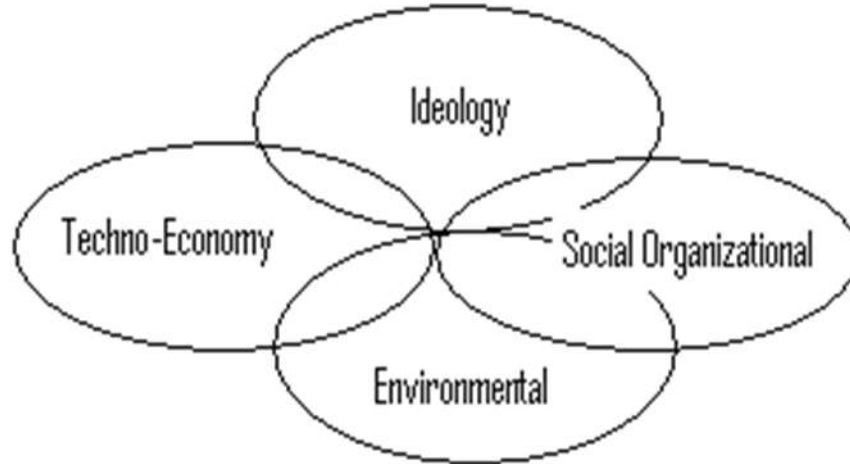
Climate change is one of the most important environmental issues at present. It is distinct from natural climate variability in that exists because of human activities that have altered the composition of the Earth's atmosphere. Based on United Nations Framework Convention on Climate Change, climate change is "a change of climate which attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time period."

The possible consequences of climate change are alarming, there are many ways for every individual to take part in preventing these consequences from reaching their most dangerous potential. Climate change will increase the risk of both floods and droughts.

Adaptation is basic to indigenous peoples and is a must for local resiliency. Environmental adaptation is about finding and implementing ways of adjusting to climate change.

Aiming to be most responsive to change, this would provide community-based adaptation to climate change. This will be knowledge sharing on adaptation practices and strategies for local resilience from a very complex issue on climate change and environmental adaptation. The study was on literary analysis for literature aims to teach and entertain. Traits and values can be extracted from the text that can be adopted as a way of life.

## 1.1 Operational Framework



**Figure 1:** *Research Paradigm*

Having the above mixture of ideas from a theory and concept, Figure 1 shows the operational paradigm of the study. The paradigm would guide the researcher in setting the flow of variables of the study.

To describe the environmental adaptation of upland indigenous peoples, their beliefs, traits and values are significant components to establish their environmental practices that would characterize their strengths and weaknesses, and adaptive management to climate change. The beliefs, traits and values, environmental practices, and adaptive management to climate change are interrelated parts of their nature and compositions that could be best described from their literary works.

The study has set the variables in the environmental adaptation of indigenous peoples in the island of Luzon as basis for local resilience to climate change. From the findings of the study, a local resilience strategy framework to climate change would be established.

## 1.2 Statement of the Problem

From literary works, the study determined the environmental adaptation of the Ifugaos, upland indigenous peoples in Luzon as basis for local resilience to climate change. Specifically, it intended to:

- Identify the profile of indigenous peoples in terms of beliefs, traits and values;
- Describe the approach and prevailing practices to environment with its strengths and weaknesses;

- Determine the adaptive management in response to environmental conditions; and
- Based on the findings, establish the local resilience strategy framework to climate change.

### **1.3 Assumptions of the Study**

The study proceeded with the following assumptions:

- There are beliefs, traits and values unique to indigenous peoples from the island of Luzon.
- The strengths and weaknesses of indigenous peoples are characterized in their approach and prevailing practices to environment.
- The adaptive management of indigenous peoples in response to environmental conditions is contained in their resources and practices

### **1.4 Scope and Delimitation of the Study**

The study dealt on the literary works of the Ifugaos, indigenous peoples in Luzon to describe the environmental adaptation of indigenous peoples as basis for local resilience to climate change. It focused on their beliefs, traits and values; their approach and prevailing practices to environment with its strengths and weaknesses; their adaptive management in response to environmental conditions; and from the findings the local resilience strategy framework to climate change was established.

The study used qualitative descriptive method which was narrative in nature using literary analysis. Selected upland IPs from the island of Luzon were the participants of the study. The study only covered upland IPs rich in available and accessible literary works done/compiled/published by local and foreign authors. The bases of literary works used were scripts, folk narratives, folk speech and folk songs.

The study did not include the analysis of literary works in terms of origins, forms and styles of the text or literature. The study was delimited to the content and significant meanings or attributes of the literary works of IP's to environmental practices and adaptation.

## **2. Review of Related Literature**

One of the major problems affecting indigenous peoples is environmental degradation due to inappropriate development schemes. However, many indigenous or traditional cultures have attained a balance between the community and their environment. Each culture has a way of adapting to a specific environment. Each culture attempts to strike a balance between its population and resources. Culture is an adaptive mechanism. Between people and environment

is culture, and the basic task of culture is to ensure that a group of people will survive in their environment. Human adaptation is simply the process by which human beings cope with or adjust to the environment. Human beings are said to be the most adaptable animals on earth. Human beings are noted for their flexibility or plasticity. Adaptations to variations in environmental circumstances are reflected in the diversity of human cultures. Cultures are not determined by their environments. Human beings can creatively fashion and re-fashion nature in order to survive (Cabanilla, 2005).

To support, Cohen (1968) in Magos and Pabito (2001), human adaptation is an individual or a group of people's reaction to environmental conditions in order to survive. The process by which human beings tap the energy potentials in the environment constitutes their adaptive strategy.

Adaptive strategies are evident in (1) beliefs and values which are manifested in the way human beings view their environment and how they interact with it. These guide them in relating to as well as in extracting resources from environment, which is the source of their food; (2) technology, which is shown in the way human beings use their skills and knowledge to extract the energy potentials of the environment in order to survive; and (3) social organization, which is demonstrated in the human beings shape social relations in their community (Magos and Pabito, 2001).

## **2.1 Synthesis**

The review of the conceptual literature focuses on indigenous peoples, cultural and social identities, natural environment, adaptation, and climate change. This has provided the fundamentals and essential pieces of information that facilitated the study.

Aforementioned prominent personalities viewed indigenous peoples to be distinct in terms of their cultural and social identities and institutions relative to dominant groups in society. Smith et al (2010) there are several factors that threaten indigenous peoples and their cultures. Deforestation, mining, road building and tourism are some of the factors that are responsible for threatening their long-term survival and culture in a fragile environment.

In addition, the natural environment, the widespread destruction of natural areas throughout the world resulting from urbanization, pollution and unsustainable agriculture and resource extraction practices is actually increasing the value of many traditional indigenous lands (Stevens,

1997). As a result, indigenous peoples were often displaced and environmental degradation is placed.

Another issue is that indigenous peoples are heavily dependent on the natural environment, natural resources and climate. However, it would seem that these are now under threat from predicted climatic changes as a consequence of global warming.

In human adaptation, it seeks to establish permanent protected zones where natural ecosystems and the people indigenous to them would not be harassed or suffer interference (Bodley, 1982). Likewise, according to MacHattie and Wolfe-Keddie (2000) some principles for the community of people include protecting and strengthening ecological and cultural integrity; and strengthening community and personal self-worth and pride in heritage. Community wellness is important to adaptation.

The aforementioned have facilitated the researcher's understanding on indigenous peoples, their environment and possible adaptation. The conceptual literature materials have provided the directions similar to the intention of the present study.

Culture is an adaptive mechanism. Between people and environment is culture, and the basic task of culture is to ensure that a group of people will survive in their environment. Human adaptation is simply the process by which human beings cope with or adjust to the environment (Cabanilla, 2005).

According to Magos and Pabito (2001) the process by which human beings tap the energy potentials in the environment constitutes their adaptive strategy. Adaptive strategies are evident in beliefs and values which are manifested in the way human beings view their environment and how they interact with it. Technology, which is shown in the way human beings use their skills and knowledge to extract the energy potentials of the environment in order to survive. Social organization, which is demonstrated in the human beings shape social relations in their community.

### **3. Methodology**

This chapter presents the research method, population and sampling, participants/subject of the study, research instrument, validation of the instrument, data gathering procedure and data analysis procedure.

### **3.1 Research Design**

The study used descriptive method (qualitative/narrative in nature using literary analysis). The research design was used to describe the indigenous peoples and their environmental adaptation as basis for local resilience to climate change. Sevilla, et al (1992), descriptive is designed for the researcher to gather information about present existing conditions.

### **3.2 Population and Sampling**

The study covered the Ifugaos, which is one of the 19 groups of upland indigenous peoples in Luzon. The study employed purposive sampling in the selection of indigenous peoples. The criteria for the selection of the participants or subject of the study were: (a) indigenous peoples depicted in available and accessible literature, (b) their community or the group is not vanishing from the earliest known time, and (c) famous/popular and rich in culture and literary arts.

### **3.3 Research Instrument**

The study used certain concepts associated with documented literary works in the context of environmental ideologies, orientations, behaviors, practices and techniques. The instrument was based on literary in three major groups Damania (2007).

The three major groups were (1) folk narratives such as verses, myth or alamat, and folk tale or kwentong bayan, including scripts and symbols; (2) folk speech such as riddle or bugtong, and proverb or *salawikain*; and (3) folk songs including rites or ceremonies.

### **3.4 Data Gathering Procedure**

The data were gathered by means of library works in Philippine studies, Filipiniana, archives, and other manuscripts found. Online literary materials were also searched to support the data. Significant data were collected from books, journals, manuscripts and other previous studies. Literary works such as folk stories, anecdotes, riddles, proverbs, songs and scripts relevant to the beliefs, traits, values, practices and adaptive management of indigenous peoples and their environmental adaptation were transcribed. The full text or excerpts of the literary arts of the indigenous peoples that were deemed substantial to the study were the bases of data.

### **3.5 Data Analysis Procedure**

Adhering to the use of literary analysis, the study followed some rules in analyzing a text:

- Text as evidence
- Reading and re-reading of text guided by assumptions
- Basic ideas, events, meanings, names and the like require additional review of the text



- Thinking through personal reaction to the text: identification, significance and application
- Identification and consideration of important ideas on IPs and their environment
- Analysis and interpretation of the text to locate specific evidence and passages related to major ideas on IPs and their environment
- Use of the knowledge or principles of analyzing a text: (a) Indicate a basic assertion about the text, (b) Offer a context for the text, (c) Cite the text using correct format, (d) Follow the elements of the text (significant happenings, ideas, expressions, and the like), (e) Assess, considering the ideas, content, expressions, and the like to contribute to the meaning of the text, (f) Describe and explain the meaning, the analysis of the text back to the significance of the text as a whole (the IP's and their environment).

The study did not include the analysis of literary works in terms of origins, forms and styles of the text or literature. The study was delimited to the content and significant meanings or attributes of the literary works of IP's to environmental practices and adaptation.

Highlights of the findings were presented and interpreted in matrices and self-made paradigm. These were the bases for the local resilience strategy framework to climate change.

## **4. Results and Discussion**

This chapter presents the answers to the specific problems of the study. It requires the presentation, analysis, and interpretation of the findings.

### **4.1 Beliefs, Traits and Values of the Ifugaos**

These are the spiritual thinking and the ideals of the aborigines or natives of certain land or the indigenous peoples, in particular the Ifugaos. This also contains the qualities, attitudes, principles, standards and ideals of the indigenous peoples.

According to Magos and Pabito (2001) the process by which human beings tap the energy potentials in the environment constitutes their adaptive strategy. Adaptive strategies are evident in beliefs and values which are manifested in the way human beings view their environment and how they interact with it.

Most of the indigenous peoples live in scattered mountainous parts of Luzon, Philippines. They are considered as the early inhabitants. They are nomadic and build only temporary shelter out of materials from their natural environment.

Most of them believe in deities, they are animists and they believe in environmental spirits. They believe that good and evil spirits inhabit in the environment, such as the spirits of the river, the sea, the sky, the mountain, the hill, the valley, and other places.

The indigenous peoples in terms of traditional beliefs were either monotheistic (having one god) or polytheistic (having the presence of different gods). Most of them were into beliefs of god in the forms of human, spirits, animals/plants, and ancestors. The modes of existence of the indigenous people were most likely agriculture/farming, hunting, fishing, kaingin, mining, weaving, pottery, wine making and rattan gathering. These were basic skills that were being developed by them through adaptation of available natural resources from their environment.

In terms of traits and values, most of the indigenous peoples were very superstitious, were known for their literary traditions, conservative, men as mediums, worshippers, strong in tribal awareness, heavily-oriented, kinship-oriented, carefree and cheerful, hospitable, generous, self-reliant, courageous, artistic in their temperaments, protectors of the forest, hardworking, respectful, very nomadic to influences, skilled and romantic. Very few of them were shy and educated. Most of the beliefs, resources, values and traits which were manifested in the way indigenous peoples view their environment and how they interact with it were found ideal characteristics of the indigenous people for environmental adaptation. These guide them in relating to as well as in adjusting to environmental changes and to their way of life.

## **4.2 Approaches and Prevailing Practices, Strengths and Weaknesses, and Their Adaptive Management to Environmental Conditions**

The approach, prevailing practices with its strengths and weaknesses, and their adaptive management to environmental conditions were taken from the full texts or excerpts of existing literary arts of the indigenous peoples. Relevant data were extracted from folk narratives, folk speech and folk songs/poetry.

### **4.2.1 Folk Narratives**

Folk narratives include tales, myths, legends and epic of selected indigenous peoples. These narratives contain folk stories with significant associations with their adaptive management practices in the environment.

#### **4.2.1.1 Excerpts from the Story of Creation**

Mak-no-gan was the greatest of all the gods, it was he who created the earth and the place of the dead. After Mak-no-gan created the earth, he made Uvigan in his image, then, was the first man. Uvigan was unhappy, then Mak-no-gan created the first woman Bugan. For many years the couple lived in innocence, happiness, and peace.

The two disobeyed Mak-no-gan for eating the forbidden fruit. Little by little, they grew discontented and unhappy for evil had entered their lives.

They bore many children. The children grew more and more wicked. Mak-no-gan could no longer control his anger and punished them. He caused the rice plants to wither and die, so that, in the end, they had nothing to eat.

Seeing Bugan's prayed and took the sacrifice. She pressed her breasts hard for milk to feed the children and pressed harder and harder, until blood flowed to the ground.

The god took pity on her and so he made the rice plants to grow once more. This time, however, some of the plants bore white grains; while the others bore red grains. The white grains were Bugan's milk, while the red grains were her blood.

The story shows the belief of indigenous peoples to their greatest god who is capable of giving punishment affecting their natural environment and resources. However, indigenous peoples believe that their god is also compassionate. Thus, belief is influential in their decision-making and adaptation process.

#### **4.2.1.2 Excerpts from the Ifugao Flood and the Origin of the Mountains**

During their feasting, it grew dark and began to rain. The river also kept rising. Then the old men said: "We must flee to mountains, for the river gods are angry and we shall all be drowned."

So people fled toward the mountains and all but two of them were overtaken by the water and drowned. The two who escaped were a brother and sister named Wigan and Bugan – Wigan on Mt. Amuyao and Bugan on Mt. Kalauitan.

The water continued to rise until all the Earth World was covered except only the peaks of these two mountains. The two lived on fruits and nuts from the forests that covered the tops of the two mountains.

At last the water receded from the earth and left it covered with the rugged mountains and deep valleys that exist today; and solitary brother and sister, looking down from their respective peaks, were filled with wonder at the sight.

The story presents a view of the indigenous peoples in the existence of gods or spirits of the elements of earth. It is a traditional belief that the anger of these gods can ruin lives. It also shows that mountains and forests are helpful means for the indigenous peoples to survive. This premise relates to their adaptation of survival using the physical environment.

#### **4.2.1.3 Excerpts from Ifugao Epic**

They climbed the forests above the fields;  
They searched the place  
For the best trees  
They felled the trees, hollowed them out,  
For channeling the water;  
They cleaned the waterfalls,  
They channeled it to the fields  
They directed water to flow,  
They found a way,  
The comrades followed it to the village.

This epic shows that the natural environment of the indigenous peoples is their resources. Indigenous people are resourceful, skilled and artistic in temperament to use the natural resources available to them from their natural environment.

#### **4.2.1.4 Excerpts from the Legend of Malpao Spring**

The barrio of Ambabag was once a forest with only one inhabitant: Aliguyun. One day, Aliguyun went hunting and after a while he became very thirsty. He went down the forest, dug a hole and played `baki. After a while water rose from the earth and he could drink.

The story tells how the indigenous peoples believe in the power of rituals and prayers to make a wish come into reality. Their beliefs help them to look for resources. It is a belief that the environment is a god's gift to them in which a ritual is the medium to talk to god for the favor.

#### **4.2.1.5 Excerpts from the Legend of the Typhoon**

The storm is either a man or woman and that is because once, a woman named Inhabian, was laughing as the wind tried to blow away her tapis. She was knotting rono leaves and tying them at the four corners of her house. As she laughed the wind came again and not only blew away her tapis but her tuchong as well. Now a tuchong is a woven basket for camotes or vegetables and in the rain once can turn it upside down to serve as a raincoat or umbrella.

Inhabian got angry and spoke bad words at the wind. The wing heard this and came to take her. As she disappeared she was heard to say “When the wind comes put a tuchong i.e. a knot of **rono** leaves on the four corners of your hut so when I pass by, I will not blow your house away.”

It reflects the adaptation of the indigenous peoples to environment. The indigenous peoples make their own preparations and protections from environmental disasters. They are used to knot rono leaves and tying them at the four corners of their house in preparation and protection against eventualities like strong wind that may lead to typhoon.

It could be said that the indigenous peoples are artistic and resourceful in making a woven basket at the same time a raincoat or umbrella against environmental conditions. It also traces their trait of being skilled for weaving a basket out of materials from their natural resources.

#### **4.2.1.6 Excerpts from the Thunder of Ifugao (First Version)**

One day a man was coming down from the forest when a storm broke out. There was lighting and thunder. He began fighting with the lighting and in his anger he spoke bad words against the lighting. When the thunder heard this it got angry and came down by passing through a pine tree causing it to wither right away.

The man was found dead in front of the tree but after few hours he sat up and told the people that the thunder is pig with stripped colors: yellow and brownish. That is why it is this kind of pigs called chago that are offered to the god of thunder.

The story shows that most of the indigenous peoples have strong belief in the existence of goods and spirits. The spirits (ancestors) have control on all aspects of the daily life of the indigenous peoples. This belief influences the indigenous peoples deeply. They offer gift and sacrifice to god to please it.

#### **4.2.1.7 Excerpts from the Legend of Lake Guinangaman**

The night it rained heavily and the waters rose so that the barrio was completely inundated and sank from view. When the men arrived from hunt, they saw a big lake where the barrio once

stood. Looking down in the clear waters they saw their houses and properties. They tried to dive in order to save their immense wealth but no one could take anything as someone seemed to be holding it back. And that is how the lake began and got its name to remind everyone to be kind to animals/plants for people would be punished be punished. (Guinangaman means where all the native wealth is concentrated)

It reflects that indigenous peoples believe that all problems like disasters and even death are due to their failure to satisfy gods and spirits. They believe that they have to satisfy their gods and spirits. A life lesson is always being instilled to people by means of certain punishments from their gods and spirits. It is also a reminder that people should be kind to animals or plants for the gods and spirits are in the forms of animals which dwell in plants.

#### **4.2.2 Folk Speech**

Folk speech includes riddles and proverbs of selected indigenous peoples. This folk speech contains riddles and proverbs with significant associations with their adaptive management practices in the environment.

Proverb from Ifugao

*Hay adi tumadun an utak,*

*Maid ibaddang na.*

(A dull bolo, is no help.)

It shows that bolo is basic to indigenous peoples. Since they depend on their natural environment, bolo is a tool to adapt with physical environment and to get resources from the environment that surrounds them. Useless bolo is no use in their ways of life.

#### **4.2.3 Folk Songs**

Folk songs include songs, poems and even scripts that can be sung or recited. It contains songs that are traditional to indigenous peoples and relevant to their adaptive management in the environment.

Excerpts from Hudhud hi Aliguyon: An Ifugao Harvest Song

*Ta mamyu taku-gullakay ta ngumayotaku*

(We shall pray the rooster prayer, for we are  
going to battle)

*Ya kanana, "Heake gullukami,*

(Saying, “Give us a sign, our rooster,)

*Ya ipidongmo an pinyukan gullukay.”*

(Answer our prayer by a sign, rooster.”)

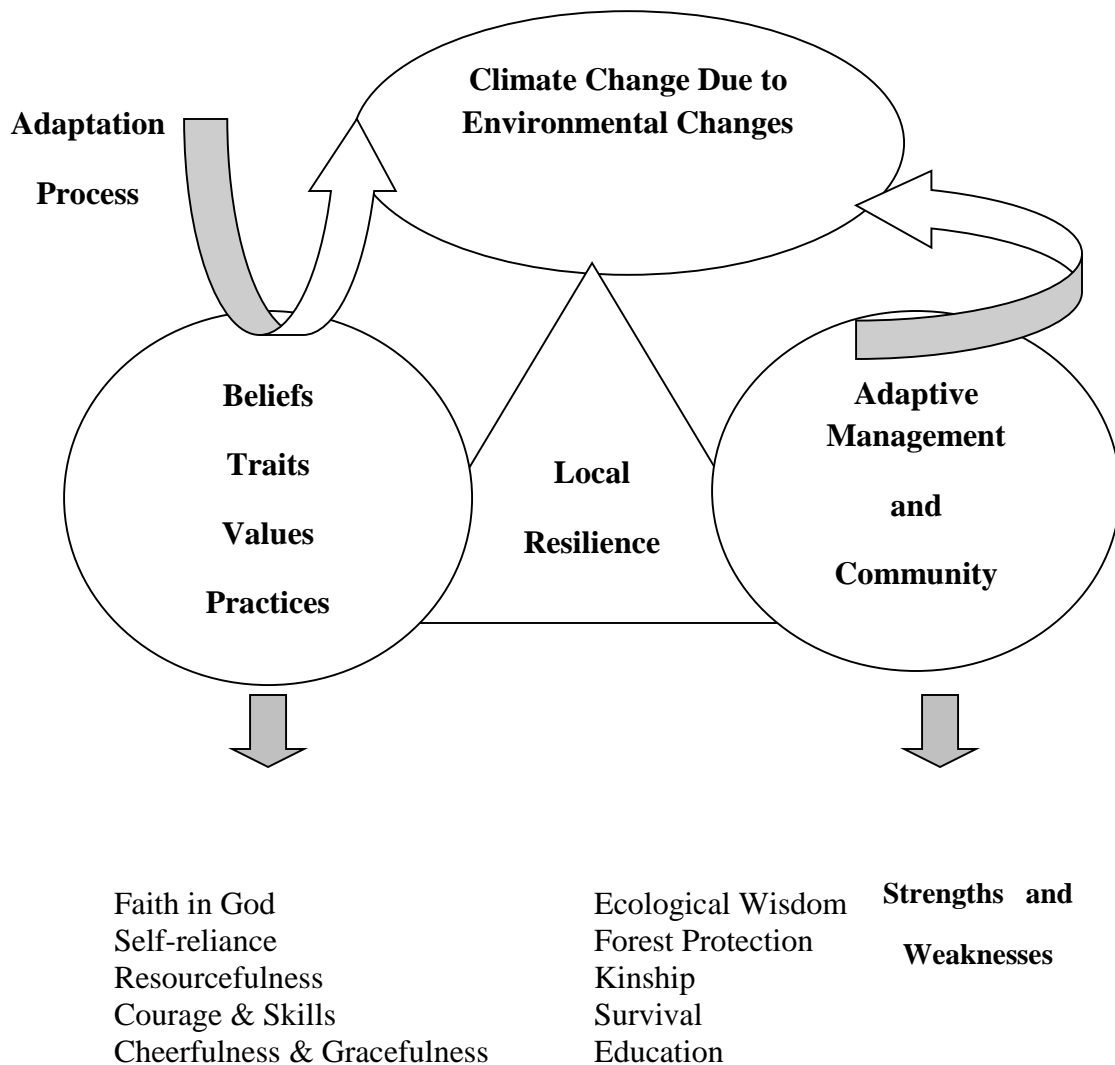
The song emphasizes that the strengths of the indigenous peoples are basically coming from their beliefs in the spirits. Spirits of their ancestors could be in the form of animal in the case of rooster. They believe in the signs and blessings of the spirit in the animal for their undertakings. They practice animism in the management of their environment. However, their practice of animism is limited to their culture and communities.

The song attests to the time pattern of the indigenous people. The living things that surround them tell the condition of the day. In the song, the bat signifies the night time of the day and when the dove could not fly for the doves fly only by the day time. From this scenario, the indigenous peoples earn the ecological wisdom that serves as their practice to adapt with the environment. However, their being basic for not using the technology makes them remote from advance decisions.

#### **4.3 Local Resilience Strategy Framework to Climate Change**

The local resilience strategy framework to climate change is a skeletal or structural basis that could be used by the local people to adapt with environmental changes particularly the climate change. The strategy framework to climate change is designed based on the findings of the study.

The strategy framework would establish the foundations and give the directions and challenges of environmental adaptation due to climate change. The basic characteristics of the strategy framework to climate change for local resiliency are based on the beliefs, traits, values, practices and adaptive management of the indigenous peoples. These indigenous peoples are very good source of environmental adaptation strategy because of their unique culture and distinction; their concepts of physical environment; and their survival with limited resources.



**Figure 2:** Strategic Framework to Climate Change

The local resilience to climate change is anchored on two main foundations. Firstly, the beliefs, traits, values, practices, and subsistence of local people are the basic requirements for adaptation. Secondly, the adaptive management and the community of local people are substantial to facilitate the adaptation.

The beliefs, traits, values, practices and subsistence are the fundamentals of adaptation process for local residents to adjust with environmental changes and finally on climate change. Specifically, the faith in God, self-reliance, resourcefulness, courage and skills, and cheerfulness are the useful characteristics of the local people to environmental adaptation.

The adaptive management and the community specifically ecological wisdom, forest protection, kinship, survival, and education are essential vehicles to carry on the environmental



adaptation of local people. The strengths and weaknesses of adaptive management and community are the indicators of the success and failure of environmental adaptation.

The resilience of the local people is based on the premise of being believers of God, self-reliant, resourceful, courageous and skilled, and cheerful. The sustenance of the resiliency is heavily dependent on ecological wisdom, protection of the forest, kinship orientation, mode of survival, and the extent of education. Thus, local resilience is an adaptive mechanism to climate change due to environmental changes.

## **5. Summary, Conclusions and Recommendations**

### **5.1 Summary**

- The influence of gods, spirits and ancestors in the forms of either human, animals or plants in the natural environment; and being very superstitious, resourceful, self-reliant, courageous, skilled, artistic in temperament, hardworking, respectful, humble, simple, conservative, kind, graceful in stature, heavily ornamented, generous, carefree/cheerful, romantic, and kinship oriented were the traditional beliefs, traits and values of the indigenous peoples.
- The use of spiritual beliefs, rituals and ceremonies; ecological wisdom; forest protection; kinship orientation; sense of tribal awareness and peace pacts; artistic temperament; and survival were the approach and prevailing practices to environment of the indigenous peoples.
- The adaptive management of indigenous peoples in response to environmental conditions were planning according to their subsistence or survival; organization according to their culture (beliefs, traits and values); direction and leadership according to their orientations and practices; and control according to their faith and beliefs. The strengths of indigenous peoples were found mostly in their faith and natural beliefs; self-reliance; resourcefulness; hard work, artistry, kinship; ecological wisdom; and being protectors of the forest, while their weaknesses were found mostly in their modes of subsistence; knowledge; superstitious beliefs; heavy dependence on physical environment; and conservatism and shyness.

- The strengths and weaknesses of their beliefs, traits, values, practices and subsistence; and the adaptation process of their adaptive management and community were the bases of local resilience strategy to climate change (please see the strategy framework).

## **5.2 Conclusions**

The beliefs, traits and values of the indigenous peoples were focused on beliefs in their gods, spirits and ancestors in the forms of either human, animals or plants in the natural environment; they were very superstitious, resourceful, self-reliant, courageous, skilled, artistic in temperament, hardworking, respectful, humble, simple, conservative, kind, graceful in stature, heavily ornamented, generous, carefree/cheerful, romantic, and kinship oriented.

The approach and prevailing practices to environment of the indigenous peoples were based on the use of spiritual beliefs, rituals and ceremonies; ecological wisdom; forest protection; kinship orientation; sense of tribal awareness and peace pacts; artistic temperament; and survival.

The adaptive management of indigenous peoples in response to environmental conditions were planning according to their subsistence or survival; organization according to their culture (beliefs, traits and values); direction and leadership according to their orientations and practices; and control according to their faith and beliefs.

The strengths of indigenous peoples were found mostly in their faith and natural beliefs; self-reliance; resourcefulness; hard work, artistry, kinship; ecological wisdom; and being protectors of the forest, while their weaknesses were found mostly in their modes of subsistence; knowledge; superstitious beliefs; heavy dependence on physical environment; and conservatism and shyness.

The local resilience strategy to climate change were established on the framework of strengths and weaknesses of their beliefs, traits, values, practices and subsistence; and the adaptation process of their adaptive management and community.

## **5.3 Recommendations**

From the conclusions of the study, the following recommendations were drawn:

- Desirable and useful beliefs, traits, and values should be sustained for environmental adaptation and survival. The heritage of the indigenous peoples in terms of effective and efficient environmental adaptation should be preserved and dignified by all sectors of the society.

- Ecological wisdom, forest protection and resourcefulness should be practiced by all. These practices should be integrated in environmental awareness with public dissemination of information and documentation to be initiated by environmental agencies and educational institutions.
- The Philippine government and non-governmental organizations should enrich the strengths of the indigenous peoples in terms of environmental adaptation; and initiate projects that will improve the modes of subsistence and knowledge; and reduce the beliefs in super natural, heavy dependence on physical environment, conservatism and shyness of the indigenous peoples.
- The strategy framework to climate change for local resilience is proposed and highly recommended to all institutions and communities concerned for environmental adaptation to climate change.

## References

- Bell, M. (1999). The changing face of community development in the north: from the power paradigm to the spirit paradigm. Yellowknife: Inukshuk Management Consultants.
- Bodley, J.H. (1982). Victims of progress. California: Mayfield.
- Butler, R. & Hinch, T. (2007). Tourism and indigenous peoples. USA: Elsevier.  
<https://doi.org/10.4324/9780080553962>
- Coronel, MD. (1976). Stories and legends from Filipino folklore. Manila: UST Press and Clavano Press, Cebu.
- Damania, E.L. (2007). Philippine folk literature: An anthology. Quezon City: University of the Philippines Press.
- Holden, A. (2008). Environment and tourism. New York: Routledge.  
<https://doi.org/10.4324/9780203937624>
- Javier, et al (2002). Introductory sociology and anthropology: a pedagogy. Manila: Rex Bookstore.
- Lumbera, B. (2001). Filipinos writing: Philippine literature from the regions. Pasig City: Anvil Pub., Inc.

- MacHattie, B. & Wolfe-Keddie, J. (2000). Mi'kmag of a sacred bay –Lennox island aboriginal ecotourism strategy: ten year strategic planning process 1999-2009. Ontario: University of Guelph.
- Mallari, I.V. (1958). Tales from the mountain provinces. Manila: Philippine Education Company.
- Sevilla, C.G. et al. (1992). Research methods. Manila: Rex Book Store.
- Smith, et al. (2010). Key concepts in tourist studies. London: SAGE
- Stevens, S. (1997). Introduction. In conservation through cultural survival: Indigenous peoples and protected areas. Washington: Island Press. Visitors' Guide to the Philippines. (1994). Cultural minority groups. Manila: Integrated marketing Services Phils., Inc.
- Zamora, M.D. & Romulo, C.P. (1967). Studies in Philippine anthropology (In honor of H. Otley Beyer). Quezon City: Alemar-Phoenix Pub.
- Zeppel, H. (2006). Indigenous ecotourism: sustainable development and management. Wallingford: CABI. <https://doi.org/10.1079/9781845931247.0000>