

Conference Paper

Livelihood Resources, Practices and Values of Aetas in Mid-Baytan—Implications to Education and Community Development

Jo A. Espiritu

Ramon Magsaysay Technological University

Abstract

The study describes the livelihood resources, practices and values of Aetas in mid-Baytan, Botolan, Zambales, located in Central Luzon, Philippines. It aimed to provide a basis for an indigenous development program and drew implications on education and community development. Specifically, this study described 1) the characteristics of the residents, 2) livelihood resources and practices, 3) cultural practices and values, and 4) their problems. Participants and key informants were interviewed during fieldworks. Documents were gathered from pertinent offices. Data were analyzed drawing patterns and categories. Participants were 21 to 76 years old, mostly women, married, with elementary education and 2-5 members per household. Livelihood resources were family-owned or communal. Livelihood practices included enterprise combinations, production and marketing processes. Majority of the participants is into farming, gathering mountain products, and hired labor. Family roles and traditions were well-defined. Prominent values are sharing, trust in God and determination. The g-string and arrows symbolized their practical philosophy and open-mindedness. Low prices for products and inadequate capital resulted to low income that led to poor health, absenteeism and early marriage. The study concludes that the Aetas of mid-Baytan possess the needed resources, skills and values to break the cycle of poverty. Family culture keeps their marriage and community peaceful. It is, therefore, recommends that 1) formative IPED emphasize the role of the Aetas in Philippine history and study their way of life; 2) an indigenous development program be drawn encompassing leadership, local governance, livelihood enhancement, gender sensitivity integrating culture and cohesiveness; and, 3) line agencies collaborate for more directional impact. jae.

Keywords: Aeta, community development, culture, indigenous education, livelihood

Corresponding Author:
 Jo A. Espiritu
 joespiritu5611@yahoo.com

Received: 23 April 2018
 Accepted: 8 May 2018
 Published: 4 June 2018

Publishing services provided by
 Knowledge E

© Jo A. Espiritu. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the IRCHE 2017 Conference Committee.

OPEN ACCESS

1. Introduction

The eruption of Mt. Pinatubo diminished the forest and mountain areas where the Aetas used to roam. It pushed them to settled community life with the lowlanders in the resettlement camps.

In the resettlement areas, the natives had to live with the lowlanders and learn to live in the mainstream. However, the lowlanders considered them inferior and marginalized. Due to their limited awareness of the Aeta culture, lowlanders discriminated and misunderstood them [1], [2].

Most of the natives could not just wait for rations which made them feel like beggars. Some started testing the trek back to Baytan a year after the disaster. On the fifth year, around 50 families have settled back in Maguisguis, one of the middle barangays in Baytan. Some kept their resettlement lots awarded by the government so their children might have a place to stay while studying. Others, however, lost interest on theirs and sold them.

Having been exposed to the standards of regular community life during their stay in resettlement camps, the Aetas of Baytan now strive to send their children to school, believing that education will equalize the opportunities of their children to those of their counterparts.

Their joining the mainstream, however, is hindered by poverty and other related problems. While education is recognized as a carrier of culture, the Aetas' awareness and adherence to their indigenous culture, also, makes it difficult for them to integrate into the mainstream society.

The Shannon-Weaver Model of Communication theory provides basis in giving importance to an extension worker's awareness of the values and practices of clients in community development [3]. This study intended to describe the Aeta way of life and draw a basis for a sustainable and indigenous development program that can help improve the quality of life in the three (3) middle barangays of Baytan—Nacolcol, Maguisguis and Burgos (Figure 1). The variables of the study included the socio-economic and socio-demographic traits of the residents, their livelihood resources, practices as well as values they wanted to retain. It also enumerated problems that they thought constrained their progress.

The results of the study will be useful to community leaders, organizers, social/extension workers, teachers of indigenous people as well as to the Aetas themselves. It is conducted in line with the principle of "starting development with where the people are" and collaboratively planning with the indigenous residents regarding their

predicaments, concerns, and abilities to avoid designing a development program that can be “culturally disruptive” [4].

2. Objectives of the Study

The study aimed to gather livelihood-related information on the residents of the three communities in Mid-Baytan to base a sustainable development program as well as draw implications on education and community development.

Specifically, data were gathered to answer four questions, namely: 1) describe the socio-economic and socio-demographic traits of the residents; 2) describe their livelihood resources and practices; 3) describe the cultural practices and values they intend to keep; and 4) enumerate problems they considered constraining their progress in life.

3. Materials and Methods

The case study design was used to describe and analyze the situation, events and processes conducted in the three contiguous barangays of Maguisguis, Nacolcol and Burgos. With Maguisguis at the center, the three villages have their residents working on a ‘gasak’ (swidden farm) in one barangay while living in any of the three barangays. Data were gathered using interviews, conversations, document/ record collection, photographs and field visits.

Thirty five (35) residents were interviewed in groups of 11-12 members while 12 key informants were conversed with individually on two(2) three-day field visits in the three villages. The 12 key informants consisting of five (5) community leaders, two (2) school officials, one (1) pastor, two (2) farmer-traders, one (1) large scale upland farmer and one (1) highly skilled hunter were interviewed on arranged occasions. Documents and records were gathered from related offices while notes and pictures were collected during field visits. Data were analyzed drawing patterns and categories with triangulation and integrative tables.

After the analysis and interpretation of the data, results were presented to 60 representatives of the three barangays in compliance with the Administrative Order #1, s. 2012 of the National Commission of Indigenous People (NCIP). Concepts were validated except for the marriage-related concepts which were clarified and corrected.

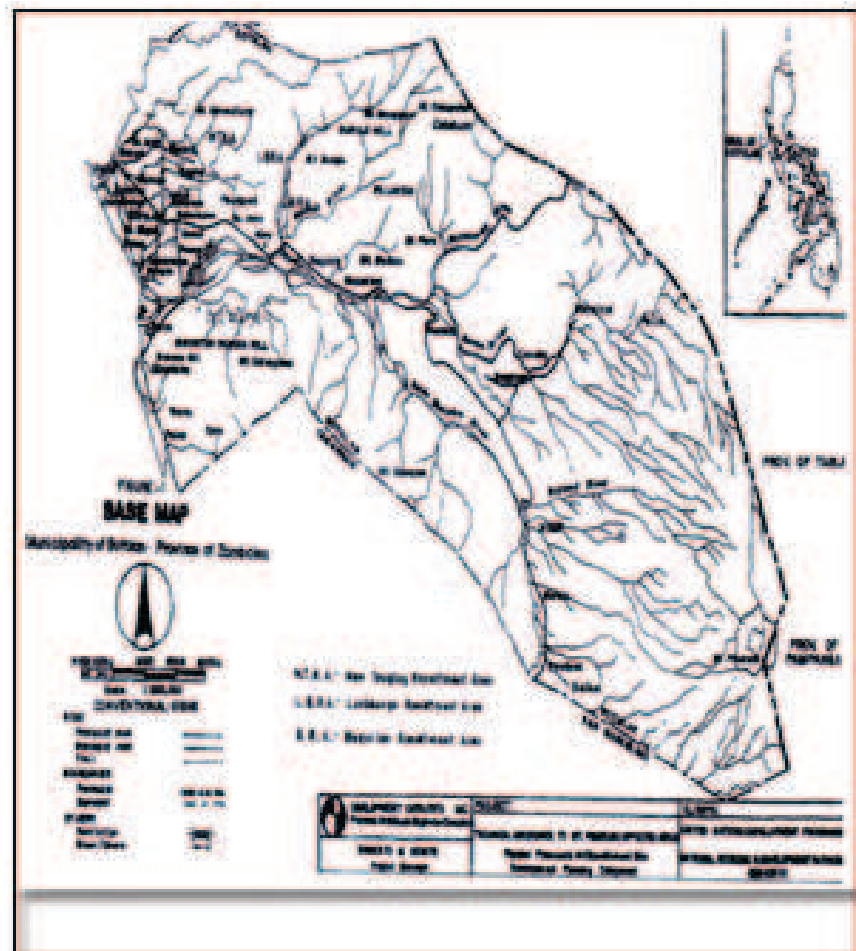


Figure 1: Map of Botolan, Zambales.

4. Results and Discussion

4.1. Socio-economic and demographic traits of the residents

The respondents are 21-76 years old, mostly female (59.5%) and married (87.23%). Most (58.26%) households have 4-5 members. Most (76.6%) have gone through elementary grades, others (17.02%) made it to high school but only 6.38 percent have gone to vocational or college level. Most (53.85%) of them combine swidden farming with various livelihood sources while the rest (46.15%) are into full-time farming. Most (48.94%) households have 3-4 members working in the farm.

4.2. Livelihood resources

Livelihood resources are **family** or **community-owned**. **Family-owned resources** include *lands, farm animals and implements, transportation facility, and their dwellings*. Most (87.23%) of the families have swidden farms, the rest (12.77%) also utilize 'lahar' (volcanic debris) lands for rice production. Swidden farms or 'gasak' could be a hectare to 97.5 hectares of rolling or flat lands on top of the mountain, operated by family members.

Carabaos, bull carts, plow, harrow and 'balsa' or levelling implements are owned by 51.06% of the residents. Only 40.43% of the residents own both a carabao and a bull cart.

All the residents have houses in Baytan made of indigenous materials while 25.53% of them maintain rainy-day houses made of construction materials in their resettlement lots.

Community resources include *ancestral lands, tribal governments, schools, infrastructures* as well as *government and non-government organization programs*. Barangays Maguisguis and Nacolcol have ancestral lands for titling while Brgy. Burgos is already a convergence barangay. Convergence barangay is a titled barangay and receives development support from the government after the title as well as other requirements have been complied. Barangays for titling, on the other hand, have just been subjected to cadastral survey [5].

The three barangays have tribal government structures under the Office of the Mayor compliant to R.A. 8371 (Indigenous People's Right Act). These government structures are led by a chieftain and supported by a council of elders. They are considered effective [6], [7] but the residents feel that all barangay officials must be living on the site to effect solutions to problems in the community concerning Aeta and non-Aeta alike [8].

There are 15 elementary schools and five (5) secondary schools in Baytan to cater to the formative education requirements of Aeta children wherever their parents' need to go to earn. Nacolcol and Burgos have an elementary school each while Maguisguis has an integrated school to provide for the secondary education of adolescents in the

area. Merit scholarships are also available to tertiary students in three higher education institutions in the province.

Infrastructures in the barangays include *communal water sources, spacious plazas, chapels* and *a trading post* at Baquilan. Maguisguis and Burgos are dependent on a communal water pump each for their potable water source while Nacolcol is blessed with continuously flowing water from a spring. Spirituality is coaxed among residents by two religions in Maguisguis, one in Burgos and one in Nacolcol. Each religious group has a chapel. A lone trading post is situated in Baquilan Resettlement Camp serving as the take-off point of travelers to the three barangays. It is at Baquilan port where Baytan residents bring their products to meet with their buyers.

Government programs known to the residents of mid-Baytan are from the Office of the Governor, Department of Agriculture (DA), Department of Education (DepEd), Department of Health (DOH), Local Government (LGU)/ Office of the Mayor and certain entrepreneurs like the watermelon raisers. The programs are all focused on alleviating poverty in the barangays. However, due to the distance between the town and the barangays, the residents are not frequently visited.

4.3. Livelihood practices

Livelihood practices described the enterprises or enterprise combinations (Figure 2), production and marketing means of the residents by which they provide the needs of their families. Their enterprises include farming, gathering banana blossoms, trading, hunting and other alternative sources [8].

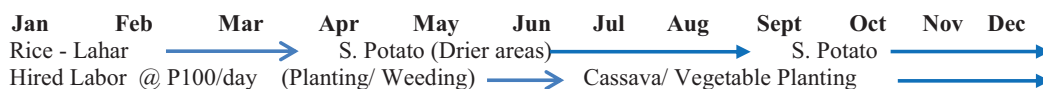
5. Practiced in the Communities

Alternative sources include a) gathering mountain products, b) fishing, c) charcoal production, d) share planting and e) serving as hired farm labor.

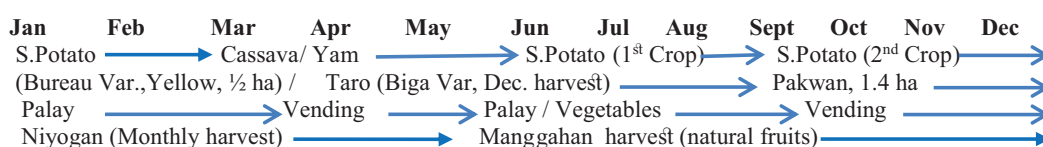
Farming is practiced in three locations—upland (*gasak*), upland (*patal*) and lowland. *Gasak* is a cultivated area on top or sides of the mountain where shrubs and trees have grown while *patal* refers to flat areas on high grounds. *Lahar* or lowland farms, on the other hand, are riverbeds surrounding the villages that retain water until December and totally dries up by March or April.

A. Farming

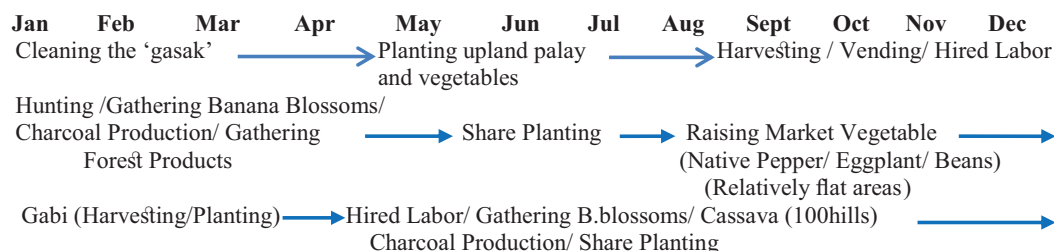
1. Lowland Farming (2 spans)



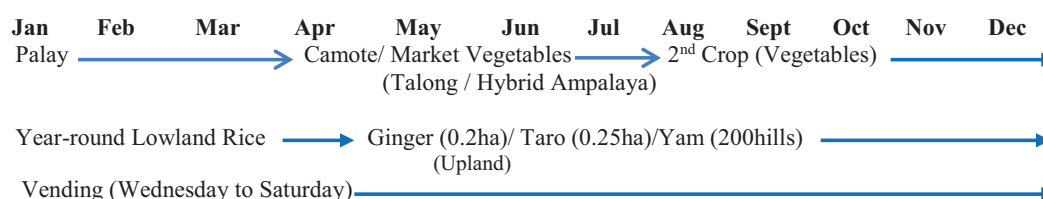
2. Upland Farming (1- 2 hectares)



3. Swidden (Gasak) Farming



B. Entrepreneur (Farming-Vending) (Famularcano/ San Juan, Maguisguis Interviews, 2016)



C. Hunting/ Fishing

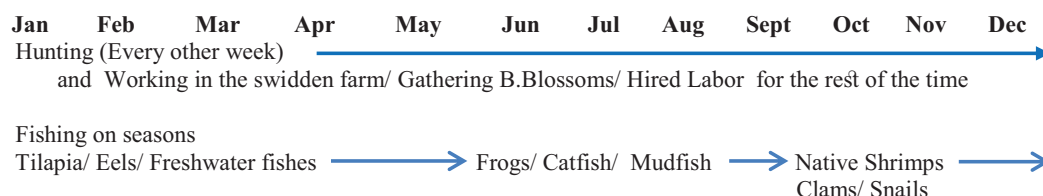


Figure 2: Annual Livelihood Enterprise Combinations.

Gasak or swidden farm is maintained by most families as it mainly provides them food and shelter even on dire times. Since these areas are rain-fed and irregularly sloping, various crops are

planted in small amounts. Upland rice would occupy the more regularly sloped patches while root crops and vegetables are planted along with shrubs or under the trees. Bananas occupy the steeper areas while other trees like mango, citrus and coconut are on the rolling areas. The cropping pattern upland rice-vegetables-cassava/sweet potato/ taro/ yam/ ginger/ patani is observed during the year.

Patal or flat upland farms are ½ to 1.5 hectares wide and are planted into cassava, sweet potatoes, taro, yam and watermelons because they can be prepared using farming implements like plow and harrow. A cropping pattern of sweet potato-cassava/taro-sweet potato/watermelon is observed throughout the year.

Lowland farms are usually approximately 1000 sq.m. patches planted to a pattern of Rice-sweet potato/ vegetable-cassava in a year. These are operated in addition to a *gasak* or a *patal* farm where the residents' dwellings are located.

Trading or vending is another enterprise that some of the residents undertake to derive continuous income in the year. Small farmers sell their products to local buyers at prices lower than the market price or send their commodities to certain buyers in town through the local buyers and pay a fare of Php50.

Hunting requires a lot of skills but there is no guarantee on what the forest offers. Hunters go hunting for food and income as well as to enhance their hunting skill. It is also their way of life.

Other sources. Additional income is derived by residents from other sources such as *fishing, charcoal production, gathering banana blossoms ('pamumuso'), share planting and working as hired labor in bigger farms*. These enterprises are often combined by farmers who do not own farming equipment for wide cultivation. These require no cost but labor.

5.1. Production and marketing practices

Most of the residents plant rice (lowland and upland), root crops (sweet potato, cassava, taro, yam, ginger), vegetables (eggplant, beans, squash, winged bean, papaya) and fruits like mango, bananas and water melon. Production practices are adapted to the natural fertility and availability of water in the area. Short term crops are harvested in three to eight months while permanent crops like mango, coconut and bananas are planted once but bear fruits that are harvested monthly, biannually or annually.

Marketing practices depended on the amount of production. Most crops are produced for family consumption while extras are sold for cash to buy other necessities. For subsistence farmers, root crops are not necessarily sold but are consumed by the

families. If there are extra produce, these are sold or exchanged for rice or other necessities at the local store.

Rice. Rice planted by the residents is either **lowland** or **upland variety** (Table 1). **Lowland rice** is planted on the river beds when water has receded or on the lower portions near the villages as well as on the wider rainfed patches. **Upland rice** is planted on the swidden farms.

Lowland rice is planted using the known practices of land preparation to harvesting as disseminated by the Department of Agriculture. Land preparation starts in December while water still flows over plantable river beds and lowlands. Setting up or clearing dikes is also done to control the flow of water and prevent rat infestation. Plowing and harrowing are done twice to minimize the sprouting of weeds.

Seedlings are raised in seedbeds located in drier areas. Seeds (1cav, RC14, locally grown) are sown in January. Sowing is done after soaking the seeds in a sack for 24 hours. Seedlings are planted on field after 25 days from sowing. Combined urea and complete (14-14-14) fertilizer at the rate of 10 bags per hectare is applied on the 7th or 10th day after planting. This is repeated on the 15th day after the first application depending on the condition of the soil and the weather. Weeding is done when necessary.

Lowland rice is harvested three to four months after planting hiring 15-20md per hectare at the rate of Php100 per manday. Threshing is done mechanically at 10:1 cav sharing rate or by means of 'kulandong' where 2 to 3 carabaos are tied to a pole to walk over the bundles of palay. Drying takes a day (25cav : 4md). Dried palay are brought to town for mechanical milling where milling fee depends on the volume of clean rice.

Hence, the harvest is supplied to buyers (rice vendors, grocery stores or specific families) in the town market (agora) or the resettlement area.

Upland rice, a staple food among the Aetas, is planted in April or May and harvested in September or October, four (4) months after planting. Usual varieties planted are Binondok, Wagwag, American, Kalibo and Kinumpanya or Batektekan. One (1) sack of the harvest is saved for the next planting to ensure rice supply for the family.

Clearing patches for upland rice is done manually using bolos and hoes as early as January to provide enough time for debris to decompose and fertilize the land. Planting is done by pairs. The men make holes (6 inches apart) on the ground using the 'asad' or 'harek' (pointed bamboo, 2m long) while the women fill the holes with 5-10 seeds covering them with soil afterward. Weeding is done in August when necessary.

A harvest of 5-10 cavans shared with kins may last 2-3 months. Afterwards, the families survived on root crops augmented with river mollusks and forest products—a way of life observed among the Aetas [9, 10],[11].

Rice is used like money by the residents. It can be exchanged for food and other necessities. It can pay hired labor (2.5kg/md = Php100.00). It can also be exchanged for wild fowls, meat of wild pig or deer even for banana blossoms (Php36.00 = 1kg). Unmilled rice is stored and sold when cash is needed for other enterprises or when wanting to invest on equipment and livestock. If sold in the town market, rice fetches prices per kilo as follows:

Lowland	Upland
Unmilled – Php17- 20	Php 20 – 30
Milled – Php 36 – 40	Php40 – 50

Root Crops. Most residents in Baytan plant root crops like sweet potato, cassava, taro (gabi, loco and biga), yam (ubi) and ginger (Table 2). Except for ginger, root crops are consumed as substitute for rice. Sweet potatoes and cassava are planted on wider flat spaces or slightly sloping lands on the mountains while ginger is planted on the steeper sides of the mountain.

Root crops are desirably planted on flat (patal) upland where there is wider space. Land preparation is done using the plow, the 'suyod'(harrow) and 'balsa' (trunk for breaking clods). Root crops have varying requirements for shade and company. Taro and ginger requires more water than sweet potato while yam needs more shade.

Sweet potato is planted on an area which was plowed and harrowed alternately three times. Two varieties (Bureau – 3 months to mature) and Ube (4 months) are chosen based on market demand. Rows are plowed at 0.5m distance. Vines cut as planting materials at 1ft length from crops ready for harvest. Planting is done at a distance of 10 inches between hills. Rows are hilled up after 15 days. Weeding is optional.

Harvesting begins with the removal of vines 3-4 months from planting. The rows are plowed next to expose the root/ tubers for picking. Tubers are sorted and arranged in sacks for transporting, 8okgs/sack.

Sweet potato is substitute for rice. It is sold for cash and can be collateral for food loan (rice, fish sauce, food seasoning, coffe, sugar, etc.) Php8/ kg at the local store when nearing harvest.

Large scale producers bring their products to town and contact the buyer for the rest of his crops. Small scale producers sell their products to local vendors or large scale produces at lower prices to cut cost and time for marketing their product. Sorting sizes and prices on particular months are:

	December	February
Large	Php16/kg	Php 9/kg
Medium	9/kg	5/kg
Small	4/kg	2/kg

Taro is planted on the steeper sides of the swidden farm using bolos and hoes. Small tubers and mother plants are planted in softened holes at a distance of 3ft apart. Weeding is optional. Harvesting is done in 7 to 8 months.

Taro is produced primarily as food for the family. Unconsumed produce is sold for cash and saved as seedstocks. Quantities for sale are stacked in sacks at 50kgs/ sack and sold at Php15/ kg. Buyers may come to the villages in big trucks.

Ginger is planted using the small tubers cut into 1-inch pieces in softened holes at a distance of 16-18 inches using bolos or hoes. Seed pieces are slightly covered with soil when planting. Weeding is done 1 month after planting or after heavy rains. Plants are hilled up after weeding.

Harvesting is done 7 months from planting. Leaves and roots are removed from the tubers. Tubers are stacked in sacks for the market. Two sacks are often saved for planting.

Ginger is boiled for tea or used to spice home recipes. It is sold at Php35/kg in August but cheapens at Php20-25/kg by December when supplies increase.

Cassava is planted in rows distanced at 1m apart. Stems removed from harvestable crops are cut into 1-foot long cuttings and planted at a distance of half-meter apart along rows. Half of the cuttings are covered with soil. No weeding is required. Crop is harvested after 7 to 8 months.

Cassava is also a substitute for rice. Big-volume producers sell their harvests in bulk at Capas, Tarlac passing through Palis, the farthest barangay of Baytan. These are packed in 50kg/sack and sold at Php10/kg.

Yam is planted in swidden farms cleared in December using two varieties—Damuag and Morado. Planting is done in April and harvested in December. Seed pieces are quartered old tubers with sprouts, cut into 5-inch squares and dipped into ashes. These are planted in softened holes distanced at 6 inches apart.

Weeding is done on August or September. Harvests may be 2.5 to 5 kgs per hill. These are sold for cash and fetches Php 35-40/ kg during the holidays.

Fruits and Vegetables. Fruits and vegetables are also planted by residents for additional income. Fruits like water melon, bananas, coconuts and mangoes come from the three villages and sold in Baquilan. On the other hand, vegetables raised in the area consist of patani, cardiz, beans, ampalaya, eggplant, tomatoes and squash (Table 3).

Cardiz, patani and black beans are seeds planted beside the trees after the primary crops like rice, sweet potato and other cash crops have been planted. These are meant to supplement the family's food supply. This could also be sold at Php10/'gatang' (small can, 370ml).

Ampalaya (bitter goured), eggplant, tomatoes and squash are also raised either for the market or just for home consumption. They have high market demand but are capital-intensive. Residents have refrained using chemicals in farming due to limiting costs. Neither do they spend a lot on fertilizer and irrigation since the soil is naturally fertile and water is abundant in the area.

At peak time, harvesting is done twice a week and brought to market. Vegetables are priced as squash (Php10/kg), eggplant/ tomatoes (Php30-40/kg) and ampalaya (Php 30-35/kg).

Bananas, coconuts, mangoes and watermelons are the more popular fruits in the area. Bananas, coconuts and mangoes are permanent crops that bear fruit once a year except for coconut which is harvested every month.

Farmers have stopped inducing mangoes to flower due to costly chemicals. Fruits from these trees are now all naturally borne.

On the other hand, watermelon is a 90-day crop and is a new technology to the farmers of Mid-Baytan. Due to the demand, however, some investors are offering capital (seeds, fertilizer, labor capital, etc.) to the farmers for production.

All these fruits are seasonal and at times flood the market at their peak except for coconut which is harvested monthly. Watermelon is priced at Php2000/ bullcart at new harvest; Php1500/bullcart (jumbo size), Php1000/bullcart (5" diameter) and Php500/bullcart (fist size). Mango fetches Php50/kg (Pico) and Php100/kg (Damulag) before the peak season. Coconuts are priced at P10 to 15/piece at the site.

5.2. Vending, hunting and other

Alternatives. The residents have already adopted means to survive in the villages when the weather is inclement or when the crops are still growing. Some have become traders, others are hunters and the rest have engaged in alternative income sources such as gathering mountain products, charcoal production, fishing, share planting and working as hired labor in addition to their main occupation (Table 4).

Trading or vending is often combined with farming, gathering banana blossoms ('pamumuso') or charcoal production. The traders would buy products of small quantities from their neighbors and transport the pooled products to town by bull carts. They need to pool Php2000 worth of products or more, including their own on one market day to realize profit of Php500 or higher. Additional profits are used to buy basic necessities or to plant crops that they could harvest during the lean months of the year (late June to early September).

Hunting is done by teams of 2-5 persons, twice or thrice a month catching wild fowls, alligators, wild pigs or deers with the use of traps and nets. Hunters stay in the forest in 3-7 days. Wild pigs come out in the rainy season and breed in September.

A hunting gun for the bigger animals are now handier than the bow and arrow, although some hunters still use them. Old techniques in hunting are still in use and the hunter's skill in forecasting a productive hunting day still helps a lot.

Catch is often augmented by gathering mountain products like honey, wild orchids, herbal shampoo ('gugo') and other products that can be sold in the market. While setting the traps, the hunters would gather mountain products known to have demand in the market.

After slaughtering, the meat for the family and neighbors is set aside. The surplus meat are sold at prices such as wild fowl (Php50-70/pc); alligator - big (Php150/pc); wild pig (Php100/kg); deer (php50-100/kg); wild cat Php100/ kg). Honey is sold at Php100/ 750 ml bottle and gugo at Php50/bundle.

Fishing. Farmers find time to fish while waiting for their crops to grow until harvest time. Fishes, frogs, shrimps and shells abound the river edges on rainy months until December.

Charcoal is produced by burning branches or dead trees gathered when clearing the 'gasak'(swidden farm) (January-March). These are burned in a covered pit in 3-4 days and cooled. They are packed later in sacks and sold at Php80-100 per sack. Residents are now aware of the disadvantages of the 'slash-and-burn' practice as well as the

benefits of growing trees in their lands making them careful in producing charcoal. This practice is similar to that of the Aeta Magbukún of Mariveles [12].

Gathering banana blossoms is one more alternative source of income for the residents. Banana blossoms have a good demand in the market. These are gathered from banana plants thickly thriving in abandoned lots. The locals spend 3-4 days a week gathering banana blossoms for the next market day. These are packed in 10-kg bags and sold at Php8.00-10.00 per kilo. Traders from Pampanga and Bulacan come to Baquilan to buy the product and transport them in container trucks.

Share planting is practiced by bigger farms on taro, ginger and other crops that the landowner and planter agree upon. The partners get 50% share of the produce each after removing the quantity or cash equivalent of seed stocks provided by the landowner.

Hired labor. This is one of the most immediate alternatives when a family runs out of food supply. Workers are given snacks and lunch as well as wages of 2.50kg milled rice equivalent to Php100 for a day's work. When harvesting watermelons, the lead harvester is paid Php200/md, a catcher gets Php100/md, the bull cart driver – Php500/md plus food for the day.

5.3. Cultural practices and values they intend to keep

The locals of mid-Baytan are family-centered and closely-knit. They adhere to traditional practices and values that reiterate the importance of the family.

Family routine and role of members. The residents maintain routines and specific roles for their members. Newly married children build their dwellings near their parents' house and work on their father's farm for awhile. They are later assigned a lot to farm for their family's needs and become independent. Grandparents often live in the same compound and eat with a family of one of their children but they have their own dwelling.

Parents rise at around 4:00 at dawn and start preparing for their tasks for the day. The day ends at around 8:00 in the evening when the children are all in bed.

Upon rising, the wife tends to the kitchen and prepares coffee for the husband. The husband prepares his tools and animals for his work set for the day. He goes to his farm with his breakfast before sunrise and comes home at sundown.

The wife rouses the children when the husband has left and eats breakfast with them. She readies them for school and sends out by 6:30 to 7:00AM. She returns to housekeeping tasks until cooking time for lunch.

The children comes home at around 12:00NN and eat their lunch. They play awhile and leaves for school at 1:00PM beating the school bell at 1:30PM. They come home at past 5:00PM and are directed to house chores.

The mother continues doing unfinished chores. At 3:00PM she starts gathering products for market which might be sold to a local buyer. At 5:00 she starts gathering vegetables around the house for the evening meal, then starts cooking.

After dinner and kitchen chores, the children do their assignments asking help from older siblings or their parents. Lights are doused at 8:00 PM.

The fathers' role is mainly to provide food and fund for other needs of the family while the mother is responsible for house keeping and maximizing resources for the family. She makes sure that the children have three meals a day, go to school clean and on time.

The mother also teaches the children house chores while the father's role to teach them farm work. Boys, especially, are taught farm work and must be able to work on the farm independently at age 14. By then, they should be capable of generating income for their own families [9].

Livelihood is a shared responsibility of a married couple. When the children have grown, the mother works shoulder to shoulder with her husband in the field for a living. Housekeeping then, becomes the task of the older daughters.

The children join their parents in farming, gathering banana blossoms, hunting, fishing or whatever livelihood activity they are engaged in as soon as they have are able. Members of the household work together in harvesting, cleaning, sorting products and bringing them to the market the following day.

Marriage-related cultural practices. *"Bandi", "langgad", "mamahabi" and "pahungaw"* are the more popular cultural practices. These practices caution members of the family and the community of the repercussions of wrongdoings like hurling insults at a person, elopement, mistreating a wife and others.

"Bandi" is the obligation required from a man who wants to marry a woman of his desires. **"Magbandi"** is the practice of settling the obligation and it could be in cash or in kind like cavans of milled rice and fattened pigs that the family of the bride can use.

"Maglanggad" is a punishment for hurting the feelings of a family, a friend or a neighbor by an insult, a rumor or any othe way. When the wrong doer asks for forgiveness, he or she is asked for a *"langgad"* which may be preparing food for a lunch together with their families.

“Mamahabi” is the practice of formally asking the hand of a girl in marriage which requires that gifts be given to the parents of the bride upon the first meeting. During this meeting, the parents agree upon the date and scale of preparation as well as the gifts that the bride’s family requires.

“Pahungao”, on the other hand, refers to the obligations that a groom who eloped with his bride must settle before they are forgiven and married. This is less strict because the elders must also consider that they now must settle peacefully.

The practices of “magbandi”, “mamahabi or pahungao” ensures that newly weds will be provided a decent means of livelihood in their years together. It indebts the husband to the family of the wife, hence, he must treat his wife well. Otherwise, the wife’s family may intervene and take back his wife. It could be costly for him to regain his family. Also, the practice of “maglanggad” reminds individuals to be always considerate and respectful. All these practices keep Aeta families whole and clans at peace with one another.

Other prominent values. Values like *“paglingon sa pinanggalingan”* (caring for one’s roots), *trust in God*, *use of herbal medicine*, *sharing*, *pursuit of education*, *determination*, and *industriousness* are considered shields of survival because these helped them survive and recover their losses from the eruption of Mt. Pinatubo [11], [14].

Hunters share their catch with family and friends upon returning to their villages from 3-4 day hunting. *“Bawal magdamot, lalo na sa biyenana”* (It is forbidden to be ungenerous, especially to parents-in-law.) they would say.

Believing in God and in spirits (anitos) also extend their will to survive. They would like to keep their g-strings (bahag) and arrows (pana) as cultural symbols of their practical philosophy and open-mindedness.

5.4. Problems constraining their progress in life

In terms of **livelihood**, the residents find it difficult to market their products due to low prices, perishability and seasonality of crops. The distance to market as well as scarce fund and resources for small farm enterprises are limiting their earnings.

On **education**, scholarships or financial assistance for secondary and tertiary level students as well as the shortage of IP teachers in the area are felt problems. They would like to make sure that their children are educated so that they can have a better life in the future.

On **health and nutrition**, the residents are concerned about the nutrition of elementary school children, their sources of potable water and wanting medicinal supply.

“Sana lahat ng mga bata ay isali sa Feeding Program” (I wish all children are included in the Feeding Program), says Teacher Cecille who observes hunger among the children during the rainy season in July until late early September [9]. Food is scarce during these months due to the risk of crossing the Bucao River when water is high. The residents could not bring their products to the trading post for exchange.

Communication is also a concern as it connects the communities to one another in times of need. It could also be the fastest means of calling for assistance from civil service units in town in cases of emergency. Very few residents have communication gadgets, televisions or radios. Signals from service providers like Smart or Globe are also weak even random.

The problems of (1) difficulty in marketing products; (2) inadequate capital to plant wider areas; and (3) the lowering of prices for village products during rainy months as enumerated resulted to *low income* and *borrowings from the bulk-buyers*. Low and irregular income results to *low nutrition, poor health* and *absenteeism among school children*. Eventually, young adults leave school, marry and raise a family in poverty.

6. Conclusion and Recommendation

The study concludes that the Aetas of mid-Baytan have access to vast areas of livelihood resources. They have the governance and social structures to effect order or development in their community. Likewise, they are equipped with practices and values that can provide them a decent life. They also uphold a family culture that seemingly binds them into peaceful marriages and cohesive communities.

In view of their values and traditions, as well as, their desire to improve their quality of life, development of this indigenous community must be pursued “in their originality or within the context of their ethnic identity”[15]. Hence, the following recommendations are drawn:

First, in the formative level of education, the Aeta way of life and history must form part of their lessons to reiterate their values and self-worth.

Second, the Technology and Livelihood Education (TLE) course in the basic (elementary and secondary) curriculum that covers Agriculture, Home Economics and Entrepreneurship needs a review and revision as to depth and span of content. It may be made more realistic, experiential and home-based where principles learned in the school are followed up to application in their own homes and farms.

Third, indigenous communities may need to draw a ‘manpower development plan’ which could be the basis of sending able and ready young men and women to study in

schools like Sagu-Ilaw, a program that envisions a system at par with the mainstream education, founded on the ways of life, traditions and culture of the indigenous people [16].

However, members of the tribe who pursue their academic degrees need assurance of a job in the villages upon graduation. This may have to be allotted funds to take effect. This will encourage the younger generation to go back to their barangays after schooling and not look for work elsewhere.

Fourth, an indigenous development program may be designed for the communities incorporating leadership and local governance, adult education with a continuum of literacy to the development of resource management skills, environment-friendly, sustainable and gender-

sensitive agricultural/home technologies. It may also need to cover culture, leadership principles, localized discussions of rights and principles of community development to ensure peace and order in the communities.

Fifth, a review of community development approaches in the indigenous community is timely so as to encourage better participation from the locals and establish more sustainable programs [15].

Sixth, collaboration among government, non-government and education institutions may be coaxed to exert continuous and documented efforts on the development of the Aetas and other indigenous groups of people.

Seventh, related researches be conducted in terms of acceptability of livelihood technologies,

marketing practices and evaluation of programs implemented in the indigenous areas.

Appendices

TABLE 1: Rice Production and Marketing Practices.

Production Practices	Uses and Marketing Practices
Lowland Rice: (Maguisguis & Nacolcol, 2016) Land preparation is done in December. Setting up or cleaning dikes to control the flow of water prevent rat infestation. Plowing and harrowing 2x until paddies are clean. Preparing seedbeds in the drier areas, sowing of seeds after of soaking for 24 hours (1-2 cavs, RC14, locally grown) in January. Planting after 25-28 days from seed sowing, 15-20md / .75- 1 hectare at P100/md plus snacks, lunch and cigarettes. Urea and 14-14-14 are combined and applied in 7 to 10 days after planting in 10 bags/ha 2x. Weeding is done when necessary (2-3md). Harvesting, 3 months from planting, 15 mds; 40 – 80 cavs/ha depending on soil condition. Threshing is done mechanically (10:1 cav, sharing) or by 'kulandong' using 2-3 carabaos. Drying for 1 day (25 cav, 4md). Dried palay is brought to town for mechanical milling considering the volume. Upland Rice: (Romualdo & flores Interview, 2016) Clearing of 'gasak' starts in January. Upland rice is planted in cleared wider spaces of the 'gasak'. Planting is done in May using available varieties like Binondok, Wagwag, American, Kalibo, Kinumpanya or Batektekan. One (1) sack or depending on the amount of available seeds is planting in one season. Planting is done by pairs. The men make holes (6 inches apart) on the ground using the 'asad' or 'harek' while others (women) fill the holes with 5-10 seeds covering thinly with soil afterwards. Weeding is done in August when necessary. Watching the field and guarding against birds and rats is practiced using movable objects and scarecrows. Harvesting by hand is done in October or November, 5 to 30 cavs, for family consumption. One (1) cavan is saved for seeds in the next season. Threshing is done by foot. Drying is done in one (1) day. Milling is done manually ('bayo' using the "al-o and alsong") for weekly consumption of the family.	Uses/ Exchange: a. Food for the family. b. Save 1-2 sacks for seedlings; c. Sold for cash for the rainy days or used or other enterprise (livestocks); d. Milled rice as payment of labor (2.5kg/md = P90.00); e. Barter for neighbor's products i.e. manok dikot, baboy ramo, usa, banana blossoms, etc. (1kg = P36.00) Marketing: Products of small amounts are sold to local entrepreneurs at prices lower than those offered in the market. Larger amounts of produce are sold to whole- sale buyers who are contacted and prices as well as quantities and form (dried palay or milled rice) are agreed upon before dried palay are brought down from the villages. Market Price: Lowland Rice: Unmilled – P17-20/kg Milled – P36-40/kg Kalibo: Unmilled – P20-30/kg Milled – P40-50/kg

TABLE 4: Trading, Hunting and Other Alternatives.

Production Practices	Uses and Marketing Practices
Trading or Vending (Dumaplin Interview, 2016) Vending starts in August when the river have subsided. Local products ('puso', rootcrops and vegetables are pooled by selling it to the local buyer or sent to a buyer in town. These are transported by bull cart to the Itangliw (Baquilan) trading post every 3 days or when buyers have orders for delivery. Accumulated merchandise must be worth P2000 or more to derive profit of P500 or more.	Uses: a) For additional income; b) to maximize cost of transporting own products; c) to have a better grasp of the market possibilities (crops, prices, marketing channels). Marketing: Products of farmers are bought at lower prices than what's offered in the market. Products sent to specific buyers pay the fare of P50.00 per parcel. Passengers pay the same fare.

TABLE 2: Root crop Production and Marketing Practices.

Production Practices	Uses and Marketing Practices
Sweet Potato (Maguisguis, Nacolcol & Burgos Interviews, 2016): Area is cleared with plow and harrow repeated three times. Rows are plowed at 0.5m distance between rows. Narrower spaces are loosened using hoes. Planting materials (agway) are cut (1foot length) from areas ready for harvest. Varieties (Bureau-3 months to mature) and Ube (4 months) are chosen based on market demand. Planting is done by hand, 10inches distance between hills. Basal fertilizer is applied when planting. Rows are hilled up 10-15 days after planting. Optional weeding. Harvesting begins with the removal of vines 3-4 months after planting. The rows are plowed next to expose the root/tubers for picking. Tubers are sorted and arranged in sacks for transport.	Uses : a) Food for the family; b) Sold for cash; and c) Collateral for food loan (rice, fish sauce, food seasoning, etc.) at the local store when nearing harvest, P8/kg. Marketing: Large scale producers bring his products to town and contact the buyers for the rest of his crops. Small scale farmers sell their products to the local vendors or large scale producers at lower than the prices offered in town to cut on cost and time. Sorting sizes and prices: Dec. Feb. Large P16/kg P9/kg Medium 9/kg 5/kg Small 4/kg 2/kg
Taro (San Juan & dela Cruz Interviews, 2016) 'Gasak' is cleared using the bolo or hoe. Small tubers and mother plants are planting materials. Three varieties (native gabi, loco and biga) are used. Planted in softened holes, distanced at 3ft apart. Optional weeding. No fertilizer. Harvest on the 7th or 8th month.	Uses: a) Food for the family; b) Sold for cash, and c) Seedstock. Marketing: Stack in sacks at 50kgs per sack and sold at P15/kg on-site. Buyers come to the village in big trucks.
Ginger (Marincao & San Juan Interview, 2016): 'Gasak' is cleared using the bolo or hoe. Small tubers are cleaned and cut into 1-inch size pieces for planting materials. Planting is done by slightly covering them with soil in softened holes at a 16-18 inches distance. Weeding is done one (1) month from planting or after heavy rains. Plants are hilled up after weeding; Harvest after 7 months. Remove the roots and leaves from tubers. Stack in sacks. Harvesting 12 sack from 2 sacks of planting materials.	Use: a) Sold for cash; b) Family use (herbal tea, spice); and c) Save 2 sacks for seedstock. Marketing: 2-12 sacks are brought to market by farmer with other products or sold to local vendors at lower price. Prices: August – P35/kg; December – P20-25/ kg.
Cassava (Abunday, 2016) Clearing the area for planting. 'Patal' for wider space, 'gasak' for home consumption. Foot-long stem cuttings are used as planting materials. Rows are plowed with a distance of 1m apart. Cuttings are planted half a meter from one another with half of the cutting covered with soil. No weeding and fertilizer required. Harvested after 7 to 8 months.	Use: a) Food for the family; and b) Sold for cash. Marketing: Sold at Capas, Tarlac via Palis at P10/kg in bulk of 10sacks (50kgs/sack) in one market day.
Yam (Ubi) (Basa Interview, 2016) 'Gasak' is cleared in December and debris are burned in March. Planting using two varieties (Damuag and Morado) starts in April. Holes are dug beside trees and planting materials are buried in the holes 6 inches apart. Weeding is done in August or September. Harvested 500 hills in December at 2.5kg/hill.	Use: a) Food for the family; and b) Sold for cash. Marketing: Sold at the market with other products by the farmer at P35-40/kg.

TABLE 3: Fruits and Vegetable Production and Marketing Practices.

Production Practices	Uses and Marketing Practices
Vegetables	
Cardiz/ Patani/ Black Beans (Pusi) Vegetables like these are planted as seeds in the clean portions of the 'gasak' beside the trees after planting the primary crops like rice, sweet potato and other cash crops. Black beans lasts for one season but Patani and Cardiz lasts for 3 to 5 years.	Use: a) Family consumption; b) cash crop Marketing: Sold with other crops to the local vendor or by the farmer himself when he goes to town. Price is P10/ 'gatang'.
Ampalaya/ Eggplant/ Tomatoes/ Squash These vegetables are always in demand in the market but are capital-intensive. Residents have refrained in using chemicals in raising crops due to the limiting costs. They also save a lot in fertilizer use and irrigation due to the natural fertility and available water in the area.	Use: a) Family consumption; b) cash crop. Marketing: Harvests are brought to the market twice a week with other products by the vendor. Prices: Squash – P10/kg Eggplant/ Tomatoes – P30-40/kg Ampalaya – P30-35/ kg
Fruits	
Bananas, Coconuts, Mangoes and Watermelon Bananas, coconuts and mangoes are permanent crops. Bananas and mangoes bear fruits once a year while coconut is harvested monthly. Farmers have stopped flower induction in mangoes due to the cost of chemicals. Harvests from these three crops are now naturally borne fruits. Watermelon is a 90-day crop and is a new technology to farmers. Due to the demand, however, some investors are offering capital (seeds, fertilizer, etc.) to the farmers.	Use: a) Family consumption; b) cash crop. Marketing: These crops are seasonal and hence, may flood the market during peak season except for coconut which is monthly supplied. Hence, mango, banana and water melon are brought to the market twice a week when in season and prices would slide down as the peak of production goes up. Prices: Watermelon – P2000/bagon (new harvest); P1500/ bagon (Jumbo size); P1000/bagon (5" dia.); P500/bagon (fist size); Mango – P50/ kg Piko; P100/kg Damulag

Production Practices	Uses and Marketing Practices
Production Practices Hunting (Ka Dolpo & Dela Cruz Interview, 2016) Hunting is done teams of 2-5 persons, 2x or 3x a month catching wildchicken, alligators, wild pigs or deers with the use of traps and nets. Hunters stay in the forest in 3-7 days. Wild pigs come out in the rainy season and breed in September. A hunting gun for the bigger animals are now handier than the bow and arrow, although some hunters still use them. Old techniques in hunting are still in use and the hunter's skill in forecasting a productive hunting day still helps a lot. While setting the traps, the hunters gather 'gugo' (herbal shampoo) and honey ('pulot').	Uses and Marketing Practices Uses: a) For family food; b) for income; c) for enhancement of skill; d) way of life. Marketing: After slaughtering, the meat for family and neighborhood consumption is set aside. Products are sold follows: Wild chicken – P50- 70/pc Alligator (barak), big – P150/pc Wild pig, 5-15kgs – P100/kg Deer, 50kg – P100/ kg Wild cat (lamiran), 2kg – P100/pc

Production Practices	Uses and Marketing Practices
Other Alternatives Gathering Banana Blossoms (Namumuso) This is done weekly in 2-3 days from Monday to Wednesday and sold to buyers on Friday. Banana blossoms are added to harvests like ginger or taro and other crops for trading in town. Share Planting Some residents requests for share planting in more established farms. They are given seedstocks to plant and care for. Sharing is 50-50 after deducting or setting aside the seedstocks. Charcoal During the clearing of 'gasak' (January-March), unwanted branches are cut are placed in one area and buried into a pit make charcoal in 3-4 days. When cooled, charcoal are stacked in sacks. Hired Labor This is the most immediate alternative when the family runs out of food supply. Workers are given snacks and merienda for the day and they could be paid with 2kg milled rice for the day's work. Fishing Farmers find time to fish while waiting for their crops. In January, 'native tilapia' are caught on the river. In June, 'ugik' abounds the river edges. Other kinds of fishes surface in September when floods have subsided and frogs thrives on the rice fields in December.	Use: a) Sold or served for cash for family sustenance (rice, sugar, coffee, soap); Marketing: Banana blossoms, products from share planting and charcoal are sold to local traders or added to the farmers own products that he brings to town on market days. Prices: Banana blossoms: P5- P10/kg Charcoal: P50/sack Hired Labor for Watermelon: Lead harvester – P200/md Catcher/ Hakot – P100/md Bagon w/ driver – P500/md Food for 3 – P300.00

Author's Note

The author acknowledges the help and support from the officials, faculty and staff during the conduct, writing and validation of this research. Also to the IKSP Team of NCIP-Zambales who facilitated the validation of the results of the study. She is also indebted to the Aetas in the three barangays of Mid-Baytan (Nacolcol, Maguisguis and Burgos), especially to the Councils of Elders, for their sincerity, accommodation and willingness in providing answers to the researcher's numerous questions.

References

- [1] Ignacio, J.C. 2007. Indigenous People's Apostolate, <http://www.balangadiocese.com/LinkedPagesB/ip.html>, November 16, 2017
- [2] Balilla, V.S., McHenry, J.A., McHenry, M.P., Parkinson, R.M., and Banal, D.T. 2013. Indigenous Aeta Magbukún Self-Identity, Sociopolitical Structures, and Self-Determination at the Local Level in the Philippines. *Journal of Anthropology* (2013). <http://dx.doi.org/10.1155/2013/391878>

- [3] Communication Theory.org.2010. Shannon and Weaver Model of Communication./Communication Theory/, <https://communicationlibraries.wordpress.com/2013/12/07/shannon-weaver-model-of-communication/>
- [4] Asia Indigenous Peoples Pact (AIPP) Foundation. Indigenous Development or Development with Culture and Identity, Proceedings of the 9th Session of the UN Permanent Forum on Indigenous Issues, April 2010, New York, USA, E/C.19/2010/CRP.11, pp.1-24.
- [5] NCIP. Status Report, 2016.
- [6] Estacio, L. Jr. 1996. Ang Antropolohiya ng Disaster sa Punto de Bista ng mga Ayta. Aghamtao (8)
- [7] Parungao,J. 2011. Values and the Communication of Change: The Value Filters of the NLP Communication Model Applied to Aetas in Loob Bunga, Zambales. Jati (16), pp. 177-193
- [8] Proceedings of the Maguisguis, Nacolcol and Burgos Interviews. December 28-30, 2016.
- [9] De Jesus, R.V. 1990. Zambales. Manila, Philippines: Union Zambaleña.
- [10] Parungao, J. (2011). Values and the Communication of Change: The Value Filters of the NLP Communication Model Applied to Aeta in Loob Bunga Zambales. *Jati*, Vol.16, pp.177-193.
- [11] Seitz, S. 1998. Coping Strategies in an Ethnic Minority Group: The Aeta of Mt. Pinatubo. Disasters (22)(1), pp.76-90. Retrieved on February 22, 2016 from file:///C:/Users/users/ Downloads/Coping_strategies_in_an_ethnic.pdf
- [12] Balilla, V.S., Anwar-McHenry, J, McHenry, M.P., Parkinson, R.M., and Banal, D.T. 2012. Aeta Magbukún of Mariveles: Traditional Indigenous Forest Resources Use, Practices and the Sustainable Economic Development Challenge in Remote Philippine Regions, Journal of Sustainable Forestry, 31:7, 678-709: <http://dx.doi.org/10.1080/10549811.2012.704775>, October 10, 2017.
- [13] NCIP Validation Proceedings, November 8, 2016. Botolan, Zambales, Philippines.
- [14] Gaillard, J.C. 2006. Traditional Societies in the Face of Natural Hazards: The 1991 Mt. Pinatubo Eruption and the Aetas of the Philippines. International Journal of Mass Emergencies and Disasters, (24)(1), pp.5-43.
- [15] Bhattacharya, A.K. 2001. Community Participation and Sustainable Development—Global Perspective Concept Publishing Co. pp.108-109.
- [16] Abejuela, R.III. 2007. Indigenous Education in the Philippines. www.unescobkk.org/fileadmin/user_upload/apeid/Conference/papers/ABEJUELA7d.pdf, November 5, 2017.