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Targeting the Poor of the Sitios through Adopt-A Barangay: Basis for University Extension Programs

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Authors' contributions

This work was carried out in collaboration among all authors. Author JGM designed the study, performed the statistical analysis, wrote the protocol and the first draft of the manuscript. Authors GPC and TBP managed the analyses of the study. Author GPC managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

San Juan is the poorest barangay in Malvar, Batangas, Philippines for having the highest number of households with income below poverty threshold. San Juan also has the most number of households with income below food threshold (CBMS 2012). For these reasons, San Juan was chosen for the Adopt-A Barangay project of BatStateU-Malvar. The 100 respondents are composed of female adult (67%), youth (15%), male adult (11%) and senior citizen (7%). They were mostly concentrated in the two *sitios* of Hiyaw and Balayan. Results of the survey confirmed the Community Based Monitor System (CBMS) report particularly on education and livelihood. Most of the respondents are elementary graduates with children in the elementary level. Most of them also are farmers and vendors with no other income and no other skills. However, most of them also do not have idea of what skill to have and training to attend to improve their current situation. Two important issues emerged as basis for intervention of the university. First is the provision of education for out-of school youth (OSY) to finish high school or of technical- vocational training to acquire competency needed by the industry. Second is the provision of livelihood trainings for female adults to start a business even at home.

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Keywords: Adopt-a barangay; intervention; University extension; Philippines.

ABBREVIATIONS

Barangay : A unit of administration in Philippine society consisting of from 50 to 100 families under a headman
Carinderia : Ready to eat food store/shop
Kahit ano : Anything will do
Jueteng : ILLEGAL number game
Pabrika : Factory
Sitio : Zone
Walang trabaho : No means of income
Wala : Nothing

1. INTRODUCTION

The term extension has evolved as a result of tradition and policy context around the globe. Thus, extension means different concepts in different places. However, Baker [1] defines extension as the transfer of technology and technical information from developers to recipients. Indeed, extension aims to help people recognize their own problems and work out their own solutions through education [2]. This is where higher education institutions (HEIs) come in, like the University of Nebraska's urban outreach programs [3]. Then different HEIs recognized extension as one of the three major functions, as Aniedi & Effiom [4] claimed "Universities are mandated to perform three core functions of teaching, research and extension. Yet, the term university extension began in Britain in the 1840s [5] and continued to evolve. For example, the study of Mojares & Baconguis [6] extension heads of different HEIS (public and private) in Batangas described extension as transfer of knowledge, function of HEIs, a social responsibility, a means of translating expertise, and utilization of resources. The Philippines' Commission on Higher Education (CHED) defined extension as the transfer of knowledge and technology to specific sectors and target clienteles [6]. With this definition, CHED mandated HEIs of the trifold functions. Therefore, HEI extension is inclined towards the improvement of the quality of life as its end-goal. According to Diem [7] each extension activity must start with the end, meaning its goal. This is important because the conduct of HEI extension ought to produce to some definite results which must ultimately change people's attitudes or behavior, or benefit society in other ways. Ponniah et al. [8] claimed that extension services must significantly contribute to improving the life situation of its clientele. It is the verbalization of the HEI's guarantee to bring about progress and transformation in the dismal conditions of their extension stakeholders, for them to profit from the promises of fair living standards [9]. As a function, extension is based on research for extension to be genuine. That is why, Davidson [10] postulated that extension's new challenge is to make extension more inclusive and responsive to the needs, integrating individual expectations with the wider socio-economic, political, and geographical environment.

Many state universities and colleges (SUCs) in the Philippines have responded to this challenge. De Lara [11] did a study on the extension program of Technological University of the Philippines (TUP) looking into the profile of the extension program, the implementor and the clientele as predictors of extension program effectiveness either in terms of social or economic benefits. Similarly, Quimbo [12] asserted that effective extension activities tend to improve the standard of living of the people. Likewise, Fernan (2000, as cited by Quimbo [12] argued that there is a chance to improve their quality of life once these people are empowered and technology is diffused in the community. Prior to this, Alcala [13] asserted that many universities in the Philippines misunderstood academic extension as any community service.

Fig. 1. Map showing study location

Based on the context of community service, which is seriously flawed, it is about time for BatState-U to improve the lives of its community members in the ten campuses within the province just like what other SUCs did in increasing functional literacy and livelihood training [14,15,16,12]. Thus, Adopt-a Barangay

Program (Needs Assessment phase) was born as an institutional research aiming to enhance the delivery of extension services to the stakeholders through a comprehensive, high-impact and research-based program for sustainable development.

Malvar Campus has done its part of the program in the identified poorest barangay in the municipality which is San Juan. It has a population of about 2,313, with 1,182 males and 1,131 females. It has seven zones (purok); each is headed by a barangay councilor (kagawad).

Most of the respondents of the survey came from Sitio Hiyaw and Sitio Balayan, the hilly zones of the barangay. Therefore, most of their means of living are based on farming, i.e. vegetable vendor.

1.1 Statement of the Problem

This paper determined the behavior of the four sectors in the barangay towards health, education/literacy, livelihood, and environment. It also identified appropriate intervention program of the university based on the behavior of the four sectors in the barangay.

2. METHODOLOGY

Barangay San Juan was chosen as the poorest barangay in Malvar based on the poverty threshold reported in CBMS of the municipal government. One hundred poorest of the poor respondents in the barangay should be divided equally among the four sectors namely: youth, male adult, female adult and senior citizen. However, male adult, who are busy in the farm or in the market and senior citizen, who are very few, turned out to be the least among the respondents.

The University called for a team of three members for each of the ten campuses. Malvar campus received PhP95, 800.00 as budget for the four-month project duration. First, the project team had courtesy call to the municipal mayor handing the request letter from the university president. Right away, the mayor sent an endorsement letter to the barangay captain. So, the team also paid a courtesy call to the captain. With the go signal of the captain and his council members, the researchers identified 100 respondents through the assistance of the Barangay Health Workers (BHW). First batch of the survey, respondents accompanied by BHWs were called in the barangay hall for orientation. Then, one-on-one survey was held. Three respondents at a time were called in the barangay health office, while others were waiting outside to be called. Each of the authors assisted the respondents in accomplishing the instrument. The instrument is divided into four sections: health, education/literacy, livelihood and environment. These four sections are based on the study of Mojares and Baconguis [6] as the most common extension programs of HEIs in Batangas. Health section has five variables namely: planting of herbal/medicinal plants, backyard gardening, use of iodized salt, use of family planning, and children's health information. Education/literacy has level of education and type of school. Livelihood indicates means of income, average weekly income, other means of income, preferred livelihood to start and preferred training to attend. Lastly, environment tackles on type of comfort room, source of water, method of waste management, and material for cooking.

Data cleaning, coding and encoding were done by the project team. Data were programmed to BMIS software, after which, analysis was done. Terminal report was submitted after four months in 2015.

3. RESULTS AND DISCUSSION

3.1 Behavior of the Four Sectors

There are 100 respondents with 500 household members surveyed for this project. Most of the respondents are from sitio Hiyaw and sitio Balayan because the poorest of the barangay are concentrated in these two sitios. Based on the interview, most of them are relatives who came over from Balete, a fifth class municipality of Batangas province. It started with a man from the barangay married a woman from Balete. Then, a relative of the man married also a relative of the woman, until a single family had grown to be in a compound or group of relatives living in the same area.

Of the four sectors surveyed, female adult (67%) is the most visible. They are housewives, left at home to take care of their children, waiting for their husbands to go home after work. They are visible because they are unemployed. As mentioned by Orbeta and Abrigo [17] the largest groups of unemployed are housewives and student. It is followed by the youth (15%) who, if working neither at the farm nor in the market,

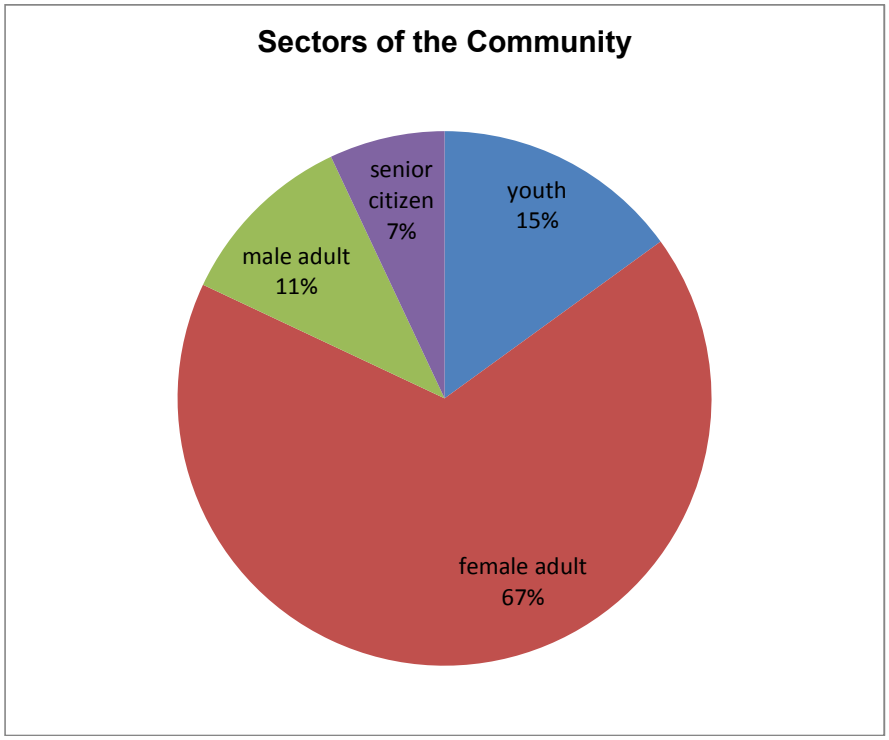

Fig. 2. Sectors of the community

stay at home helping their mothers rear young siblings and attend to household chores. Next is the male adult (11%) who works for the family. Last is the senior citizen (7%) who used to be women, living with extended family.

3.1.1 Health

An equitable health care system is characterized by equal access to healthcare by all citizens in a country [18]. This healthcare is provided in each health center of the barangay. In the study location, there is one health center located at Purok 1. Each purok has one barangay BHW in-charged. These BHWs are responsible for bringing free health services of the government to the community members especially to pregnant mothers and babies. They give free family planning seminar for couples and vaccinations for newborn babies.

3.1.1.1 Herbal medicinal plants

The use of medicinal plants in the Philippines has been recorded even before the 1800s [19]. As medicinal plants play a central role in many cultures [20], planting of herbal medicinal plants is important because many plant species are vital in local healing practices [21]. Abe and Ohtani [21] stated that knowledge on medicinal plants could provide avenues for pharmacological investigations to improve healthcare for a range of ailments. Table 1 presents four herbal medicine planted by respondents, namely: oregano (*Origanum vulgare*, lagundi (*Vitex negundo L*), sambong (B. balsamafera), and luyang dilaw (turmeric-*Curcuma longa Linn)*. Result shows that 84% of the respondents are not planting herbal plants while 13% is planting oregano. According to the respondents, they are not planting because they do not own the lot and they are not aware of the significance of the herbal medicine. In addition, BHWs are active to attend to their needs.

3.1.1.2 Backyard gardening

Backyard gardening addresses ongoing problems related to community health and household self-sufficiency [22]. Moreover, students who experienced gardening ate more fruits and vegetables [23]. Result reveals that 74% of the respondents do not have backyard garden. This is ironic since most of them are located in a vast field, mostly involved in farming. This is because many of the respondents do not have their own home lot, they just occupy with

consent from the owner. In addition, Cameron and Wright [24] regarded backyard gardening as seemingly small and insignificant work when compared with hundreds of millions of small-scale farmers across the globe.

3.1.1.3 Use of iodized salt

Iodine deficiency still remains an important public health problem in this country [25]. According to the study of Kim, et al [25] respondents did not appreciate that adequate iodine levels are important during pregnancy and for development of children. Result shows that 64% of the respondents are using iodized salt readily available in the market. However, there are still 34% who opt not to use since non-iodized salt is cheaper than the iodized one. They are the ones who cannot afford, and opt to buy other food they believe more important than iodized salt.

3.1.1.4 Use of family planning

The Philippines has high fertility rates and a low prevalence of modern-method contraception use [26]. That is why, full realization of sexual and reproductive health and rights (SRHR) continues to be a challenge [27]. In this variable, since majority of the respondents are women, they play crucial role in family planning. When it comes to family planning, it shows that 64% admits using family planning methods. There are 29% not planning and 7% not applicable for the senior citizen.

For those into family planning (Fig. 3), the most common is the natural method of withdrawal (44%). This is followed by the artificial methods of pills (36%) and condom (10%). Based on interview, BHWs have schedules of family planning seminars in the health center, giving away free pills to mothers.

In general, health is not a risk factor among respondents as revealed in Fig. 4 since there is no communicable disease or epidemic in the barangay. The most common illness is asthma (33.3%) followed by hypertension (17%). This conforms with the study of [28] that asthma in the Philippines has a statistically higher prevalence rate compared to the worldwide prevalence rate, with predominantly female asthmatic patients. Though very minimal, there are also having problems with diabetes, prostate, tonsillitis, arthritis, ulcer and polio.

3.1.1.5 Children's health information

Mothers' health and well-being are vital for children's health and nutrition. Thus, women who are literate, well informed and empowered are in a better position to care for themselves and their children [29]. In addition, mothers as primary health caregivers have the ability to prevent children from suffering any form of malnutrition because of her caring capacity [30]. For children's health information, Fig. 5 displays that only 16% of the children were dewormed on June 2014. Most of the children received BCG, DPT1, DPT2, DPT3 with 61%, 61%, 56% and 56% respectively. However, 41% of the respondents have no answer for the succeeding vaccines of OPV1-3. This is because they are not sure of their answer.

On the other hand, hepatitis B (HB) vaccination of infants, though incorporated in the Philippines' Expanded Programme on Immunization (EPI) since 1992, it failed to cover 100% of the population [31]. Thus, HB1-3 and Hib Booster are not provided by the health center. That is why 70% of the children do not have the vaccines. These vaccines are available only in private hospitals and pediatric clinics.

In general, it can be gleaned that children are receiving free vaccines as mandated in the Expanded Program on Immunization by the Department of Health. This means that children are enjoying the basic health services of the government through the barangay health center.

Malnutrition among Filipino children persists that at least one in five children were found to be underweight for their age [32]. For children's weight, most of the children (57%) usually weigh from 8.1 – 16 kg, 22% weigh two- eight kilos, and 21% weigh 16.1-24 kilos.

Table 1. Planting herbal/medicinal plants

Planting Herbal Plants	Frequency	Percentage
Oregano	13	13
Lagundi	1	1
Sambong	1	1
Luyang dilaw	1	1
Not Planting Herbal Plants	84	84
Total	100	100

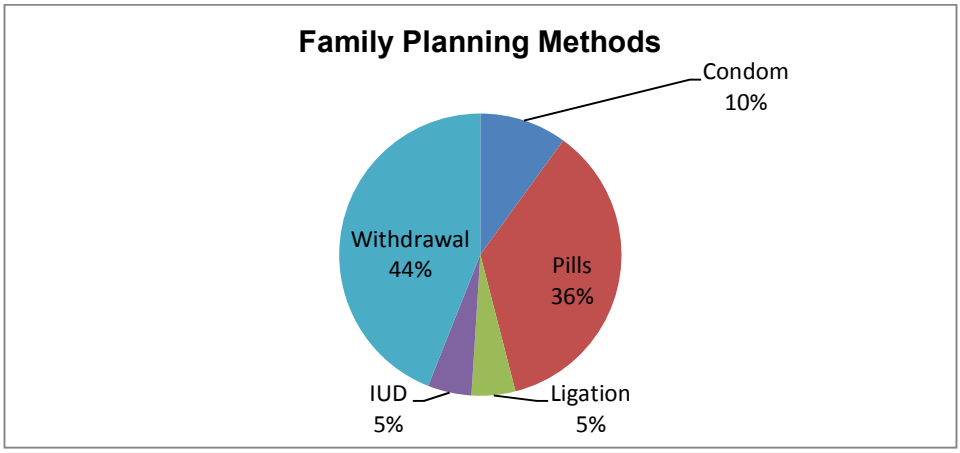

Fig. 3. Family planning methods

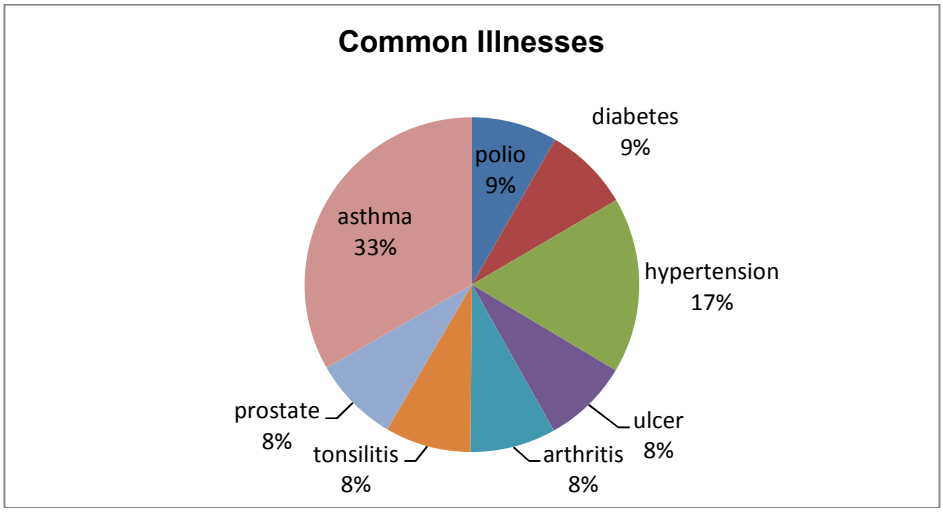

Fig. 4. Common illnesses

3.1.2 Education/Literacy

Lerner [33] argued that "Literacy is necessary to performing the skills demanded by the modern society and the mass media accelerate the development of a literate population. This means that literacy of the people is one of the factors contributing to the development of the society.

3.1.2.1 Level of education

This argument is true for this particular barangay. Result reveals that 71% of the 500 household members did not finish studying. Usually they stop before they graduate in elementary. Fig. 6 reveals that the most common educational attainment of those who are no longer studying is elementary undergraduate (below fifth grade) with 40%. Though free basic education is mandated by law, and a basic right of children, many are still deprived because of poverty. It is followed by high school undergraduate with 26%. Next is high school graduate with 23%.

3.1.2.2 Type of school

Only 29% is studying, and most of them (58%) are in public elementary school in the barangay. High school education is free but only 34% are in the nearest public high school either in barangay San Andres at Don Julio Leviste Memorial Vocational High School or in the Poblacion at Malvar National High School. Data shows the decreasing survival rate of students from elementary to college since only 7.5% is in public

college either in BatState-U Malvar, PUP Sto. Tomas, or Kolehiyo ng Lungsod ng Lipa (KLL). There is one college student (0.5%) in a private college, La Consolacion College Tanauan, because of a scholarship.

3.1.3 Livelihood

One of the contemporary assumptions on socio-economic development is human capital theory [34]. It recognizes that human resources, in particular literacy rates and education, general health and life expectancy, create conditions for productivity that enable social groups to transform their human capital into greater economic prosperity. In short the more and better educated a people, the greater the chances of economic development [34]. This theory explains well the livelihood information data.

3.1.3.1 Means of income

Livelihood, as any means of earning a living, of the respondents mostly does not require high educational attainment as shown in Fig. 7. It can be gleaned that 81% of the respondents are economically engaged with 19% jobless. This is true because unemployment and underemployment rates in the Philippines in the 21st century are high [35]. Most of the economically engaged (32%) are earning a living through selling fruits and vegetables in the market. It is followed by farming (16%) and sewing (13%).

Based on the figure, it can be inferred that most of their economic activities are farm- based. This is expected since the barangay is an agricultural land. They are selling fruits and vegetables, some are own harvest but most are usually bought from the drop-off point in Tanauan City.

This result is relative to the educational attainment of the respondents. Since most of them are elementary undergraduate, opportunities to get employed in companies are limited due to the minimum educational attainment. As elementary undergraduate they usually end up helping their parents till the land to plant vegetables and fruit to be sold in the market. Others, if not engaged in farming activities, are sewers, drivers, construction workers, *jueteng* agent or laundry woman from one family to another.

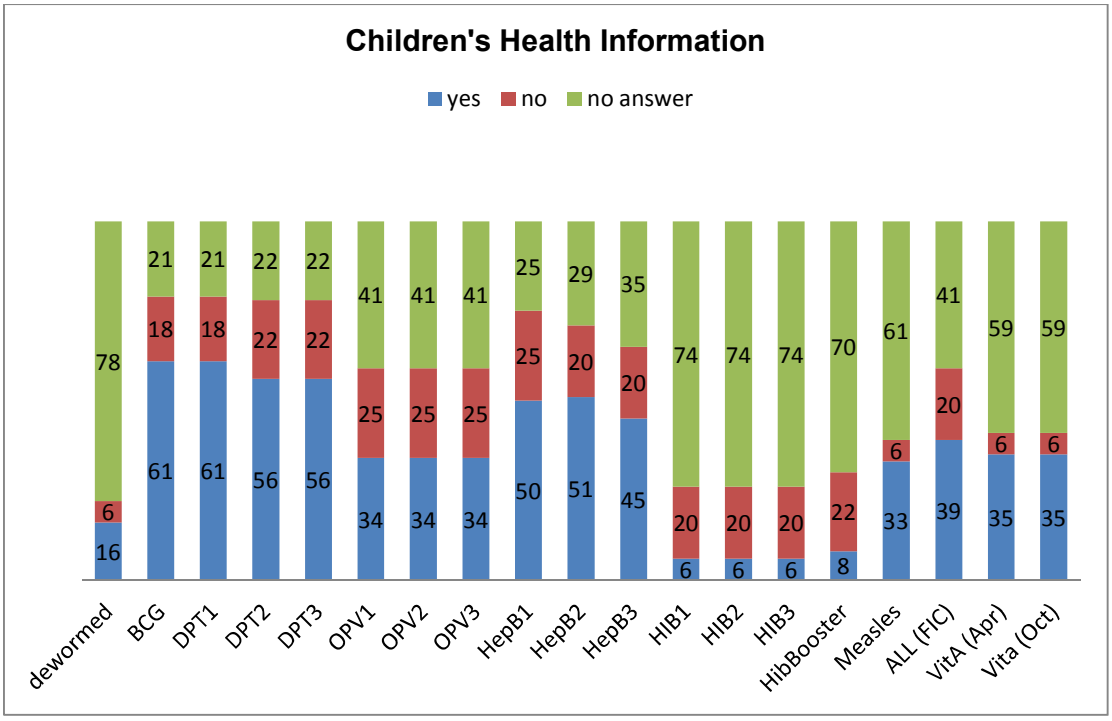

Fig. 5. Children's health information

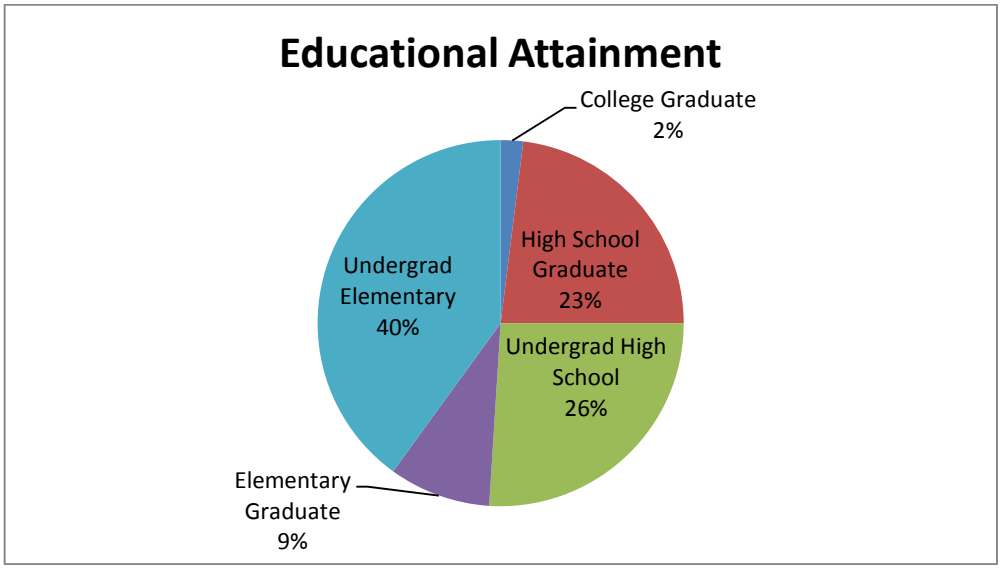

Fig. 6. Educational attainment

3.1.3.2 Average weekly income

Again, as explained by the Human Capital Theory, investment in education has a positive correlation with economic growth and development. This means that education creates improved citizens and helps to upgrade the general standard of living in a society [36].

The case of San Juan is an elaboration of the theory. Since most of them have not earned elementary education, data shows that 92% of the respondents are earning the lowest bracket from Php0-Php1500 a week. This is evident since most of them are farmers, vendors and sewers. There is only one respondent earning the maximum of Php4501-Php6000 in a week.

3.1.3.3 Other means of income

Aside from their main source of earning, Fig. 8 displays that only 17% has other source of income. Most of them have extra income as sewers at home, while 83% reveals that they have no other means of livelihood. That is why most of them want to have other source of income (Fig. 9).

3.1.3.4 Preferred livelihood to start

Most of them (30%) like to open a *carinderia* or a store while others want to engage more in agriculture. However, there are still 34% who have no answer. They have no idea what business to start with for extra earning.

3.1.3.5 Preferred training to attend

Providing the youth with access to technical and life skills is significant to increase their employability [37]. When respondents were asked on what skills training (Fig. 10) they would like to attend to, 16% wants to acquire skills in storekeeping. This supports Gozun [37] stating that harnessing the entrepreneurial propensity of the youth is integral. Respondents (14%) also want in enhancing farming skills.

However, there are also 48% who do not have answer on the skills training to attend and to acquire. They need to be redirected on the importance of their contribution in the economic aspect of the municipality.

3.1.4 Environment

Urbanization has greatly impacted the environment [38]. It has created local to global scale environmental problems like increase in air and water pollution, decrease in water supply, insufficient housing and sanitation facilities, among others [39].

3.1.4.1 Type of comfort room

In general, most of the respondents (27%) have their own close pit and 26% has owned septic tank. However, it is also important to note that still three percent of the respondents is just throwing away anywhere, and two percent has no toilet. This finding supports Davis [40] and

Neuwirth [41] that 23 percent of the 2.6 billion people lacking adequate sanitation are usually informal settlers. Thus, wastes that are not collected or are disposed of improperly, such as in open dumpsites, pose a public health threat [42]. In addition as Mojares [42] suggested, sanitation programs must be considered by the local government unit (LGU).

3.1.4.2 Source of water

For the source of water, in general water as a basic necessity is not a problem in the community since 47% of the respondents have own use of community water and 44% have shared community water. This is in contrast with Hardoy and Satterthwaite [43] as mentioned by Mojares [38] that people in the urbanizing world have to compete with access to clean drinking water. This is because of alternative source of water such as deep well.

3.1.4.3 Method of waste management

Though Malvar government has enacted environmental laws on river protection, solid waste management, waste segregation, plastic ban and others [42], Fig. 13 reveals that 33% of the respondents are still burning their waste, 21% having an open pit, and 13% using burned and open pit. This means reinforcement in the barangay level must be one of the priorities of the barangay captain. Moreover, as stated by Mojares [42] successful implementation of legislative measures depends on the political will of the LGU concerned.

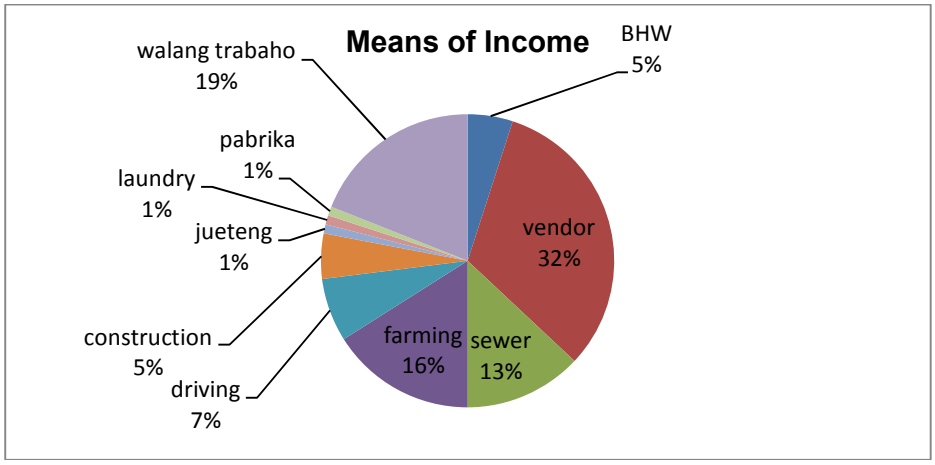

Fig. 7. Means of income

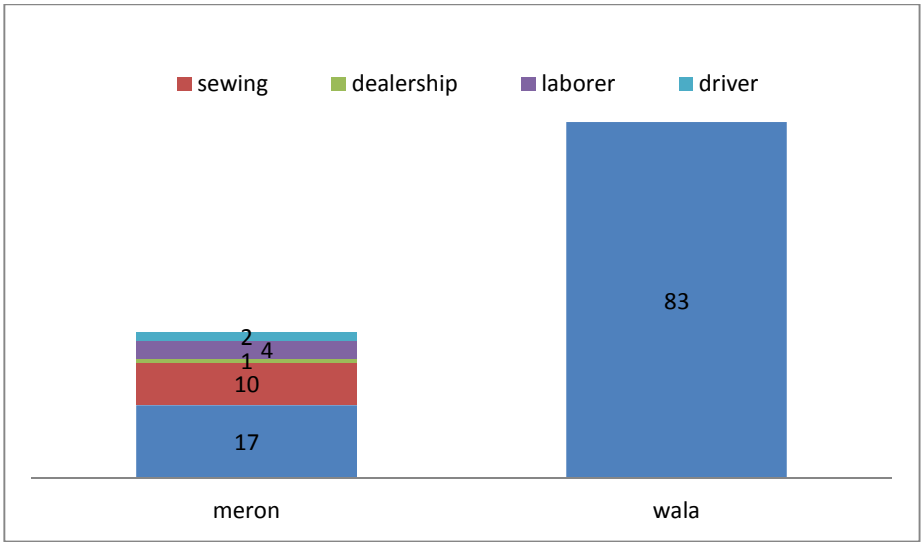

Fig. 8. Other means of income

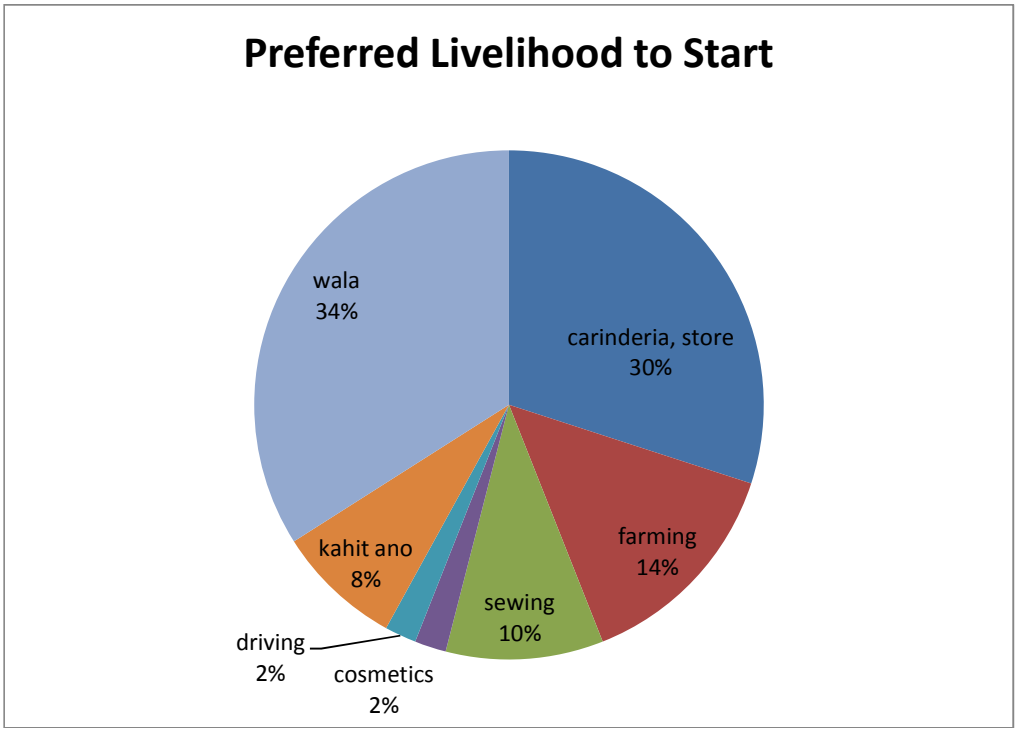

Fig. 9. Business they want to open/start

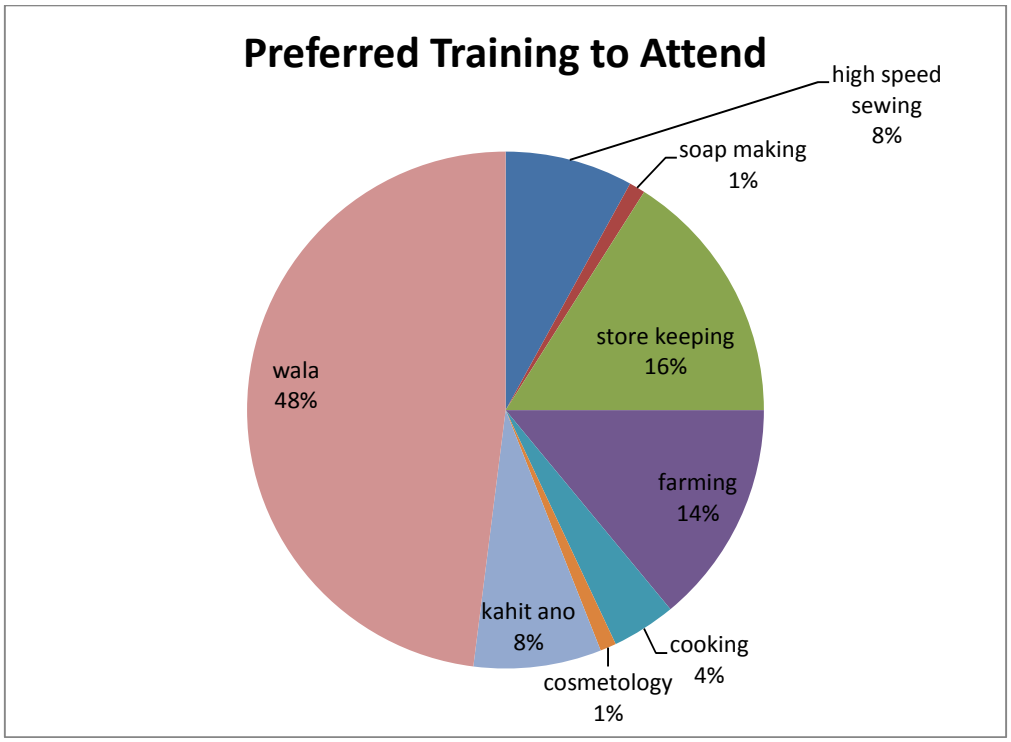

Fig. 10. Respondents preferred skills training

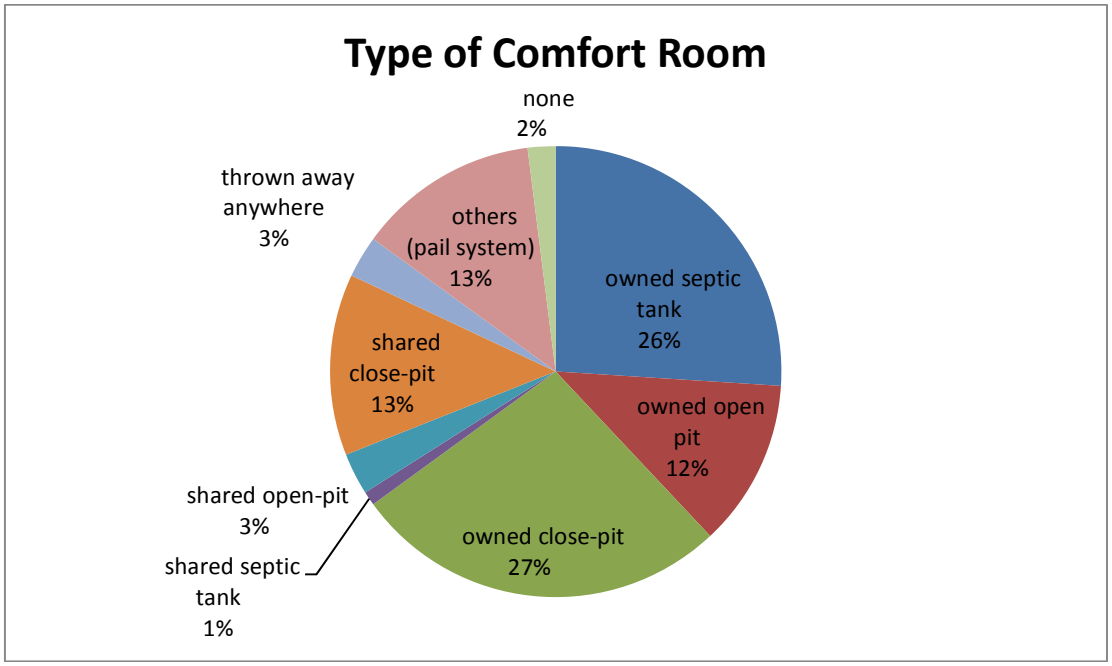

Fig. 11. Type of comfort rooms

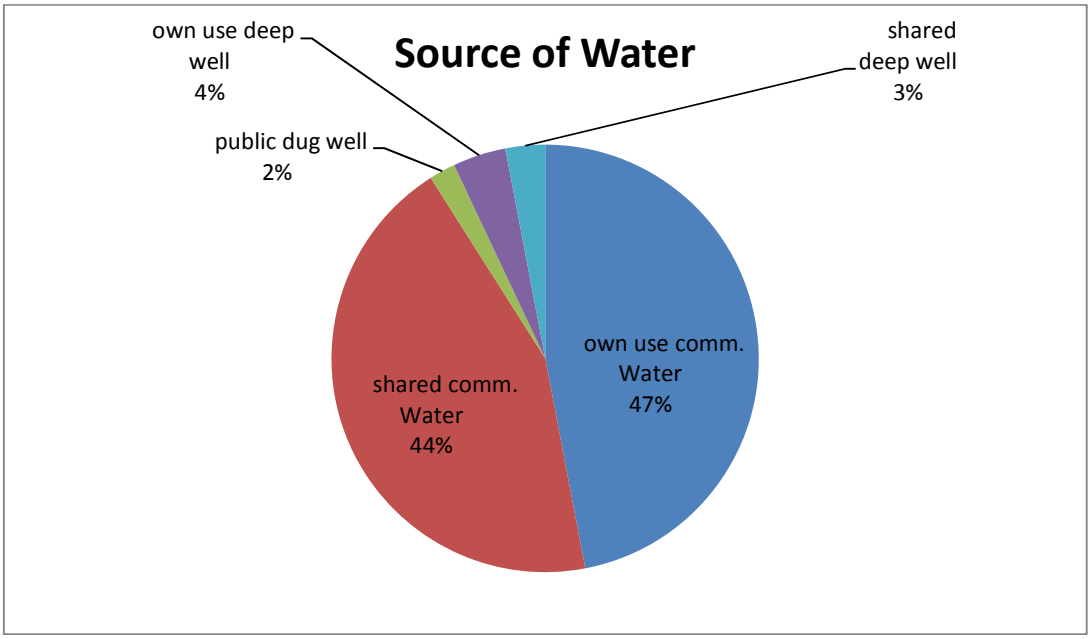

Fig. 12. Source of water

3.1.4.4 Material for cooking

Since 92% of the respondents are earning Php0-500 per week, most of them can not afford to buy a tank of LPG. Seventy-three percent of them are using wood for cooking; only 10% is using LPG, 9% wood/LPG. This conforms to the WHO saying that three billion people still cook using stoves burning wood [44].

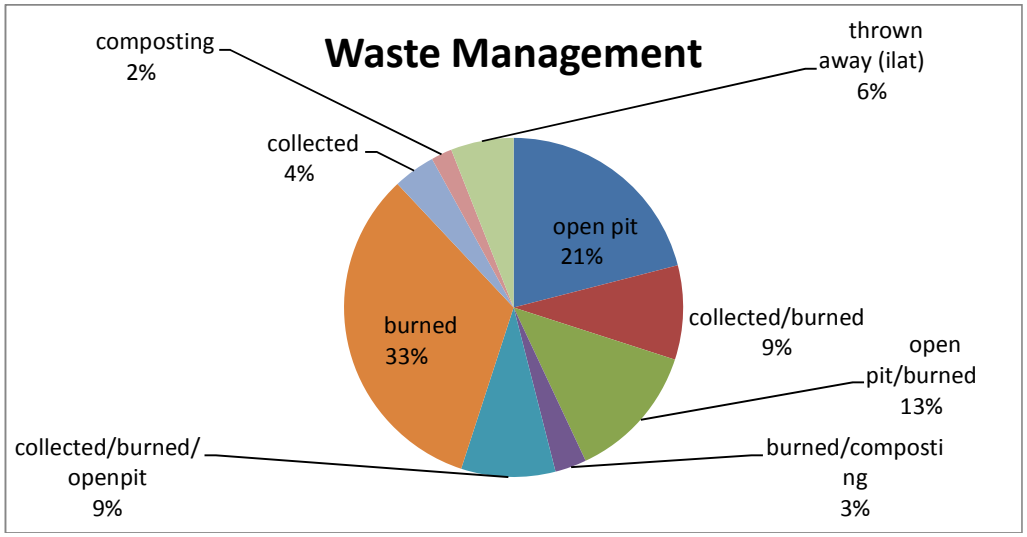

Fig. 13. Method of waste management

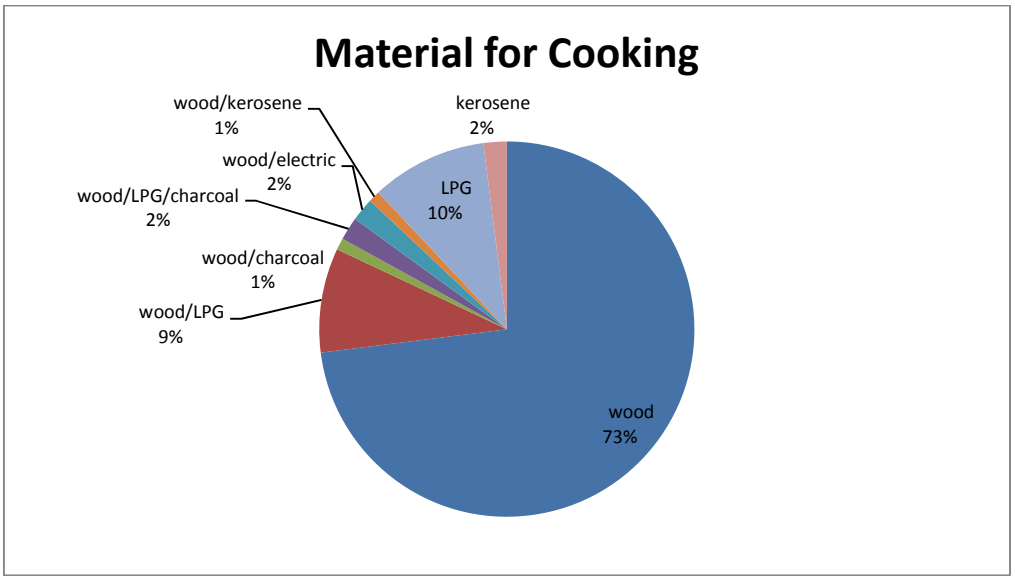

Fig. 14. Material used for cooking

3.2 Evaluation of Behaviors as Basis for the University Extension Program

Based on the data presented, behavior of the youth and female adult would be the basis of the University Extension Program for education and livelihood trainings. Since many of the youth are high school undergraduates, many of them are not employed in companies requiring higher educational attainment. They end up helping their parents in the market or farm. The female adult, on the other hand, need to have extra income to suffice the needs of their families.

4. CONCLUSION AND RECOMMENDATION

Of the four sectors of society, youth and female adult are critical in terms of health, education/literacy and livelihood. Though generally the four sectors are not in risk from any communicable disease, male adult are suffering from asthma, senior citizen from arthritis. In terms of education, most of the youth are high school undergraduates, most male and female adults are elementary undergraduates. In terms of livelihood, most of them are vendors earning

below the minimum. Most of them also do not have extra income. Yet, most of them do not have idea on what business to start and training to have and attend. For the environment, there is still a need to educate people on the importance of sanitary toilet and environmental protection.

Based on the findings, there are three needs or issues identified in the barangay: education for the OSY to continue schooling and eventually earn a diploma, livelihood trainings and opportunities for high school graduates and female adult and environmental awareness on sanitary toilet, environmental protection and paper charcoal making as an alternative for wood.

It is therefore recommended that Extension programs of the University should address the said two issues on education and livelihood training and opportunities. a) Alternative Learning System for OSY to finish high school education. b) Skills Training for OSY or high school graduates like welding, electrical wiring, plumbing, computer trouble shooting, electronics, auto-mechanic. c) Livelihood training for female and adults on sewing, food processing, cosmetology, baking, cooking, housekeeping, and agri-related training. d) Environmental education on sanitary toilet, environmental protection and paper charcoal making.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Baker HR. A proposal for a Canadian study of agricultural transfer/extension. Unpublished report to the Canadian agricultural Research Council. Cited by Blackburn and Flaherty in Extension Handbook: Processes and Practices. Donald J. Blackburn. Editor. Toronto: Thompson Educational Publishing, Inc; 1984.
2. Fay IG. Notes on extension in agriculture. New York: Asia Publishing House; 1962.
3. Schumaker A, Reed BJ, Woods S. Collaborative models for Metropolitan University Outreach: The omaha experience. Cityscape: A Journal of Policy Development and Research. 2000;5(1).
4. Aniedi, Archibong Ijeoma, David Otu Effiom. Research mandate of the University: An assessment of junior academic staff participation. Journal of Education and Sociology. 2011;4:3-7. [ISSN: 2078-032X]
5. Baconguis, Rowena. Issues and challenges in the governance of the Philippine Agricultural Extension System. Unpublished Professorial Chair. UPLB Laguna; 2010.
6. Mojares, Juvy, Rowena Baconguis. Extension function in higher educational institutions: Learning from HEIs in Batangas Province, Philippines. USM R&D Journal. 2015;23(1):13-26.
7. Diem KG. Measuring impact of educational programs. Fact Sheet. New Jersey: Rutgers Cooperative Research and Extension. NJAES; 2004.
8. Ponniah A, Dijkman J, Hoekstra D, Workneh S. (n.d.). Past, present and future of extension. Canadian International Development Agency.
9. Lero Ruel F. Deconstructing the concept and operationalization of extension as a function of higher education institutions in the Philippines. Laguna: UPLB. Unpublished Doctoral Dissertation; 2010.
10. Davidson AP. Participation, education and pluralism: Towards a new extension ethic. Development in Practice. 2007;17(1):39–50.
11. De Lara GO. Predictors of extension program effectiveness of the Technological University of the Philippines System. Manila: TUP. Unpublished doctoral dissertation; 2004.
12. Quimbo EM. Extent of extension services delivery in tertiary state technological institutions of the Philippines. IAMURE Multidisciplinary Research Journal. 2013;6.
13. Alcala AC. Research and extension in the Academe. Dumaguete Metro Pos; 2011. Available:http://dumaguetemetropost.com/research-extension-in-the-academe-p1185-98-html
14. Sison FM. The extension programs of State Universities and colleges in region VIII: Their impact on community development. Manila: Philippine Normal University. Unpublished Doctoral Dissertation; 1999.
15. Contaoi MR. The effectiveness of the extension program of the University of Northern Philippines. Vigan City: UNP. Unpublished MA Thesis; 2003.
16. Tacbas LB, De Vera M, Romo NC. The effectiveness of the extension programs of

the University of Northern Philippines SY 2005-2008. UNP Research Journal. 2003;19:151-177.

17. Orbeta, Aniceto, Michael Abrigo. Philippine International Labor Migration in the Past 30 Years: Trends and Prospects. Discussion Paper Series No; 2009-33 .
18. Salvador, Vincent Bryan, Ramon Paterno, Elizabeth Paterno, Michael San Juan, Ma. Angeli Sabalo, Sylvette saceda, Carminda Pineda, Enrique Unson, Mel Clark Taveros, Cecille Sales, Gretel Puzon, Tonilene Rafael and Abel Permites. Validation of the Selection Process of PhilHealth Sponsored Members in 4 Barangays in a Municipality in Batangas using the Participatory Action Research. Acta Medica Philippina. 2012;46(1).
19. Hartanto, Herlina, Cecil Valmores. Facilitating collective action and enhancing local knowledge: A herbal medicine case study in Talaandig communities, Philippines. CAPRi Working Paper # 50 International Food Policy Research Institute; 2006.
20. Schippmann Uwe, Dianna Leamann, Cunningham AB. Impact of cultivation and gathering of medicinal plants on biodiversity: Global trends and issues. FAO. Biodiversity and the ecosystem approach in agriculture, forestry and fisheries. Satellite event on the occasion of the Ninth Regular Session of the Commission on Genetic Resources for Food and Agriculture. Rome, 12-13 October 2002. Inter-Departmental Working Group on Biological Diversity for Food and Agriculture. Rome; 2002.
21. Abe Reika, Kazuhiro Ohtani. An ethnobotanical study of medicinal plants and traditional therapies on batan Island, the Philippines. Journal of Ethno-pharmacology. 2013;145(2):554-565.
Available:https://doi.org/10.1016/j.jep.2012.11.029
22. Matejowsky Ty. Backyard and community gardening in the urban Philippines: A case study from Urdaneta City, Pangasinan. The Australasian-Pacific Journal of Regional Food Studies; 2013.
Available:https://localejournal.org/issues/n3/Locale%20n3%20-%2005%20-%20Matejowsky.pdf
23. Oro Emilita, Imelda Agdeppa, Irish Baguilat, Julian Gonsalves, Mario Capanzana, Ma. Sheila Anunciado, Ian Kurt Sarmiento, Kirstein Itliong and Ronnie de Castro. Improving food and nutrition security in the Philippines through school interventions. IDRC Digital Library; 2018.
Available:http://hdl.handle.net/10625/57246
24. Cameron J, Wright S. Researching diverse food initiatives: From backyard and community gardens to International Markets. Editorial for Special Issue, Local Environment: The International Journal of Justice and Sustainability. 2014;19(1):1-9.
25. Kim, Bu Kyung, Jee-Yeong Jeong, Kwang-Hyuk Seok, Andrew S. Lee, Chul Ho Oak, Ghi Chan Kim, Chae-Kyeong Jeong, Sung In Choi, Pablo M. Afidchao, and Young Sik Choi. Current Iodine Nutrition Status and Awareness of Iodine Deficiency in Tuguegarao, Philippines. International Journal of Endocrinology; 2014.
[Article ID: 210528]
Available:http://dx.doi.org/10.1155/2014/210528
26. Mello Michelle Marie, Marcus Powlowski, Juan MP, Nañagas, Thomas Bossert. The role of law in public health: The case of family planning in the Philippines. Social Science & Medicine. 2006;63:384-396 .
Available:https://doi.org/10.1016/j.socscimed.2006.01.010
27. Biton, Sarah Jane Arcos. Advancing sexual and reproductive health and rights: An overview of the best practices in the Philippines, Asian Journal of Women's Studies. 2020;26(1):114-127.
DOI: 10.1080/12259276.2019.1690778
28. Jaen, Anjuli May. Lenora Fernandez, Irene Rosellen Tan, Aileen Wang, Ralph Elvi Villalobos, Mariella Cuñada. Prevalence and demographics of asthma - COPD overlap (ACO) among asthma and COPD patients in the pulmonary clinic of the University of the Philippines - Philippine General Hospital European Respiratory Journal; 2019;54.
DOI: 10.1183/13993003.congress-2019.PA2630
29. Domingo, Divine Grace C. Corazon VC Barba, Ma. Theresa M. Talavera, Lutgarda L. Tolentino, Rodesa T. Naupal-Forcadilla. Association of maternal social capital with nutritional status of 6 to 24-month-old children living in urban and rural areas in Laguna, Philippines. Malaysian Journal of Nutrition. 2017;23(1):53–63.
30. World Health Organization (WHO). Child Growth Standards. WHO, Geneva; 2006.
31. Lopez Anna Lena, Michelle Ylade, Jedas Veronica Daag, Amado O. Tandoc III,

Joseph Bonifacio, Patrick G. Sylim, Ava Kristy Sy, Rex Centeno, Vito Roque Jr., and Maria Joyce Ducusin. Hepatitis B seroprevalence among 5 to 6 years old children in the Philippines born prior to routine hepatitis B vaccination at birth. Human Vaccines & Immunotherapeutics. 2018;14(10):2491–2496.
Available:https://doi.org/10.1080/21645515.2018.1480278

32. Ramirez MA, Anna Rita, Rowena Viajar, Glenda Azana. Operationalizing local children nutrition surveillance system: The Philippines' Operation Timbang revisited, the case of Abra de Ilog. World Nutrition. 2019;10:86-98.
33. Lerner, Daniel. The Passing of Traditional Society 60; 2008.
34. Available:http://ec.europa.eu/regional_policy/sources/docgener/evaluation/evalsed/guide/development/strengthening_sed/sed_theory_en.htm
35. Masuda, Kazuya, Yoko Sakai. Secondary education and international labor mobility: Evidence from the free secondary education reform in the Philippines. Technical report. CEI Working Paper Series, No. 2018-5. Institute of Economic Research, Hitotsubashi University.
Available:http://cei.ier.hit-u.ac.jp/English/index.html
36. Olaniyan DA, Okemakinde T. Human capital theory: Implications for educational development. European Journal of Scientific Research. 2008;24(2):157-162. [ISSN: 1450-216X]
Available:http://www.eurojournals.com.ejsr.htm
37. Gozun Brian C, John Paolo R. Rivera. Role of education in encouraging youth employment and entrepreneurship. De La Salle University Business & Economics Review. 2017;27(1):72–88.
Available:http://dlsu-ber.com/wp-content/uploads/2018/04/4gozun-072617.pdf
38. Mojares, Juvy G. Urbanization & its effect in Calabarzon Area, Philippines. Journal of Global Intelligence & Policy. 2013;6(10): 24-40
39. Regmi, Ram Krishna. Urbanization AND related environmental issues of metro manila. Journal of Advanced College of Engineering and Management. 2017;3.
40. Davis M. Planet of slums. New York: verso London: Earthscan; 2006.
41. Neuwirth R. Shadow cities: A billion squatters, a new urban world. London and New York: Routledge; 2006.
42. Mojares Juvy G, Philip D. Geneta. The Malvar Code: An evaluation of the environmental policy framework of Malvar, Batangas, Philippines. Countryside Development Research Journal of Samar State University. 2015;3(1).
43. Hardoy J, Satterthwaite D. Squatter citizen – Life in the urban Third World. London: Earthscan. 1995;301.
44. World Health Organization. Last update: Household air pollution and health; 2014. Available:www.who.int/mediacentre/factsheets/fs292/en/

APPENDIX

Summary of findings and areas of concerns for possible extension programs

A. Socio-economic status	Areas of concerns	Extension service (s)
1. Majority (92%) of the household/family are earning below Php500 per week.	• Agriculture and Livelihood • Social Services	• Technology Transfer • Livelihood / Technical-Vocational/Skills Training
2. The number of undergraduate students in the elementary and high school level is alarming. Very few graduated in college.	• Social Services • Youth and sports development	• Skills Training (Basic PC Operations, Basic Electronics/Electricity) • Livelihood/Technical-Vocational/Skills Training
3. Most of the out of school youth in the barangay belong to the elementary and high school level.	• Social Services • Youth and sports development	• Skills Training (Basic PC Operations, Basic Electronics/Electricity)
4. Majority of the household	• Social Services	• Livelihood/Agricultural Training

heads have irregular jobs and most of their housewives have no job at all.	• Agriculture and Livelihood	for Farmers
5. Farmhand/farming is the major source of income of the residents.	• Social Services • Agriculture and Livelihood	• Agricultural Training and other livelihood options for Farmers
6. Most of the land are used with consent of the owner or relatives.	• Social Services • Agriculture and Livelihood • Peace and order	• Technical Assistance and Advisory Services / Rural Development Planning
7. Most of the houses are half concrete.	• Infrastructure	• Fund Raising for the Community
8. Majority of the respondents would like to start other livelihood options that include sari-sari store, carinderia, farming, sewing, and cosmetology. They like also the same kind of trainings.	• Agriculture and Livelihood	• Agricultural/ Environmental Training
B. Environmental sanitation, health and nutrition		
1. There is still 2% who have no access to sanitary toilet and 3% who just throw away anywhere.	• Social Services • Infrastructure • Health and Nutrition	• Outsource linkages from NGOs and GA's for sponsorship of toilet bowls and construction of sanitary toilets.
2. Majority of the household/families do not have proper garbage disposal	• Environmental Protection	• Training on waste segregation and recycling. • Training on composting
3. The most common illness is asthma (33%), followed by hypertension	• Health and Nutrition	• Training on first aid • Medical Mission
C. Agriculture profile		
• Majority of the residents are engaged in farming, planting vegetables & fruits.	• Agriculture and Livelihood	• Agricultural Training for Farmers
• Most of them utilized land with consent from the owner or relatives	• Social Services • Infrastructure	• Technical Assistance and Advisory for Rural Development
• Most of their livestock raising include native chickens, goats, native cows, and pigs. While most of their pets include dogs and cats	• Agriculture and Livelihood	• Livestock Management Training
D. Disaster preparedness/Risk reduction and adaptation		
• There is no available market in the barangay	• Infrastructure	• Technical Assistance on the establishment of a cooperative in the Barangay
• The municipal public market is physically inaccessible.	• Infrastructure	• Linkages to NGOs and GAs • Fund Raising for the

Most of them have no money to buy materials from the market.		Community Development
• There is an availability of drainage, water schemes, pathways for the barangay but found to be insufficient. While unavailability for access road is still a problem for the community.	• Infrastructure	• Linkages to NGOs and NGAs • Technical Assistance for Rural Development
• There are very few relief and rehabilitation organizations working in the area which focus on health, food distribution, nutrition, crop seedlings, and financial assistance.	• Agriculture and Livelihood • Social Services • Finance/ways and means	• Linkages to NGOs and NGAs • Relief Goods Operation
• Only very few are members of organizations.	• Social Services • Agriculture and Livelihood	• Technical Assistance • Linkages to NGOs and NGAs
• The main source of water appears to be cleaned. Majority of the respondents do not treat their water and only few use to boil the water as their treatment	• Health and Nutrition	• Linkages to NGOs and NGAs • Health and Sanitation Program
• Most of the respondents do not have stock of food at home because they do not money to buy stocks.		• Technical Assistance for Food Processing • Nursery and Vegetable Garden Establishment
• In terms of assistance, most of the respondents receive rice and noodles.	• Social Services • Health and Nutrition	• Linkages to NGOs and NGAs • Relief Goods Operations
• Majority of the female headed households, pregnant women, lactating mothers, children, persons with disability and the elderly are being prioritized for food distribution	• Social Services • Health and Nutrition	• Counseling on Food and Nutrition, Health and Sanitation, Maternal and Child-care
• There is an information on infants that are exclusively breastfed	• Social Services • Health and Nutrition	• Food and Nutrition, Health and Sanitation, Maternal and Child-care
• There are few who considered safety and security a concern in the community and most of them are concerning to the persons with special needs (i.e., disabilities, single headed household, single women)	• Social Services • Health and Nutrition • Peace and order	• Linkages to NGOs and NGAs • Medical Mission • Provide Counseling
• Majority of the respondents agreed that they do not have problem in terms of the place to live in,	• Agriculture and Livelihood • Finance/Means and Ways	• Livelihood / Technical-Vocational / Skills Training • Agricultural Capability Training

healthcare services. However, most of their problems deal with insufficient income or resources to live.		
• Barangay Health center is available in the community and it takes minutes to reach it if one has to walk. There is an available vehicle used as transportation when one has to travel to avail the health service facility.	• Infrastructure • Social Services	• Linkages to NGOs and NGAs
• There are no healthcare professionals available in the community except for midwife.	• Social Services • Health and Nutrition	• Medical Mission • Maternal and Child-care Outreach Program
• Only elementary school building is available in the barangay that can be used as evacuation centers during the time of calamities	• Social Services • Infrastructure	• Linkages to NGOs and NGAs • Fund Raising for Community Development • Capability Training Program on Disaster Preparedness and Management

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