

Need-based extension services towards community development for Sitio Aldea in Zambales, Philippines

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ABSTRACT

The study aimed to identify the extension services in terms of community needs specifically economic, health, socio-cultural, and environmental needs of Sitio Aldea, Barangay Natividad in San Narciso, Zambales. The findings were used as basis in formulating a community extension program towards community development. The needs assessment, conducted by Philippine Merchant Marine Academy (PMMA), through its Department of Research, Development and Extension (DRDE), is important in identifying extension services that can effectively meet the priority needs of selected barangays in Zambales, which in this case, 3 barangays are selected dividing the research into three phases, and this is phase 1. This descriptive study used a survey questionnaire which consists of parts identifying the demographic profiles, economic, health, socio-cultural, and environmental-related needs of the community. The data gathered from 559 respondents revealed that Sitio Aldea is 'highly in need' of environmental, health and socio-cultural aspects and it is only in 'need' of economic aspects. Given these, an implementable community extension program and activities has been proposed. Its implementation is recommended, as well as an in-depth study on specific findings such as unemployment, education, and source of income. Finally, the replication of the study, to be conducted in another barangay for phase 2, is advocated.

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1. INTRODUCTION

The Philippine Merchant Marine Academy (PMMA), the pioneer maritime education in the country, has produced the finest Filipino Merchant Marine Officers through its quality teaching, learning, and training standards. As an educational institution, it has been a tool for social transformation. However, the PMMA's mission does not stop there, it seeks to make a valuable contribution to society through community involvement and implementation of extension services. The PMMA, through its Department of Research, Development and Extension (DRDE), aims to impart a positive impact in the society by being an active partner in institutional development, social transformation and other community participations through research, development, and extension services.

According to Salud-Payumo *et al.* [1], community extension programs will help and support the communities in the improvement of people's social and economic status by addressing their needs, which might help the barangays have higher income and higher productivity. Relatively, this may also generate empirical data and information on the socio-economic condition of each barangay in determining what

specific extension program is addressed [2]. Moreover, Salazar [3] stated that an extension service is the avenue where a higher educational institution extends its expertise in line with its programs which would assist to improve the economic status of its beneficiaries.

DRDE has conducted various community extension programs in the last two years. Following health protocols, the DRDE conducted its first community extension program to 10 local fishermen of Barangay La Paz, San Narciso, Zambales entitled, “Strengthening the local San Narciso fishermen’s ability to survive when at sea” on November 25-26, 2021. The second batch was held last June 29-30, 2022, and was participated by 13 local fishermen. This mandate-related community extension program aims to give instruction in basic safety training covering fire fighting and first aid, as well as skills in social responsibility and individual safety and survival. To date, this ‘strengthening’ extension program has undergone revision, as new topics were incorporated, namely: basic navigation, maritime laws and basic repair and maintenance. This proves that the PMMA continues to evolve to better serve its community. Barangay Pundaquit, San Antonio, Zambales was the first beneficiary community of this enhanced ‘strengthening’ program last December 5-7, 2022. Another mandate-related extension program is planned in partnership with the technical education and skills development authority (TESDA) which is the community-based shielded metal arc welding (SMAW) NC II Training, to be offered to the constituents of San Narciso, Zambales.

Moreover, the PMMA does not only provide mandate-related extension services, it also provides other community services such as bloodletting, outreach programs, and coastal clean-up. In fact, on January 28, 2022, it conducted its Community Outreach Program at Brgy. Paite, San Narciso, Zambales where food packs and used clothes were given to the indigents of the community. These activities demonstrate the responsibility of PMMA, not just as an educational institution but as a member of the community. Instruction, research and extension are the three core functions of state universities and colleges (SUCs) in the Philippines. Indicators on the extent and productivity of the conduct of extension services has become part of various assessment for SUCs. Louwah *et al.* [4] Assisting the community residents in their learning is fundamental for a university. The lessons in the classrooms and the knowledge and skills of teachers should be cascaded to partner communities. Quiambao *et al.* [5] emphasized that for extension programs to be successful, people providing the help and assistance must show their genuine concern and burden to help the unfortunate. They must be dedicated in contributing knowledge and skills to the residents of the community. This way, an authentic social transformation can occur.

However, there are instances that extension services provided may not be what the community needs. The monitoring and interview conducted at Barangay Lapaz in San Narciso, Zambales, in connection to the extension program “Strengthening the local San Narciso fishermen’s ability to survive when at sea” revealed that there is a need to conduct profiling of household members to determine other needs that could be addressed through extension service. Thus, to address the existent needs of the communities through extension, DRDE conceptualized the conduct of this research wherein the selected sitio/barangay residents will be profiled in three phases. For phase 1, it will be Sitio Aldea of Brgy. Natividad, San Narciso, being PMMA’s nearest community. Macaraig *et al.* [6] stated, profiling is a useful tool in identifying the services needed by communities and in determining problem areas for possible development of these communities. Certainly, it is important to conduct and develop a community profile to collect accurate baseline data and uncover the essential needs to understand their current situation and rightfully address the community’s needs.

The study aimed to identify the extension services needed by the selected barangays in San Narciso, Zambales, with its initial implementation at Sitio Aldea, Barangay Natividad. It also determined the social demographic profile of the respondents, their needs and the extent of their needs in terms of economic, health, socio-cultural, and environmental aspects. The findings were used as basis in formulating a community extension program towards community development. Identifying the needs of the community and factors that impede development among the residents is the start of successful community development efforts. But these endeavors will be of no use if the implemented community programs do not respond to the needs of the community. Community improvement programs must be based on systematic needs assessment surveys to identify the root causes of underdevelopment. In this case, a valid and reliable needs assessment tool must be employed in gathering data [7].

Community needs assessment is one of the primary phases to identify the priorities of the community. Prior to the implementation of a community program, conducting an evaluation and needs assessment is essential for identifying issues and effectively addressing problems. This ensures that the implementation of program is tailored to meet the needs of the community and enhance the likelihood of successful delivery of the program. Additionally, tailored platforms can help bridge existing gaps in the programs, resources and access to services of certain communities [8]. This study was anchored on constructivism theory and human capital theory to further discuss barangay profiling as the basis for the PMMA community extension project. Guided by these theories, PMMA focuses on identifying the needs of the sitio residents based on their responses to empower them, allowing them to become self-sufficient and

productive members of society. Constructivism, as defined by Cruz [9], is the emergence of a construct using natural ability to think and by learning from the environment, where the result is an autonomous, intellectual learner. According to this theory, people build knowledge and their meaning based on experiences. Human capital theory indicates that individuals compensate human capital ventures through the abilities and knowledge of the labor force. Productivity enhancement among the labor force serves as an essential part of economic development [10].

The respondents in the study have various ideas about their environment and their residential area, specifically Sitio Aldea. They perceive their surroundings based on their condition in life. The way they describe the sitio varies depending on their experiences and situation, and the way they give meaning to their situation as a resident in the sitio is based on their situation and experiences. As most people do, the residents of Sitio Aldea choose a job based on their skills and knowledge, which was developed or derived through training and education. Some went through formal education, and some were trained or taught only at home. The economy of the sitio is dependent on many factors including its labor force. The knowledge and skills of the residents, being the labor force in Sitio Aldea, varies depending on the experiences or condition of their location or surroundings. The productivity of these residents may rely on the skills and knowledge they possess.

One way of empowering individuals is knowing what they need. This way, that need would be addressed, making their lives better. Figure 1 shows the process of conducting an extension service which consists of the following steps: i) gathering of the socio-demographic profile of the respondents; ii) assessment and identifying of various issues; iii) specific project preparation; iv) project implementation; v) monitoring and interview; and vi) project evaluation.

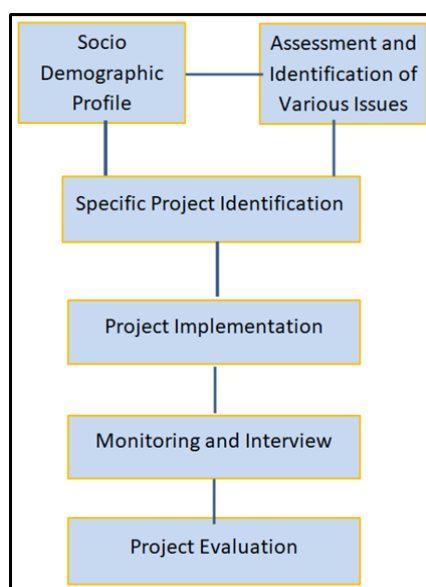


Figure 1. Conducting a well-planned extension service

The socio-demographic profile of the respondents or the people in a certain barangay should be critically assessed to properly determine the various community issues and needs of the community. After careful assessment of the socio-demographic profile and analysis of the issues and needs of the community, the proper planning, preparation and identification of extension projects or activities to effectively address the issues and needs of the people in the community will take place. After planning and preparation of the extension project, it will be set for implementation. During implementation, monitoring of the project is necessary. Once the project begins, monitoring should also start to ensure that all the tasks are executed according to what was planned. An evaluation of the extension project should also be carried out. Evaluation is an essential phase in conducting an extension project for it can greatly help in improving the current project, identifying future projects, and implementing them more effectively.

Indeed, every institution has the responsibility to transform its immediate community into a better one. Finding out what their community needs will assist institutions in their decision-making on how they would proceed with their community assistance. In the case of PMMA, this would allow the academy to help alleviate the lives of its community.

2. METHOD

2.1. Research design

The study used a descriptive method of research; it is a type of research that is widely used in education, nutrition, epidemiology, and other behavioral sciences [11]. It gathers data to answer what, when, and how questions about a specific population and describes the profile of households. In the case of this research, demographic profiles and the economic, health, socio-cultural, and environmental-related needs were identified using a survey. An interview was also conducted to gather additional information that would be useful in the discussion.

2.2. Research locale

Sitio Aldea of Brgy. Natividad in San Narciso, Zambales is a rural coastal area situated between Coyacoy River and Viga River and occupying 65% of the barangay area. It is noted that there are 2,689 residents occupying the 235.11 hectares, of which women outnumber men by 199. Various basic services facilities are present in Sitio Aldea, like water and electricity supply. It also has a daycare center which is categorized as a 5-star day care center in the municipality. Currently, the sitio has projects in maintaining the security of the area such as the installation of closed-circuit television (CCTV) camera and streetlights, cleaning of drainage canal and cementing of roads.

2.3. Respondents

There are 2,689 residents in Sitio Aldea, Barangay Natividad, San Narciso, Zambales, of which women outnumber men by 199. The respondents of the study were households in the Sitio. Purposive sampling was used as only the household heads were selected, as they are the responsible individuals in the organization and care of their household. As planned, this research project will include 3 barangays from San Narciso. Data from each barangay would be separately conducted. For phase 1, it is Sitio Aldea of Brgy. Natividad, San Narciso. Based on the list provided by the Barangay, there are a total of 764 family heads in the Sitio as of September 2022, however, only 559 participated in the conduct of this study, which is 73.16% of the total population.

2.4. Instrument and validation of the instrument

The instrument used is a survey questionnaire consisting of five parts: the first part identifies the demographic profile of the respondents, and the remaining parts identify their needs in terms of health, sociocultural, environmental and economic aspects. The survey uses the Filipino language to ensure that it can be understood by all respondents. The researchers also assisted the respondents in answering the survey to ensure the proper accomplishment of the form.

The questionnaire has been adapted from the studies of Amparado and Colonia [12] for the demographic profile and Borbon [13] for the needs assessment in terms of economic, health, sociocultural, and environmental aspects. Since there were revisions and additions to the original questionnaire, it was administered to ten (10) randomly selected sitio residents for reliability testing. Cronbach's alpha yielded 0.988, which shows that the instrument has excellent internal consistency; thus, it is reliable.

2.5. Procedure

For the process of data collection, the researchers obtained the necessary consent and permission from the office of the Punong Barangay and from the PMMA administration. Then, a request to conduct the research through the face-to-face distribution of questionnaires in their barangay covered court was secured. Upon approval, the researchers gathered data from the respondents thru a survey questionnaire with informed consent, ensuring that the data gathered will be treated with utmost confidentiality and shall be used only for research purposes. Strict adherence to health protocols were practiced during the data gathering.

2.6. Data analysis

The data collected were encoded and processed using the statistical package for the social sciences (SPSS). Frequency and weighted mean were used as statistical tools. Tables and graphs were used to present the data. Frequency and percentage were used in the social demographic profile of the respondents. Getting the mean and rank are done in identifying the needs of the respondents in terms of economic, health, socio-cultural, and environmental aspects. Also, mean and rank are used in determining the extent of respondents' needs in the 4 aspects.

2.7. Ethical considerations

This study was carried out in accordance with the highest ethical standards. The research proposal was presented to the research council, the authorizing body of the PMMA that granted the permission to

conduct this research. Then, the researchers sought consent from the head of Sitio Aldea, to conduct needs-assessment survey among the residents of the sitio. Upon approval, the researchers gathered data from the respondents thru a survey questionnaire with informed consent, ensuring that the data gathered will be kept confidentially and shall only be utilized for this research.

To reduce the risks of COVID-19 virus transmission and ensure a safe workplace, the researchers strictly adhered to the rural health unit (RHU) and academy's guidelines. All data acquired in this study was used solely for research reasons, and the respondents' personal information were maintained in strict confidence. Furthermore, all the literature, studies, and references used in this study were correctly cited, acknowledged, and referenced.

3. RESULTS AND DISCUSSION

3.1. Socio-demographic profile of the respondents

3.1.1. Sex

A total of 559 respondents have participated in this study. Most of the respondents are male with 385 or 69%. This is expected since the target respondents were household heads. On the other hand, since the conduct of the survey fell on a weekday, representatives of the household heads were allowed to complete the survey questionnaire. These representatives were mostly their spouses or daughters; thus, there were 174 or 31% respondents who were female.

3.1.2. Age

The majority of the respondents are within the age bracket of 25-34 (22.72%), 35-44 (20.93%), and 45-54 (19.14%) considered as adults. It can be noted that there were many senior citizens having the age 60 and above with 20.57%. Most seniors stay in their homes as they age. Older people tend to spend up to 72% of their time inside their homes [14]. This was considered the reason why several senior citizens represented their children who were at their work during the survey.

3.1.3. Educational attainment

The respondents have varied educational attainment with only a small percentage (1.07%) who did not go to school. Most of the respondents were high school graduates (173 or 30.95%), followed by high school level (93 or 16.64%), then college graduates (81 or 14.49%). This profile is also reflected in the study of Amparado and Colonia [12] wherein most of the respondents of a community needs assessment have graduated from secondary school, followed by those who have attained high school level of education.

3.1.4. Employment status

The study reveals that although most of the respondents are educated, most of them are unemployed with 235 or 42.04% or have contractual jobs with 145 or 25.94% of the respondents. Higher education has been seen as a considerable investment however, the unemployment of educated young people still results in economic downsides, such as lower labor productivity, fiscal strains, and potential social instability [15].

3.1.5. Combined monthly income

In Table 1, the combined monthly income of the couple is presented. Given that most of the respondents are unemployed, most of their families have a combined monthly income of Php5,000 and below with 356 respondents or 63.69% while only 4 respondents have a monthly income of Php50,001 and above. This is supported by the results on the respondents' employment status wherein a large percentage are unemployed; thus, the household's income is also low at Php5,000 and below. The result implies that most of the respondents live below the poverty threshold of about Php12,030 per month for a family of five [16]. As defined by the Philippine statistics authority (PSA) [17], poverty threshold refers to the minimum income/expenditure required for a family/individual to meet the basic food and non-food requirements.

3.1.6. Employment status of spouse

Occupation is a type of work a person does to earn his living. The major occupation groups are officials of government and special-interest organizations, corporate executives, managers, managing proprietors and supervisors; professionals; technicians and associate professionals; clerks; service workers and shop and market sales workers; farmers, forestry workers and fishermen; trades and related workers; plant and machine operators and assemblers; laborers and unskilled workers; and special occupations [17]. It is notable that a large percentage of the spouses of the respondents are not working (43 or 79%), with only 21% working. Of those spouses who work, the highest number are service workers and shop and market sales workers (42 or 7.51%). The occupation of these workers includes selling goods in the market or own store; preparing and serving food and beverages; housekeeping; caring for children; providing personal and basic

health care at homes or in institutions, as well as hairdressing and beauty treatment; and providing security services. Nineteen (3.4%) belong to trades and related workers. Their work includes dressmaking, constructing, maintaining, and repairing, and painting buildings and other structures. The laborers and unskilled workers (18 or 3.22%) are the janitors, laborers, housemaids and junk collectors followed by professionals (12 or 2.15%). Other occupations of the spouses are officials of government and special-interest organizations, managing proprietors and supervisors (7 or 1.25%); associate professionals like a bank teller, credit investigators, page admin and part-time agent (5 or 0.89); and aircon mechanic, welder and hollow blocks maker (4 or 0.72%). According to the 2023 labor force survey of the PSA [18], it indicated that there were 2.22 million unemployed persons aged 15 and above, equivalent to an unemployment rate of 4.3% in December 2022. This is higher than the 2.18 million unemployed Filipinos in November when the unemployment rate stood at 4.2%, but lower than the 3.28 million jobless Filipinos in December 2021 when the unemployment rate was 6.6%.

Table 1. Percentage distribution of the respondents' demographic profile in terms of combined monthly income

Combined monthly income	Frequency	Percentage (%)
5,000 and below	356	63.69
5,001-10,000	93	16.64
10,001-15,000	62	11.09
15,001-20,000	23	4.11
20,001-25,000	9	1.61
25,001-30,000	2	0.36
35,001-40,000	2	0.36
45,001-50,000	1	0.18
50,001 and above	4	0.72
No response	7	1.25
Total	559	100

3.1.7. Residence ownership

Although most of the respondents are on the poverty line, most of them own their residences with 68.34% of the respondents. About 156 or 27.91% are living with relatives. Only a minimal percentage of 3.22% rent their abodes. In the 2019 annual poverty indicators survey (APIS) [19], about two-thirds (64.1%) of families owned the house and lot they occupied; about fifteen percent (14.8%) of families occupied a house they own but with a rent-free lot with the consent of the owner, 8.3% rented the house/room including lot; 6.7% occupied a rent-free house and lot with the consent of the owner; and the rest either owned the house but the lot was rent-free without consent of the owner (3.2%), owned the house but the lot was rented (2.4%) or with rent-free house and lot without consent of the owner (0.4%).

3.1.8. Number of children

Most of the respondents have zero to 3 children, as presented in Table 2. According to the 2020 population census, the average size of households in the Philippines was 4.1. Region III (Central Luzon), where Zambales is found, has 3.04 million households also with an average household size of 4.1. This decreased from 4.4 persons in 2015 to 4.1 persons in 2020. In 2010, there were 4.6 persons, on average, per household.

Table 2. Percentage distribution of the respondents' demographic profile in terms of number of children

No.	Number of children	Frequency	Percentage (%)
	None	68	12.16
1	Child	138	24.69
2	Children	129	23.08
3	Children	92	16.46
4	Children	55	9.84
5	Children	42	7.51
6	Children and above	35	6.26
	Total	559	100

3.1.9. Age of children

Most of the respondents have children who are considered at school age (5-24 years old) with 664 or 55.33%. On the other hand, there are still households that have young children-under 5 years old with 172 or 14.33%. Further, 236 or 19.67% of the children are considered adults with ages between 31-60 years old [20].

3.2. Community needs of the respondents

3.2.1. Economic needs

It can be gleaned from Table 3 that economic interventions are needed in the community with a composite mean of 3.19. Providing capital for small start-up business or livelihood project, and training on starting a business or livelihood project were perceived to be as highly needed in the community with mean scores of 3.39, and 3.32, respectively. Accordingly, agricultural-related part time job garnered third highest rating of 3.11 or needed. Conversely, fishing as a part time job (2.98) ranked the lowest. This could be attributed to the fact that most of the residents, based on the interview, do fishing and Tilapia and clam farming as their major source of livelihood. The result is in consonance with the study of Alarte [21] wherein the residents of Rodriguez, Rizal have limited earnings which are usually spent on food; thus, the need for a sustainable livelihood program that is important, productive, and beneficial is essential to realize a satisfying and meaningful life.

Table 3. Economic needs assessment of the community

No.	Indicators	Mean	Verbal interpretation	Rank
1	Providing capital for small start-up business or livelihood project	3.39	Highly needed	1
2	Training on starting a business or livelihood project	3.29	Highly needed	2
3	Agricultural-related part-time job	3.11	Needed	3
4	Welding as a part-time job	3.04	Needed	4
5	Fishing as a part-time job	2.98	Needed	5
	Weighted mean	3.16	Needed	

3.2.2. Health needs assessment

Table 4 reveals, based on the results of the survey, that free medicine is highly needed in their community with a mean of 3.51. In addition, almost all the indicators of health needs of the community were rated as highly needed: input to health care (3.45), knowledge on family planning (3.39), having a nutrition program (3.37), training on basic first aid (3.37), and providing dental care service (3.32). It should be noted that despite having a low number of children, as shown in Table 2, the respondents still rated the knowledge on family planning as highly needed.

Table 4. Health needs assessment of the community

No.	Indicators	Mean	Verbal interpretation	Rank
1	Giving free medicine	3.51	Highly needed	1
2	Input to healthcare	3.45	Highly needed	2
3	Knowledge of family planning	3.39	Highly needed	3
4	Having a nutrition program	3.37	Highly needed	4.5
5	Training in basic first aid	3.37	Highly needed	4.5
6	Providing dental care service	3.32	Highly needed	6.5
7	Help in youth enrichment like leadership training and seminars in mental health and reproductive health.	3.32	Highly needed	6.5
8	Education about illegal drugs	3.23	Needed	8
9	Having some recreational activities	3.16	Needed	9
	Weighted mean	3.35	Highly needed	

The Table 4 shows that free medicine is the most needed health service by the respondents. The study of Yecla and Ortega [22] implies that a community indeed need free medicine for they recommended the provision of free medications in local health services, access to health facilities, and frequent visits of doctors to conduct free consultations to provide better health services to the community. Also, they recommended improving services for infant and child immunization, prenatal/postnatal/childbirth care, disease management and control for both communicable and non-communicable diseases, family planning, and basic dental and oral hygiene. Among the residents, 319 are school-age children. Additionally, there were 12 under six years old who had nutritional issues. Malnutrition in children is a widespread issue that leads to increased mortality and illness among them [23]. According to Dassie *et al.* [24], children were more likely to be underweight if they were male and had a young mother (under 20 at the time of birth). Factors like lack of prenatal care, diarrhea, low birth weight, younger child age, and having multiple under-five siblings in the household significantly contributed to underweight, wasting, and stunting issues. Additionally, Montecillo and Amparado [25] identified the availability of medicines and supplies as one of the health needs with pressing concerns.

3.2.3. Socio-cultural needs assessment

Table 5 shows the needs of the community in terms of socio-culturalism. Although the Sitio is a peaceful residential area, according to the barangay captain who is a recipient of the “Seal of good governance for Barangay 2022” award, there are isolated cases reported in the Sitio, wherein mostly are related to debt issues. Ensuring peace and order of the place (3.42) is the topmost need of the community in this aspect. Accordingly, most of the socio-cultural need indicators were rated as highly needed: creating a program for community beautification (3.34), enriching the culture of the community (3.33), legal help towards human rights and equality (3.32), educational program and entertainment program (3.30), teaching out of school youth (3.29), and having a program to tighten family bond (3.26). On the contrary, leadership training for the out-of-school youth (3.21) and holding cultural activities (3.20) were perceived to be needs by the community.

Table 5. Socio-cultural needs assessment of the community

No.	Indicators	Mean	Verbal interpretation	Rank
1	Ensuring peace and order in the place	3.42	Highly needed	1
2	Creating a program for the community beautification	3.34	Highly needed	2
3	Enriching the culture of the community	3.33	Highly needed	3
4	Legal help toward human rights and equality	3.32	Highly needed	4
5	Educational program and entertainment program	3.30	Highly needed	5
6	Teaching the out-of-school youth	3.29	Highly needed	6
7	Having a program to tighten family bonds	3.26	Highly needed	7
8	Leadership training for the out-of-school youth	3.21	Needed	8
9	Holding some cultural activities	3.20	Needed	9
	Weighted mean	3.30	Highly needed	

Based on the interview, to ensure peace and order in Sitio Aldea, which is most highly needed by the residents, CCTV cameras and streetlights were installed. Peace and order are universal needs. In the study of Patalinghug and Bustamante [26], the concept of peace and order, security, and ability to serve enrichment (POSASE) was explored. This study assessed the community’s good governance to prevent crime, respond to emergencies, and preserve a peaceful society. Results have also shown that all areas are highly needed by the community (i.e., community safety and protection, public safety and ecological security, disaster preparedness and management, fire prevention and suppression, prevention of the use of illegal drugs, anti-crime measures, traffic management, human rights and protection, moral recovery program, and investigation).

3.2.4. Environmental needs assessment

Table 6 shows that all indicators of environmental needs are highly essential to the community with inputs on waste management having the highest rating of 3.42, followed by creating a program for environmental protection (3.37), knowledge on air, water, and land pollution (3.39), knowledge on tree planting (3.39), inputs on environmental protection (3.38), program on clean-up drive (3.37), coastal clean-up and stewardship (3.37), knowledge on hazards of pollution (3.36), knowledge on the negative effect of chemical to the human body (3.31) and proper usage of chemical (3.28). According to the barangay captain, activities like cleaning drainage canals and cementing roads are being implemented in the sitio as part of their environmental projects. Based on the findings, the respondents recognize the importance of the environment, as this need is the highest among the four community needs.

In the study of Jeremias and Fellizar [27], it was revealed that households are engaged in good waste management practices like selling recyclables to junk shops because it is financially advantageous. They also recommended that barangay officials could devise an incentive system to motivate the locals to take part in waste management. Moreover, Bose [28] recommended that during barangay assembly, as part of the program, the barangay government should constantly educate the residents on detailed matters about solid waste management on how they will be involved, participate, and cooperate in all barangay undertakings towards achieving a zero-waste community.

It is also noted that learning about water, land, and air pollution has been considered as top 3 among their environment-related needs, together with tree planting. In the study of Masangkay *et al.* [29], it showed that in assessing the community needs of an indigenous community, analysis of water quality should be a priority area. This is necessary to mitigate gastrointestinal symptoms and diarrhea in the community. Thus, a community awareness-raising program must be implemented relative to water quality and safety.

Table 6. Environmental needs assessment of the community

No.	Indicators	Mean	Verbal interpretation	Rank
1	Inputs on waste management	3.42	Highly needed	1
2	Creating a program for environmental protection	3.41	Highly needed	2
3	Knowledge of air, water and land pollution	3.39	Highly needed	3.5
4	Knowledge of tree planting	3.39	Highly needed	3.5
5	Inputs on environmental protection	3.38	Highly needed	5
6	Program on a clean-up drive	3.37	Highly needed	6.5
7	Coastal clean-up and stewardship	3.37	Highly needed	6.5
8	Knowledge of the hazards of pollution	3.36	Highly needed	8
9	Knowledge of the negative effect of chemical to human body	3.31	Highly needed	9
10	Proper usage of chemical	3.28	Highly needed	10
	Weighted mean	3.37	Highly needed	

3.3. The extent of respondents' needs in the different aspects

Table 7 presents the summary of findings on the extent of the needs of the residents of Sitio Aldea. It can be gleaned that Sitio is highly in need in terms of environmental (3.37), health (3.35), and socio-cultural (3.35). On the other hand, it is only in need in terms of economic (3.19). The findings revealed that environmental need has the highest ranking among the four areas. The respondents have identified that they highly need knowledge related to environmental protection such as waste management and pollution, as well as the conduct of tree planting activity to curb environmental risks. This result is the same as the study of Borbon [13], which made it the top priority in the local tourism development plan of Taysan, Batangas.

Table 7. The extent of community needs

No.	Indicators	Mean	Verbal interpretation	Rank
1	Community environmental needs assessment	3.37	Highly needed	1
2	Community health needs assessment	3.35	Highly needed	2
3	Community socio-cultural needs assessment	3.30	Highly needed	3
4	Community needs economic assessment	3.16	Needed	4
	Average mean	3.30	Highly needed	

Moreover, the health needs of the locale ranked second. Out of all the indicators, the provision of free medicines ranked first overall. This indicates that the residents of Aldea may have needed medicines but are unable to afford these. Accordingly, they are also in need of medical professionals who will discuss health-related concerns including family planning. The socio-cultural needs of the community come third. It can be perceived that the residents value peace and order, community beautification, and enriching their culture. Finally, although there are several unemployed residents or those who have unstable jobs as contract service workers, the economic needs of the community ranked last. Nevertheless, they need training and capital for start-up business or livelihood activity. These would undoubtedly help to alleviate their current situation.

3.4. Proposed extension program for Sitio Aldea fiscal year 2023-2025

Tables 8 and 9 present the proposed extension program and activities. The areas were presented according to the priorities of the respondents where environmental need was their primary concern, and only the three topmost in each area were included. In each identified need, specific activities were proposed with responsible individuals or offices, approximate budget, and timetable to ensure implementation. The extension coordinator (EC) shall be responsible for this extension program. Coordination with different appropriate agencies shall be performed for service and/or budget-related assistance. Activities are scheduled, taking into consideration sufficient planning and preparation time.

For instance, in the conduct of the waste management seminar, the EC must communicate with the department of environment and natural resources (DENR) for speakers, as they are the experts. The municipal local government unit (LGU) shall be requested for possible funding assistance while the barangay LGU will be contacted about the availability of their constituent-attendees. Only after this that the pre-activity preparation commences, such as but not limited to venue, meal preparation, honoraria, transportation and certificates. Over-all, the completion of this proposed extension program is deemed beneficial to the community. However, it is emphasized that its achievement requires the institution's continuous commitment and collaboration with external partners. Also, the sitio residents themselves should participate to ensure the successful implementation of the proposed extension programs.

Table 8. Proposed environmental and health extension program for Sitio Aldea fiscal year 2023-2025

Area	Identified needs	Objectives	Program and activity	Responsible person	Estimated cost	Time frame
Environmental	Waste management	Reduce the environmental and health hazards arising from indiscriminate waste dumping and pollution of natural resources like land, sea, and air	Waste management seminar in coordination with LGU	EC in partnership with Brgy Officials, San Narciso LGU and DENR, to be assisted by DRDE Team	Php150,000 inclusive of meals, honoraria, transportation and certificates	September 2023
	Environmental protection (air, water and land pollution) Knowledge on tree planting	Participate in the greening program of the country	Environment protection and greening program seminar in coordination with DENR			
Health	Giving free medicine Input to health care Help in youth enrichment like leadership training and seminars in mental health and reproductive health Knowledge of family planning	Provide health-related assistance and awareness to residents	Health caravan (family planning seminar, healthcare seminar and medical mission) in collaboration with Department of Health (DOH)	1. EC in partnership with Brgy Officials and Rural Health Office (RHO), to be assisted by DRDE Team 2. Medical-dental unit 3. Guidance Office 4. Gender and Development (GAD) Office	Php400,000 inclusive of medicines and vitamins, meals, honoraria, transportation and certificates	2nd Quarter 2024

Table 9. Proposed socio- cultural and economic extension program for Sitio Aldea fiscal year 2023-2025

Area	Identified needs	Objectives	Program and activity	Responsible person	Estimated cost	Time frame
Socio-cultural	Ensuring peace and order of the place	1. Inculcate Filipino values of <i>kalinisan</i> , <i>bayanihan</i> , at <i>katiwasayan</i> (cleanliness, spirit of cooperation, and peacefulness) to residents	1. Seminar on Filipino Culture in collaboration with NCCA	1. EC in partnership with Brgy Officials and National Commission for Culture and the Arts (NCCA), to be assisted by DRDE Team	Php135,000 inclusive of meals, honoraria, transportation and certificates	4th quarter 2024
	Creating a program for community beautification Enriching the culture of the community	2. Support beautification programs of the Sitio	2. Collaboration with Sitio on beautification activities	2. Department of Midshipmen Affairs (MA) 3. Other interested PMMA units/depts		
Economic	Providing a capital for small start-up business or livelihood project Agriculture as part-time job Training on starting a business or livelihood project	Assist in finding appropriate linkages for possible sustainable livelihood projects for the residents	1. Partnership with other agencies (LGU, Bureau of Fisheries and Aquatic Resources (BFAR), Department of Agriculture (DA), Department of Trade and Industry (DTI), TESDA and Department of Social Welfare and Development (DSWD) 2. Establishment of linkages between Sitio Aldea and other government agencies	EC in partnership with Brgy Officials and other agencies, to be assisted by DRDE Team	Php20,000 inclusive of meals and transportation	2nd quarter 2025

4. CONCLUSION

Most of the respondents are unemployed, young adults, living below the poverty threshold, high school graduates, with spouses mostly unemployed, small-size family with children mostly young. Moreover, most households are headed by males. The community's economic needs focus on source of livelihood; health needs are more on free medicines and family planning; socio-cultural needs deal with enjoying a peaceful life in an orderly and pleasing atmosphere; and environmental needs concentrate on the preservation

of nature and life. Overall, their needs are based on their experiences and the conditions of their surroundings, as emphasized in the constructivism theory. Although the sitio residents have socio-cultural, health, and economic needs, their priority is on becoming a responsible member of society through participation in making the environment a better place to live in.

Different extension programs based on the sitio residents' needs can empower and help make Sitio Aldea residents' lives better. However, in implementing the proposed extension program and activities, budget support from the academy and other stakeholders will be required. Furthermore, the conduct of an in-depth study on specific findings on unemployment, education, and specific sources of income will be essential to understand better the sitio's needs. Finally, it would be beneficial to replicate this study to help other Sitios.

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CONFLICT OF INTEREST STATEMENT

The authors state no conflict of interest.

INFORMED CONSENT

The authors have obtained informed consent from all individuals included in this study.

DATA AVAILABILITY

The authors confirm that the data supporting the findings of this study are available within the article.

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