



RESEARCH PAPER

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Profiling of school + home cacao project adopters as basis for community-based participatory cacao processing enterprise model

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Abstract

The key to the development of the community is to involve them in the process. The overall goal of this project is to establish the School Plus Home Cacao Processing Learning Sites. Fundamentally, the researchers employed a community-based participatory action research design. The project had a total of 16 respondents from Ignacio B. Jurado, Lasam, Cagayan. Barangay Ignacio B. Jurado is one of the Barangays of Lasam. It is located 1.5km. away from the Public Market of Lasam. As a result, the School Plus Home (S+H) Cacao Learning Sites were successfully launched as a demonstration and processing area of livelihood, health, literacy and climate resiliency in IBJ Elementary School. Cacao is considered by the majority of residents of Ignacio B. Jurado as a potential economic enterprise. Most of the respondents reported that cacao production gives them additional source of income. In terms of the problems met by the respondents during the cacao production, they cited high cost for production and scarcity of labor as the two biggest obstacles to cacao production. This project being launched by CSU-Lasam campus will serve as a starting point for the progress not only for the Campus but for everyone. To sum it up, cacao production must be appreciated because so long as everyone will help each other, this may be helpful for us to have enough income and of course to save our environment.

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Introduction

The Millennium Development Goals (MDGs) and the Sustainable Development Goals' post-2015 development agenda both placed a strong emphasis on reducing poverty (SDGs). And to the latter it was added containing inequality (Wan & Wang, 2019). Lack of access to basic essentials by people and households characterizes poverty as a global socioeconomic concern (Cudia, 2019). Poverty remains a challenge for the Filipino people (Ross *et al.*, 2017; Skoufias *et al.*, 2019; Tingzon *et al.*, 2019). With almost 22 million Filipinos living below the national poverty line, the Philippines continues to trail behind its Southeast Asian neighbors in the fight against poverty despite its best attempts to do so (Philippine Statistics Authority, 2018). Additionally, the Philippines' economic growth and development have gone through a boom and bust cycle during the past half-century or more (Asian Development Bank, 2007). As a result, several Philippine administrations have attempted to reduce poverty but failed (Agbola *et al.*, 2017; Albert & Martinez, 2015).

One of the main causes of poverty in the country include weakness in employment generation and the quality of jobs generated. While the labor force is continually expanding, with a greater share of young people, employment generation has not kept up to accommodate new workers (Camba, 2020). As a result, unemployment has a particularly negative impact on young people, making it a serious socioeconomic issue in the Philippines. Additionally, Filipinos are more likely to labor in low-quality occupations, be underemployed, put in long hours for meager pay, participate in hazardous work, or have only temporary or informal employment arrangements (Chulanova *et al.* 2019). Moreover, the Philippine government fails to fully develop its agricultural sector. Contrary to numerous other Southeast Asian nations, the Philippines' integration of agriculture and fisheries into global value chains has not greatly reduced rural poverty. Although some downstream exports have been successful, upstream entities continue to operate under unstable settings (Andriesse, 2018). Another reason for the poverty in the country is that it is recurrently exposed to

economic crisis (Montes, 2018), conflicts (Rubin, 2020), natural disasters (Holden, 2017), and environmental poverty.

Aside from poverty, Filipinos are also challenged by undernutrition. In spite of the fact that over one billion adults globally are overweight, the global and national food and nutrition situation shows that over 900 million individuals are undernourished (FAO *et al.*, 2017). Malnutrition was a global problem that was also present in Asia Pacific nations like the Philippines (Gamelong, 2018; Pasion, 2019; Ulep, 2021; Vargas *et al.*, 2018). Undernutrition and overnutrition coexist in the Philippines, which is a sign of nutritional issues (DOST-FNRI, 2015). Malnutrition in the Philippines is reportedly brought on by a variety of interconnected issues, including those relating to people's physical, mental, social, and economic health. The availability of food, its distribution, and how it is consumed by the general public all have an effect on people's nutritional status (Capanzana & Aguila, 2020).

The four major deficiencies in children in the Philippines are protein-energy malnutrition (PEM), vitamin A deficiency (VAD), iron deficiency anemia (IDA), and iodine deficiency (IDD). PEM not only causes growth retardation and dangerous underweight in children aged 0-5 years in the Philippines, but also causes high mortality in infants and children (Salvacion, 2017). According to the Food and Nutrition Research Institute's most recent National Nutrition Survey, the average percentage of stunted and underweight children in the nation was 30.3 percent and 19.9 percent, respectively. In another study conducted in 2013 by DOST-FNRI and Save the Children, undernutrition in children results in economic losses of Php 328 billion, or 2.84 percent of the country's GDP, while stunting-related grade-level repetition brought on by frequent absences and subject repetition results in losses of Php 1.23 billion (DOST-FNRI, 2015).

The Philippines is also experiencing much environmental degradation. The country's continuous deforestation has been a major concern because to the

several known negative repercussions, such as soil erosion, landslides, flooding, biodiversity loss, and watershed damage. The consequences are more severe when one considers the vital function of forests in the storage of atmospheric carbon dioxide, the preservation of present biodiversity, and the resilience of ecosystems to climate change (Perez *et al.*, 2020).

With the issues being considered, in order to contribute to the growth and development of the community, the researchers thought to develop a project called school plus home cacao project towards improved livelihood and climate resiliency which is a community-based cacao participatory cacao processing enterprise model. It establishes a link between the school and the community to increase the number of cacao trees in the area and produce safe and nutritious cacao products providing opportunity for the people in the community to have additional livelihood and better health. Furthermore, the production of cacao trees could contribute to the reforestation of land areas resulting to the prevention of floods, soil erosion, disruption of hydrological systems and possibly, extinction of species. The project also aims to increase the knowledge of the community on cacao production, processing and nutrition by providing trainings and interventions. To sum it up, the project provides livelihood, better health, literacy, and climate resiliency which are very helpful considering the demand of the current situation. With those being stated, the project supports the sustainable development goals (SDG) which advocate for the inclusion of quality education, climate action, zero hunger, and no poverty as the cornerstones of global progress.

Theobroma cacao (cacao), a species of diploid tropical fruit crop, is an economically significant agricultural product for millions of people worldwide. Around 6 million farmers cultivate it worldwide, and more than 40 million people depend on it for their livelihoods (Beg *et al.*, 2017). Around 80 to 90 percent of the world's cocoa crop is produced by smallholder farmers (World Cocoa Foundation, 2014). This crop was first grown in the Amazonian basin and is now grown across the humid tropics (Wickramasuriya &

Dunwell, 2018). Moreover, the second-largest cash crop in the tropics and the third-largest agricultural export in the world is cacao (Díaz-Montenegro *et al.*, 2018). It is estimated that 7-8 million tiny family-run cacao farms in more than 50 nations worldwide generate more than 80% of the world's chocolate (ECLAC *et al.*, 2015).

In the research of Shahanas *et al.* (2019), it was found out that because of its great nutritional value and established health advantages, cocoa is recognized as a super food. The nutrients in cocoa beans are abundant, with 31% of them coming from carbohydrates, and 11% each from protein, fat, fiber, and minerals. Additionally, cocoa is an excellent source of bioactive substances. Polyphenols, which are made up of flavonoids and other non-flavonoids, are the main bioactive components. Numerous health advantages are attributed to the bioactive components' high antioxidant and anti-inflammatory activity levels.

Context of the Study

The Municipality of Lasam, a third-class municipality of the province of Cagayan is an agricultural community located in the northwestern part of Cagayan province. The municipality has an aggregate land area of approximately 23,400 or 234 square kilometers. As to the Profile of the Municipality of Lasam as to Cacao Production, the data of the Municipal Agriculturist Office of the municipality of Lasam, Cagayan, Philippines showed that cacao plantation with around 58,528 trees that include 16,537 trees which are fruit bearing (Madarang *et al.*, 2019). The municipalities identified with significant areas for cacao production were municipalities of Lallo, Gattaran, Gonzaga and Sta Teresita in District 1, Lasam, Sta. Praxedes, and Sanchez Mira (District II) and Peñablanca and Rizal (District III) (Gonzales *et al.*, 2018). This project was launched at Ignacio B. Jurado, formerly Finugu Sur, which is a barangay in the Municipality of Lasam, in the province of Cagayan, Philippines. Its population as determined by the 2020 Census was 1,709. This represented 4.15% of the total population of Lasam. Ignacio B. Jurado Elementary school, the school selected for the project, has a total

population of 357. There are 186 number of pupils in the school with 150 number of guardians. The school is comprised of 19 teachers and 2 practice teachers.



Fig. 1. Cacao Areas in Cagayan.

The overall goal of this project is to establish the School Plus Home Cacao Processing Learning Sites. Specifically, it aims to: (1) Provide livelihood to communities through cacao and vegetable gardening, and cacao-value adding products to address the nutritional needs of

school children; (2) Provide trainings and interventions to increase knowledge, skills and attitudes of school children, teachers and parents on cacao production, processing and nutrition; (3) Showcase cacao food processing technologies as alternative source of income for the community to alleviate poverty; and (4) Integrate the value of Cacao gardens towards livelihood (kabuhayan), health (kalusugan), literacy (karunungan) and climate resiliency (kalikasan).

Materials and Methods

Conceptual Framework

The Fig. shows the concept of this research titled: School + Home Cacao Project Towards Improved Livelihood, Literacy And Climate Resiliency: A Community-Based Participatory Cacao Processing Enterprise Model in a Municipality in Cagayan Province. This research aims to combine the effort of the community, specifically, the school and home to establish cacao learning sites having demonstration and processing areas for improved livelihood, health, literacy, and climate resiliency.

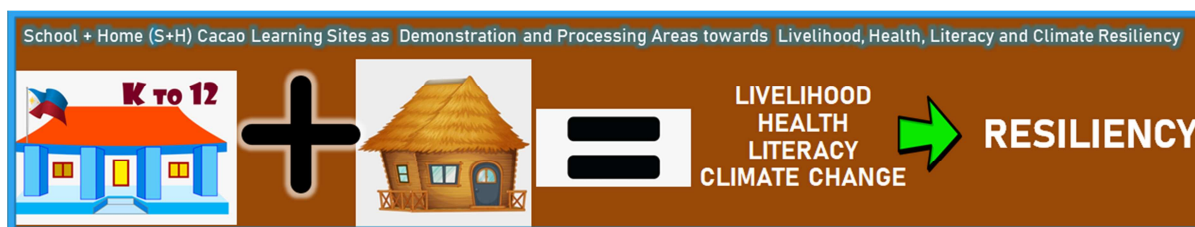


Fig. 2. Conceptual framework of the study.

Research Design

Fundamentally, the researchers employed a community-based participatory action research design. Participatory action research or PAR such as the community-based participatory action research design is a people-centered, power-conscious, action-oriented style of action research. PAR is rather unique in that it provides "research participants" with the chance to actively construct forms of action in response to their own unmet needs or unwanted situations, while also creating and forming true communities of practice (Robinson *et al.*, 2019). In order to do this type of investigation, the researchers

needed to: (1) assess and select school and group participants; and (2) profile and characterize the selected school and group participants in order for the researchers to facilitate advocacy awareness and trainings on cacao production and processing, design school + cacao (S+C) learning sites, and present the design lay-out of cacao (S+C) learning sites.

Respondents

The respondents of the study were the 16 parents and guardians of the pupils of Ignacio B. Jurado Elementary School who were willing to engage in cacao production and processing for additional

income and community development. All of the participants in the study were from Ignacio B. Jurado, Lasam, Cagayan which is one of the barangays in Lasam. It is 1.5 kilometers away. distance from Lasam's Public Market. There are 1,865 people living in IBJ overall. There are 928 women and 937 men among them. Farming is the main source of income for those who live in Barangay IBJ.

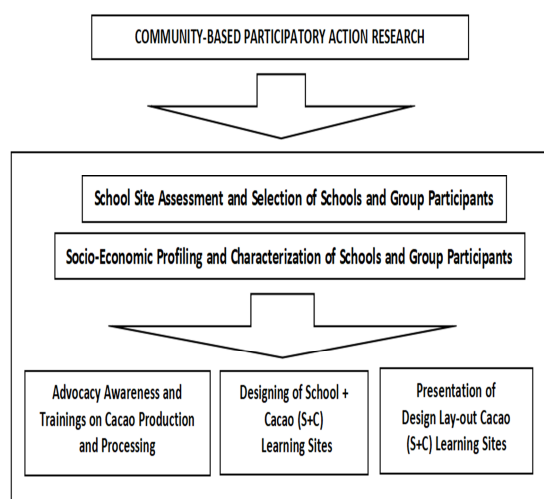


Fig. 3. Research Framework of the community-based participatory action research.

Procedures

The following procedures were used to conduct this project: First, permission and partnership was sought from the barangay captain of Ignacio B. Jurado and principal of Ignacio B. Jurado Elementary School. Second, when the permission was granted, the researchers assessed the school and group participants. Third, socio-economic profiling and characterization of schools and group participants were done through personally handling questionnaires to the respondents. Fourth, the school plus home cacao learning sites were launched as a demonstration and processing area of livelihood, health, literacy and climate resiliency in IBJ Elementary School. Fifth, the researchers conducted interviews with the respondents to identify the problems they met in cacao production. Finally, the collected data was tabulated, organized, and given the proper statistical analysis. Additionally, the researcher gave study participants orientations. The researcher adhered strictly to the ethical research

principles. Analysis, interpretation, and report writing of the results were completed.

Ethical Considerations

The following research ethics considerations served as the basis for this project. First, a letter of approval was presented to the principal of Ignacio B. Jurado Elementary School and barangay captain of Ignacio B. Jurado. Second, the researcher provided an orientation on the study's goals prior to project administration. Third, in accordance with the Data Privacy Act, the respondents' privacy was respected by withholding their identities. Last but not least, the IATF regulations were strictly followed throughout the project.

Results

School Plus Home Cacao Learning Sites

The School Plus Home (S+H) Cacao Learning Sites were successfully launched as a demonstration and processing area of livelihood, health, literacy and climate resiliency in IBJ Elementary School. Students, faculty and staff of CSU Lasam participated by students, researchers, faculty members, community leaders, parents, farmers, and Out of school youth.



Fig. 4. Launching of the Project.

Profile of the Respondents

The project had a total of 16 respondents from Ignacio B. Jurado, Lasam, Cagayan. Barangay Ignacio B. Jurado is one of the Barangays of Lasam. It is located 1.5km. away from the Public Market of Lasam. The total population of IBJ is 1,865. 937 of

them are males and 928 are females. 38 of them are members of Listahan, 27 are members of Unconditional Cash Transfer Program (UCT), and 30 are also members of the Pantawid Pamilyang Pilipino Program (4P's). The major livelihood of the residents in Barangay IBJ is farming. Table 1 show the profile of the respondents.



Fig. 5. Planting of Cacao Trees.

Table 1. Age and sex of the respondents.

Profile Variables	Categories	Frequency (N=16)	Percentage
Sex	Male	11	68.75
	Female	5	31.25
Age	31-40	1	6.25
	41-50	4	25
	51-60	6	37.5
	61-70	4	25
	71-80	1	6.25

The age and gender of the respondents are shown in Table 1. As can be seen, there were more men (11 or 68.75 percent) than women (5 or 31.25 percent). Growing cacao is still perceived as being a male-dominated activity. This explains why men are typically represented as farmers, whilst women are typically portrayed as their helpers who take care of the kids and the house. It happens in professions where female employees are either underpaid or equally rewarded with male employees.

For the age of the participants, a total of six or 37.5% of respondents were aged between 51-60 followed by a total of four or 25% of respondents aged 41-50 and

the same with respondents aging 61-70, followed by one or 6.25% of respondents in age group 31-40, and also respondents in age group 71-80.

Table 2. Ethnicity and Type of Family.

Profile Variables	Categories	Frequency (N=16)	Percentage
Ethnicity	Tagalog	7	43.75
	Ilocano	7	43.75
	Ibanag	2	12.5
Type of Family	Nuclear	9	56.25
	Extended	7	43.75

The ethnicity and type of family are shown in table 2. As can be seen, the majority of the respondents are Tagalog (7 or 43.75%) and Ilocano (7 or 43.75%) followed by Ibanag (2 or 12.5%) For the type of family, Most of the respondents maintain nuclear type of family (9 or 56.25%) while the remaining 7 or 43.75% are extended families.

Table 3. Civil Status and Highest Educational Attainment.

Profile Variables	Categories	Frequency (N=16)	Percentage
Civil Status	Single	0	0
	Married	13	81.25
	Widow/Widower	3	18.75
	Separated	0	0
Highest Educational Attainment	Elementary level	3	18.75
	Elementary graduate	2	12.5
	High School Level	3	18.75
	High School Graduate	1	6.25
	College Level	4	25
	College Graduate	2	12.5
	Vocational graduate	1	6.25

Table 3 reveals that 13 respondents, or 81.25 percent, are married, followed by widows and widowers (3 or 18.75 percent). This demonstrates that married respondents are more likely to work in agriculture since having a family necessitates having a source of income to support family members.

Educational attainment is also presented in table 3. It can be perceived that 4 or 25% of the respondents have reached college level, over those who have reached elementary level (3 or 18.75%), high school level (3 or 18.75%), those who are elementary

graduates (2 or 12.5%), college graduates (2 or 12.5%), high school graduate (1 or 6.25%), and vocational graduate (1 or 6.25%). This suggests that the vast majority of respondents who worked in agriculture were educated beyond the elementary level and were literate.

Table 4. Home Ownership and Home Condition.

Profile Variables	Categories	Frequency (N=16)	Percentage
Home Ownership	Owned	15	93.75
	Staying with parents/relatives	1	6.25
Home Condition	Concrete	5	31.25
	Combination of concrete and wood	11	68.75

Table 4 shows the respondents' responses on their ownership of their residence and the state of it. The proportion of participants who own their home is higher (15, or 93.75%) than the proportion who do not (1 or 6.25 percent). As to the home condition, more respondents reported that their home is made out of combination of concrete and wood materials (11 or 68.75%) than those who reported that their home is made out of concrete only (5 or 31.25%).

Table 5. Number of Rooms, Kitchen, Fuel Used, and Lighting.

Profile Variables	Categories	Frequency (N=16)	Percentage
Number of Rooms	Adequate	16	100
	Inadequate	0	0
Kitchen	Separate	6	37.5
	Attached to rooms/house	10	62.5
Fuel Used	Gas	8	50
	Wood	1	6.25
	Combination of gas and wood	7	43.75
Lighting	Electricity	16	100
	Gas	0	0

The number of rooms, location of kitchen, fuel used, and lighting are presented in table 5. All of the respondents (16 or 100%) declared that their rooms are adequate for them. As to the location of kitchen, more respondents stated that their kitchens are attached to their rooms/houses (10 or 62.5%) than those who stated that theirs are separate (6 or 37.5%). For the fuel used, half of the respondents use gas (8 or 50%), followed by combination of gas and wood (7

or 43.75%), and wood (1 or 6.25%). When it comes to lighting, all respondents (16 or 100%) use electricity.

Table 6. Bathroom, Toilet, and Drainage.

Profile Variables	Categories	Frequency (N=16)	Percentage
Bathroom	Within the house	13	81.25
	Outside the house	3	18.75
Toilet	Flush	8	50
	Water Sealed	8	50
Drainage	Open canal	15	93.75
	Closed	1	6.25

In Table 6, the respondents' bathroom location, toilet type, and drainage system type are displayed. The majority of respondents (13, or 81.25 percent) stated that their toilets are inside their homes, while the remaining respondents said their toilets are outdoors (3 or 18.75 percent). When it comes to the sort of toilet they use, 8 or 50% of them flush, while the other 50% use water-sealed toilets (8 or 50 percent). Only 1 or 6.25 percent of respondents had closed drainage systems, making open canals the predominant kind of drainage system (15 out of them, or 93.75%).

Table 7. Water Supply, Sufficiency of Water Supply, and Quality of Water Supply.

Profile Variables	Categories	Frequency (N=16)	Percentage
Water supply	manual pump well	12	75
	open well	2	12.5
	electric	2	12.5
Sufficiency of water supply	sufficient	15	93.75
	insufficient	1	6.25
Quality of water supply	potable	12	75
	unsafe	4	25

Additionally, the majority (12 or 75% of respondents) get their water via manual pump wells. While open wells (2 or 12.5 percent) and electricity are used by the other respondents (2 or 12.5 percent). Additionally, as indicated in Table 7, nearly all of the respondents—15, or 93.75 percent—said their water supply was adequate. Only one person, or 6.25 percent, revealed that their water supply was inadequate. Twelve out of sixteen respondents, or 86.7 percent, reported that they had access to potable water supplies, while four respondents, or 25%, said that the water quality they were using in their homes was unsafe.

Table 8. Main Source of Income and Area Cultivated.

Profile Variables	Categories	Frequency (N=16)	Percentage
Main Source of Income	Crop Production	6	37.5
	Combination of Crop and Animal Production	2	12.5
	Animal Production	4	25
	Others	4	25
Area Cultivated in hectares	0-1 ha.	6	37.5
	1-2 ha.	4	25
	None	6	37.5

Table 8 displays the respondents' primary source of income. The majority of respondents (6 or 37.5%) depend primarily on crop production for their income, as opposed to those who rely on animal production (4 or 25%), other sources of income (4 or 25%), and a combination of crop and animal production (2 or 12.5 percent). In terms of area cultivated in hectares, six or 37.5% claimed that they cultivate 0-1 hectare, also, six or 37.5% claimed that they do not have land area to cultivate, and followed by 4 or 25% claiming they cultivate 1-2 hectares.

Table 9. Reasons of interests and discouragement in Cacao Production.

Questions	Reasons	Frequency (N=16)	Percentage
Reasons why you are interested in Cacao production?	It provides additional food.	2	12.5
	It provides additional income.	10	62.5
	It provides shade to the farm.	4	25
Reasons why you are discouraged to engage Cacao production?	No available cacao seedlings	1	6.25
	Not enough space	6	37.5
	Longer time to wait before harvesting	2	12.5
	Higher possibility to bankruptcy	1	6.25
	No reasons	6	37.5

Cacao is considered by the majority of respondents in Ignacio B. Jurado as a potential economic enterprise as shown in Table 9 representing the perspective of the respondents on cacao production, specifically on their interests and discouragement in producing cacao as their livelihood. The majority of the respondents reported that cacao production gives them additional source of income (10 or 62.5%),

followed by the respondents who reported that it provides shade to the farm (4 or 25%), and those who reported that cacao production gives them additional food (2 or 12.5%).

For the reasons on why the participants are discouraged to engage cacao production, six or 37.5% of them stated that there is no reason to be discouraged in producing cacao as livelihood, also, six or 37.5% stated that there is no enough space, followed by longer time to wait before harvesting (2 or 12.5%), no available cacao seedlings (1 or 6.25%), and higher possibility for bankruptcy (1 or 6.25%).

Problems Encountered in Cacao Production

The issues that the research participants faced provide the foundation for enhancing and improving cacao production. Generally speaking, the respondents cited *high cost for production* and *scarcity of labor* as the two biggest obstacles to cacao production.

It was claimed that the high cost of cacao seeds presented difficulties during the early stages of manufacture. According to the participants, fertilizer and insecticides are also quite expensive in addition to the high cost of seeds. The respondents said that because there is a labor shortage, they are overworked owing to their tiny group and lack the workforce for more efficient cocoa manufacturing. Due to the younger generation's lack of interest in working in agriculture, most of the respondents are middle-aged adults or older.

Discussion

Poverty reduction was prioritized heavily in both the post-2015 development agenda for the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs). And the latter was supplemented by inequality (Wan & Wang, 2019). Poverty is a global socioeconomic issue because people and families lack access to fundamental necessities (Cudia, 2019). For the people of the Philippines, poverty is still a problem (Skoufias *et al.*, 2019; Tingzon *et al.*, 2019). Despite its best efforts, the Philippines continues to lag behind its Southeast Asian neighbors in the fight against poverty, with about 22

million Filipinos living below the national poverty threshold (Philippine Statistics Authority, 2018). Additionally, for the past 50 years or so, the Philippines' economic development and growth have seen a boom and bust cycle (Asian Development Bank, 2007). As a result, several Philippine administrations have failed in their attempts to decrease poverty (Agbola *et al.*, 2017; Albert & Martinez, 2015).

Along with poverty, undernutrition is a problem for Filipinos. Despite the fact that there are over a billion overweight adults worldwide, the global and national food and nutrition situation reveals that over 900 million people are undernourished (FAO *et al.*, 2017). Malnutrition was a widespread issue that affected countries in the Asia Pacific, including the Philippines (Pasion, 2019; Ulep, 2021). In the Philippines, undernutrition and overnutrition coexist, which is an indication of nutritional difficulties (DOST-FNRI, 2015). According to reports, a number of interrelated problems, such as those affecting people's physical, mental, social, and economic health, are to blame for malnutrition in the Philippines. People's nutritional status is impacted by the availability of food, how it is distributed, and how it is eaten by the general population (Capanzana & Aguila, 2020).

The ecology is deteriorating significantly in the Philippines as well. Because of the numerous documented detrimental effects, including soil erosion, landslides, flooding, biodiversity loss, and watershed degradation, the country's ongoing deforestation has been a serious worry. When one takes into account the crucial role that forests play in the storage of atmospheric carbon dioxide, the maintenance of current biodiversity, and the resilience of ecosystems to climate change, the implications are more severe (Perez *et al.*, 2020).

As a result of this project, the initiative led to the successful implementation of the School Plus Home (S+H) Cacao Learning Sites at IBJ Elementary School as a demonstration and processing area of livelihood, health, literacy, and climate adaptation. Research is in favor of this initiative since more than 40 million people depend on the production of cacao for their

livelihoods and it is cultivated by about 6 million farmers globally (Beg *et al.*, 2017). Additionally, cacao provides health advantages since cocoa beans have a wealth of nutrients, with carbs accounting for 31% of them and protein, fat, fiber, and minerals making up the remaining 11%.

Consequently, cacao is regarded as a superfood. Furthermore, cacao is a fantastic source of bioactive compounds. The primary bioactive components are polyphenols, which are composed of flavonoids and various non-flavonoids. The strong antioxidant and anti-inflammatory activity levels of the bioactive components are associated with several health benefits (Shahanas *et al.*, 2019).

Cacao is considered by the majority of respondents in Ignacio B. Jurado as a potential economic enterprise as shown by the results representing their perspective on cacao production, specifically on their interests and discouragement in producing cacao as their livelihood. The majority of the respondents reported that cacao production gives them additional source of income (10 or 62.5%) and for the discouragement part, six or 37.5% stated that there is no enough space. This outcome is supported by Tuates *et al.*'s (2020) research, which looked at the establishment of village-style cacao by-product processing businesses in significant cacao-producing regions. The research revealed that the production of cacao products generates extra income ranging from Php8 to Php 12/kg of wet beans.

Conclusion

School + Home Cacao Learning Sites as Demonstration and Processing Areas Livelihood, Health, Literacy and Climate Resiliency is a project to teach school and community to produce cacao that may serve as a source of income of the community in partnership with the Cagayan State University-Lasam Campus. Cacao is not only for monetary benefits but also, it is helpful for the environment and for the health of the consumers. This project being launched by CSU-Lasam campus will serve as a starting point for the progress not only for the Campus but for everyone.

Recommendations

School + Home Cacao Learning Sites as Demonstration and Processing Areas for Livelihood, Health, Literacy and Climate Resiliency at IBJ Elementary School was a promising project. Awareness and stronger support of the community and LGU on the objectives, goals, and outputs of this project should be intensified. To sum it up, cacao production must be appreciated because so long as everyone will help each other, this may be helpful for us to have enough income and of course to save our environment.

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