UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

IMPACT ASSESSMENT REPORT

PLANT TO LEARN

Establishment of Vegetable, Herbs, Spices and Medicinal Plants; and Forage Garden at Nangaan High School

EXECUTIVE SUMMARY

In February 2014, the Department of Education (DepEd) released the implementing guidelines of the integration of “gulayan sa paaralan”, solid waste management and tree planting under DO 5, S. 2014. One of the sub-programs of the National Greening Program (NGP) of the Department of Education (DepEd) is **Gulayan sa Paaralan** that aims to promote the production of food that is rich in vitamin A, iron, protein, and carbohydrates as major components in school feeding. This includes vegetable gardens, vegetable and tree nurseries, tree planting, propagation of medicinal plants, composting, school landscape aesthetic vegetable development, crop museum, and related livelihood activities.

Nangaan High School, as the beneficiary of this extension project, is situated in the western part of Kabacan, Cotabato, offering grades 7-10. This school was also a recipient of an extension project in 2019, the Establishment of Arboretum, in which indigenous fruit trees were planted within the vicinity of the school area. Currently, planted fruit trees already start bearing fruit that support the National Greening Program of the country.

College of Agriculture, in partnership with Graduate school programs- MS Agronomy Program, decided to extend necessary

services to the school and extend capacity building measures and networking assistance to help develop the area for Gulayan sa Palayan with an addition of the establishment of forage germplasm garden and eventually becoming a learning site of the school. This was in response to their Focus Group Discussion at the College of Agriculture. During the FGD, possible challenges were discussed as well as the counterparts of the school.

The establishment of gardens in schools provides good and adequate learning for the students, practicing the approach of learning by doing. These are highly practical ways of direct education where children can observe and actually see the results of their decisions and actions. In addition, technical learning of growing their own food not only improves health but can also provide a livelihood and increase self-sufficiency. Growing gardens, particularly on vegetable crops, medicinal plants, herbs and spices, and forages, and increasing green space in the school. This improves diversity and is a great way of reducing harmful gas emissions, which can generally improve the health of the environment. Through this extension project, components serve as living laboratories for the students in which they can actually see and experience firsthand what they are learning and, in turn, apply the knowledge to real-world situations,

particularly in their community. As the students become more engaged with the hands-on gardening lessons, they show positive attitudes towards content material and learning in general.

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

PART I

NARRATIVE REPORT

This section outlines the background, methods of implementation, and actual accomplishments and outputs of Plant to Learn extension project.

INTRODUCTION

The National Greening Program (NGP) was declared a government priority under Executive Order (EO) No. 26, series of 2011, signed by the former President, Benigno S. Aquino III in February 2011. This flagship program of the government has five (5) major goals anchored to the Sustainable Development Goals (SDG) of the United Nations, including food security, poverty reduction, biodiversity, conservation, and climate change mitigation and adaptation. NGP supports agroforestry because of its potential to reduce soil erosion, runoff, mitigate climate change, and sequester carbon. It also provides Filipinos with an alternative source of income through profitable upland enterprises that make use of forest resources.

In support of this program, the Department of Education (DepEd) is implementing guidelines of the integration of “gulayan sa paaralan”, solid waste management, and tree planting under DO 5, S. 2014 aims to promote the production of garden food in schools. Schools in the Philippines need vegetable gardens to combat malnutrition and improve students' diets by directly providing nutritious fruits and vegetables, fostering nutrition education through hands-on learning about food production and consumption, and encouraging sustainable agricultural practices. These initiatives also reduce household food expenses, create potential income sources for families, and cultivate important life skills for children, contributing to overall community well-being.

Thus, the “Plant to Learn” project was born from the collaborative efforts of the College of Agriculture Faculty, Graduate School-MS Agronomy program, and SOXXAARDEC. The project involves the provision of holistic care in the form of capacity building, livelihood and entrepreneurship education, as well as primary health services specifically to the students and teachers of Nangaan High School.

This, however, does not exclude other sectors that may be deemed to require similar assistance. To this end, Plant to Learn aims to provide Nangaan High School in Nangaan, Kabacan, Cotabato, with an opportunity to develop holistically in terms of Education. Specifically, aims to (a) provide basic learning in landscape Gardening, (b) provide applicable skills in crop/forage and livelihood programs, and (c) improve the respondents’ skills in growing vegetables and plant propagation.

METHODOLOGY

Pre-implementation (Social Preparation)

Together with URDEC, project leaders and component leaders met last January 2022 for the inception meeting. Initial talk with the head teacher of Nangaan High School was conducted including the site visit for environmental scanning.

Figure 1. Site visit and environmental scanning validation evaluated by MS Agronomy Faculty, Dr. Monaira Sumael.

Figure 2. Existing fruit seedlings (indigenous fruit trees) from the arboretum project.

After which, an immediate request and preparation of Special Order, PPMP and purchase request needed for the project were initiated.

Figure 3. Coordination with meeting with Brgy. Kagawad and Nangaan High School Principal.

Implementation (Community Development)

Distribution and planting of fruit seedlings (asexually propagated calamansi, pomelo, setaria and durian seedlings) conducted last January 2022.

Figure 4. Distribution of pasture grasses and legume seedlings as sources of feeds for animals for the establishment of vegetable, herbs and spice, and forage gardens.

Pre-Implementation of the Partnership Program between Nangaan High School Kalilintad Nangaan HS and the University of Southern Mindanao College of Agriculture and MS Agronomy Extension Program. Theme: "Growing Bangsamoro Futures: Resilience and Learning through the Gulayan sa Paaralan Program"

Figure 5. Distribution of fruit seedlings facilitated by school principals, teachers, and students of Nangaan High School.

Figure 6. Teaching the students and teachers of Nangaan High School on the proper planting of fruit seedlings in their garden areas.

Upon completion of the pre-implementation activities, site visits and monitoring were conducted to ensure that all planting materials would be recovered and could become a source of new propagules or planting materials to produce fruit seedlings.

The capacity-building component involved the proper Identification of different indigenous herbs, Spices, and medicinal plants, as well as the Various Medicinal Uses of Known Plants around us. It also included bio-intensive approach gardening, Methods of plant propagation, edible landscaping, and Training on Basic Forage Crop Production and Management.

Dr. Sumael on her learning topic skills (Identification of Herbs, Medicianl Plants and Spices)

These training sessions are composed of knowledge learning and demo skills activities. These sessions were facilitated by the project management team from Department of Crop Science, College of Agriculture, University of Southern Mindanao in partnership with the Graduate School- MS Agronomy Program.

The training was actively facilitated MS Agronomy students, who assisted Dr. Muttulani and Dr. Sumael in the hands-on sessions on various plant propagation methods and planting/ designing a vegetable garden. Participants expressed interest and excitement in the lectures and the hands-on activities. They gained essential skills in vegetable growing, different methods of plant propagation, proper selection and preparation of forage stem cuttings, and nursery establishment.

Dr. Muttulani on his learning topic skills (Asexual Propagation and Vegetable Production)

Figure 7. Graduate School crop science students performing actual demo skills on the asexual propagation technique of fruit seedlings to Nangaan National High School students.

Figure 8. Graduate School crop science students shared their learnings on asexual propagation using artificial propagation techniques.

Figure 9. MS Agronomy Students facilitated the planting and establishment of vegetables together with MS Agronomy faculty, nangaan highschool teachers, and students.

Figure 10. MS Agronomy students facilitated the planting of vegetable seedlings and ornamental herbs, and spices as part of an edible landscape.

Training Activities: Capacity building (Seminar and Workshop) conducted at Nangaan High School.

Topics : Learning Skills	**Resource Speakers**
○ Identification of Different Indigenous Herbs, Spices and Medicinal Plants ○ Different Medicinal Uses of Known Plant Around us	Dr. Monaira Sumael Subject Professor in MS Agronomy
○ Training on Basic Forage Crop Production and Management	Dr. Mary Ann B. Rama Subject Professor in PhD in Agricultural Sciences

	(Animal Science)
○ Bio Intensive Approach Gardening and Sustainable Vegetable Crop Production ○ Methods of Plant Propagation ○ Establishment of Edible Landscaping	Dr. Mark Al-jamie J. Muttulani Subject Professor in MS Horticulture
Actual Demo Skills	**Facilitators**
○ Asexual Plant Propagation: Air Layering, Scion Grafting Techniques ○ Establishment of Vegetable Garden	PhD Agricultural Sciences major in Crop Science Students, MS Horticulture Students and MS Agronomy Students

Pre-implementation (Community Management)

The College of Agriculture Department of Crop Science conducted the monitoring and evaluation of the project together with the partners from DepEd-Nangaan High School, MLGU's and other identified partners. The activity includes personal interviews and field surveys to capture a more holistic evaluation of the project conducted, the gaps, lessons learned, and best practices. The evaluation report will serve as a learning document on the strategies needed to be improved and/or to be maintained in line with the direction target of crop science-agriculture

program team under ESO-USM in collaboration with both public and private agencies and stakeholders.

Plant to Learn Project, after its implementation, ensures the continuous care, monitoring, and utilization of the plants as educational and community resources.

Community Management Goals

Maintain healthy plants for long-term use in academic subjects. This also fosters student and community involvement in sustainable gardening. In addition, it also promotes environmental awareness and responsible stewardship among students. Utilize the garden as a tool for experiential learning and community engagement.

(a)

(b)

Figure 11. Fruit trees planted in nangaan high school garden before (a) during the arboretum project and after (b).

Figure 12. Establishment of the vegetable gardens in Nangaan High School planted with leafy, fruit vegetables, legumes and tuberous crops)

Roles and Responsibilities

Role Responsibility

- **Project Coordinator/ Teacher-in-Charge**-Oversees the program, ensures continuity, and schedules activities.
- **Student Garden Committee/ Student Group Activity**- Watering, weeding, composting, and general upkeep.
- **Science Departmen**t **Teachers**- Integrates garden use into curriculum and lessons.
- **Parent-Teacher Association (PTA)**- Provides support for supplies and maintenance of the garden area.
- **Local Community Volunteers**- Assist in garden maintenance and educational sessions.

Sustainability Plan

- **Watering Schedule:** Daily during summer and every other day during rainy season.
- **Composting System:** Use biodegradable school waste for organic fertilizer.
- **Seed Bank:** Maintain a seed collection for replanting and future expansion.
- **Rotational Care:** Assign student groups weekly for garden care.
- **Budget Source:** School fund allocation, donations from community, and fundraising events.

Monitoring and Evaluation

- **Monthly Plant Health Check**: Conducted by the Science Club.
- **Annual Impact Assessment:** Evaluate learning outcomes and community participation.

Community Engagement Activities

- **Gardening Workshops**: For students and parents.

Expected Outcomes

- A thriving school garden that serves as a learning hub.
- Increased environmental literacy among students.
- Stronger school-community partnerships.
- Reduction of biodegradable waste through composting.

Methodological Framework

In summary, the methodological framework for the Plan to Learn Extension Project consists of three phases: Pre-Implementation (Planning: Site Assessment, Soil Analysis, Lay-out Design, Training and orientation), Implementation (Planting and Cultivation), and Post-Implementation (Evaluation of Sustainability and Evaluation & Sustainability).

METHODOLOGICAL FRAMEWORK

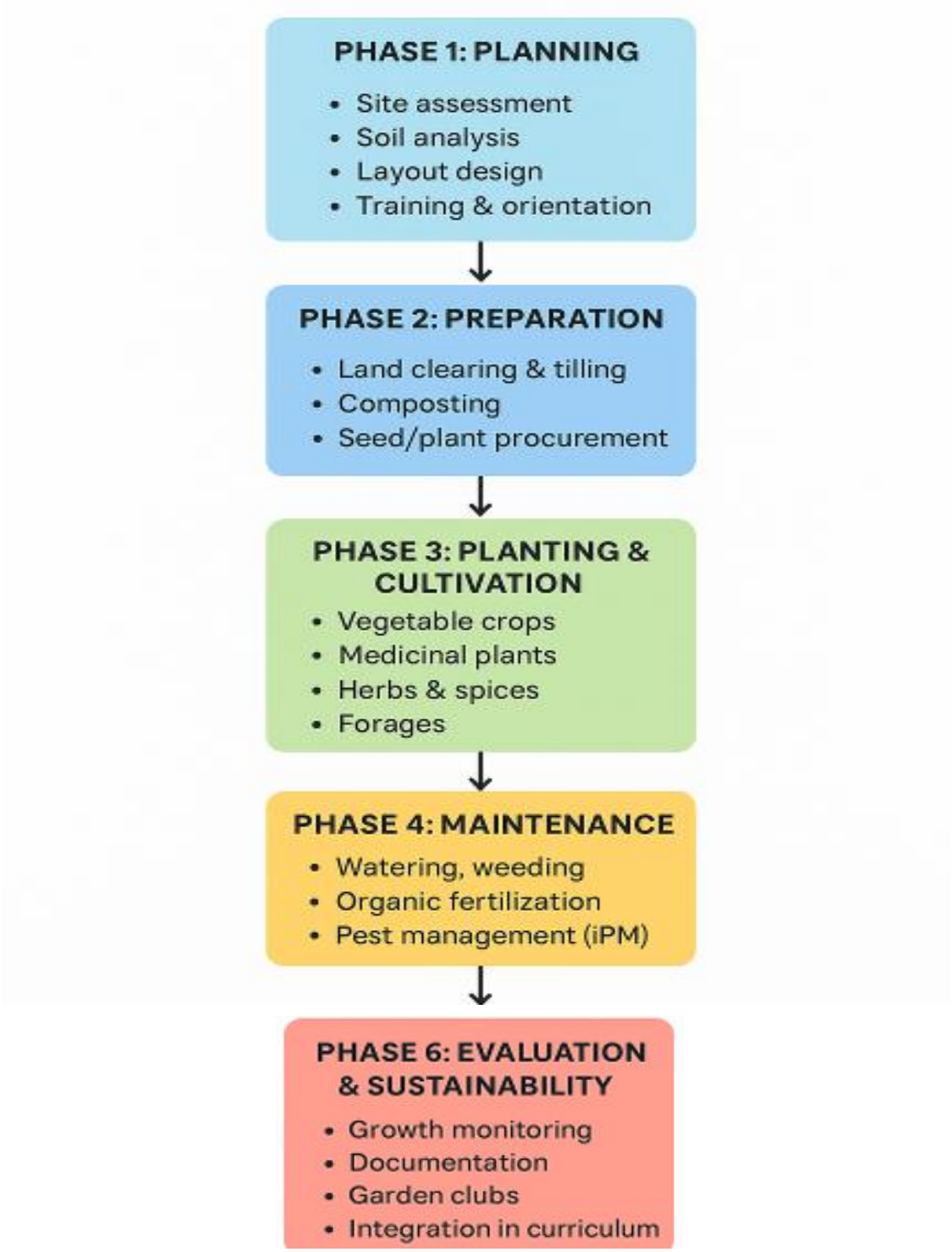


Figure 13. Methodological Framework (Planning, Preparation, Planting & Cultivation, Maintenance, Evaluation & Sustainability)

ACCOMPLISHMENT REPORT

The Plant to Learn Project was launched to promote sustainable agriculture, environmental stewardship, and food security in Nangaan High School. It aimed to integrate practical agricultural skills into the learning environment while enhancing green spaces within the school. Through collaborative efforts among MLGUs, school administrators, teachers, and community stakeholders, the project successfully established functional vegetable gardens, medicinal plant areas, and forage plots to support both academic and community development goals.

MAJOR ACTIVITIES AND OUTPUTS

1. Planning and Coordination Meetings

Figure 14. Conducted coordination meetings with MLGU officials, barangay representatives, and school staff to finalize the scope of the project. Developed a comprehensive project plan including budget allocation, schedule of activities, and resource-sharing mechanisms.

2. Capacity Building and Training

Figure 15. Organized technical training sessions for teachers and students on sustainable gardening practices, organic farming, and plant propagation techniques.

3. Establishment of Planting Areas

Figure 16. Designated 800 square meters of school grounds for vegetable and medicinal plant production. Constructed 10 raised garden beds for easy maintenance and better crop yield.

IV. ACCOMPLISHMENTS AND IMPACT

The Plant to Learn Project has significantly contributed to greening the school environment, enhancing agricultural knowledge among students, and promoting food sustainability. The strong partnership between Nangaan High School, the MLGUs, and the community ensured the project's success and sustainability.

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

PART II

IMPACT ASSESSMENT REPORT

This section provides information on the impact of the Plant to Learn Extension project. The impacts assessed are economic, social, and nutritional impacts while capturing beneficiaries' experiences and recommendations.

Impact Pathway of Plant to Learn Project using the Theory of Change (ToC) Framework

The **Long-Term Impact goal** of this project is to create a sustainable and eco-friendly school and community environment that promotes food security, environmental stewardship, and quality education by integrating plant-based learning into the school curriculum and community engagement activities.

It is Aligned with the following SDGs: SDG 2: Zero Hunger, SDG 4: Quality Education, SDG 12: Responsible Consumption and Production, SDG 13: Climate Action, and SDG 15: Life on Land. Students and community members of Nangaan will have improved knowledge, skills, and attitudes toward sustainable agriculture, healthy diets, and biodiversity conservation, leading to better food availability, environmental sustainability, and socio-economic resilience.

As an **Outcome (Medium-Term Changes)**, students and teachers develop competencies in sustainable gardening, medicinal plant cultivation, and green practices. With an indicator of 80% students demonstrate knowledge of sustainable gardening practices in practical assessments. The school grounds transformed into productive green spaces, serving as a living laboratory and food source.

At least 800 sq.m. of green space with vegetables, herbs, medicinal plants, and forages will be established. Community awareness and participation increase in home gardening and ecological practices

For the **Outputs (Short-Term Results) (a) Training sessions** conducted on organic gardening, composting, and plant-based health remedies for teachers and students. **(b) School garden established** with vegetables, herbs, medicinal plants, and forages.

(c) Educational materials (modules, posters, videos) produced and integrated into classroom instruction.**(d) Community engagement events** held (e.g., gardening contests, tree planting, food security seminars).

For the activities (a) Conduct **capacity-building workshops** for teachers and students on sustainable agriculture. **(b)** Develop **learning modules** that integrate gardening with science, health, and environmental subjects. **(c)** Establish **model school gardens and plant nurseries** for vegetables, herbs, spices, and forages. **(d)** Organize **community involvement programs** in partnership with MLGUs, parents, and local farmers. **(e)** Monitor and evaluate project progress through baseline and endline surveys.

Inputs:

- **Human Resources:** Teachers, students, local agriculture experts, LGU staff.
- **Materials:** Seeds, seedlings, organic fertilizers, gardening tools, learning resources.
- **Financial Support:** School funds, LGU subsidies, and potential sponsorship from NGOs or CSR programs.
- **Institutional Support:** Policies from the Department of Education, barangay support, and parent-teacher associations.

Theory of Change Flow

Inputs → Activities → Outputs → Outcomes → Impact

If resources and technical support are provided and school gardens are established, *then* students and teachers will engage in hands-on learning, *which leads to* improved knowledge and practices on sustainable agriculture, *resulting in* increased food security, green spaces, and environmental responsibility in the community

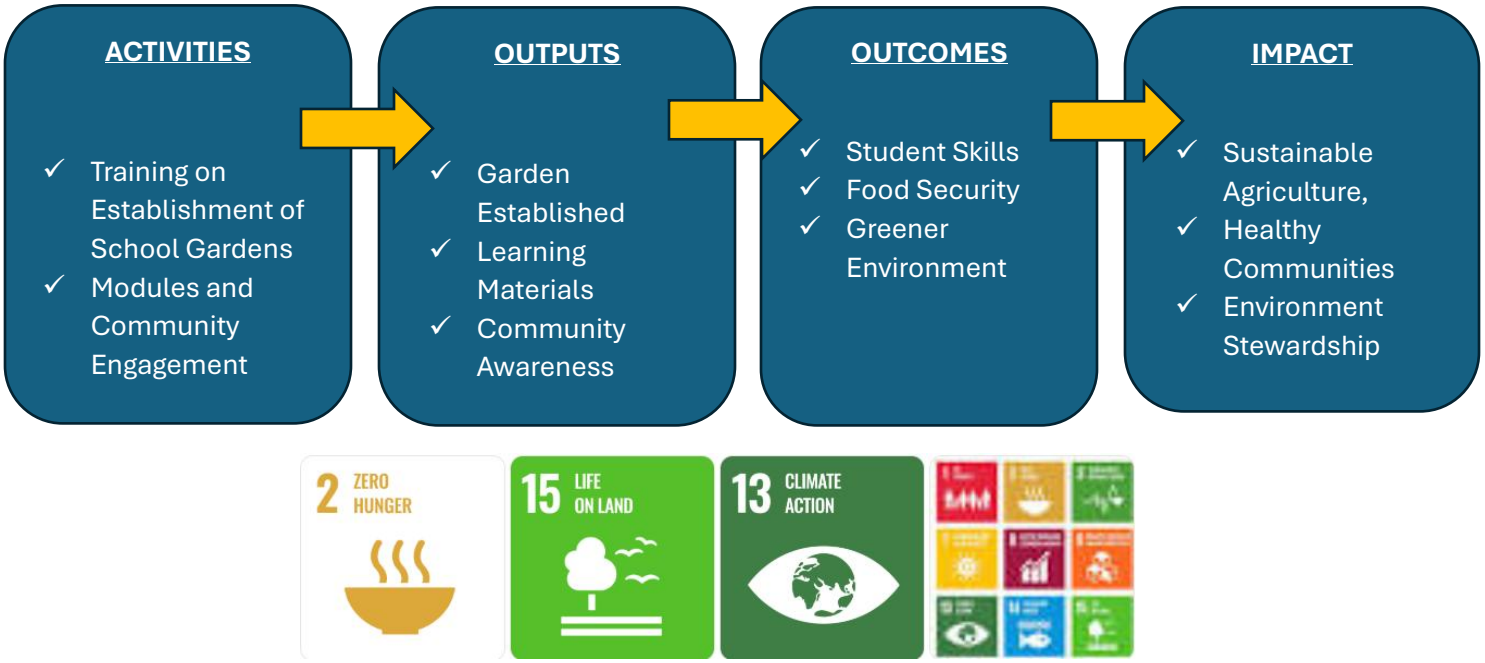
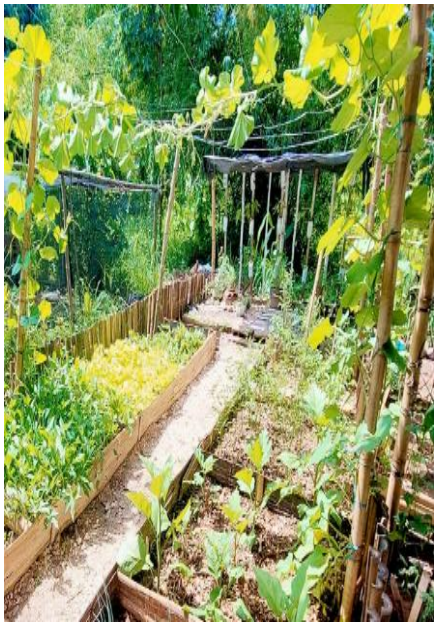


Figure 17. Impact Pathway of Plant to Learn Extension Project using the Theory of Change (ToC) Framework.

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

FOOD SECURITY AND NUTRITION

A holistic approach to education that combines classroom learning with practical gardening to foster food security and healthy lifestyles.



Key Results of the Plant to Learn Project

Establishment of Productive Gardens

Successfully developed and maintained school-based gardens that include a wide variety of vegetables, herbs, and spices within the campus.

Figure 17. Establishment of edible landscape vegetable garden as sources of vegetable crops.

Created designated green spaces that promote sustainable agriculture practices and environmental stewardship among students.

Implemented eco-friendly and organic methods such as composting, mulching, and natural pest control (planting of insect repellent crops), ensuring that the gardens serve as a model for sustainable farming practices in the community.

Figure 18. Establishment of eco-friendly vegetable organic gardens (companion cropping system planted with insect repellent crops)

Active Student Engagement and Hands-On Learning

Involved 200 students from different grade levels in practical training sessions and hands-on activities, enabling them to apply classroom knowledge to real-life gardening scenarios.

Students actively participated in soil preparation, planting, watering, weeding, and harvesting, enhancing their sense of responsibility and teamwork.

Encouraged innovation by letting students experiment with intercropping, companion planting, and organic fertilizers to improve yield and soil health.

Figure 19. Establishment of vegetable garden areas, designed with vegetable intercropping and companion planting systems to improve the yield of vegetable crops.

Capacity Building through Training and Workshops

Conducted comprehensive training sessions on vegetable, herb, and spice production, which provided students with technical skills and agricultural knowledge. Topics covered include seed selection and propagation, soil management, pest and disease control, organic farming techniques, and post-harvest handling.

Provided students with insights on the nutritional and economic benefits of cultivating vegetables and herbs, fostering awareness of food security and healthy eating habits.

Figure 20. Capacity building training activities “Plant to Learn Extension Project”.

Knowledge Transfer and Community Impact

Students shared what they learned with their families and communities, promoting home gardening and sustainable food production practices. The project contributed to increased awareness of food security among students, parents, and teachers, emphasizing the role of local food production in addressing hunger and malnutrition.

Some students initiated their own mini gardens at home, applying the techniques they had learned during training.

Figure 21. Students initiated their own mini garden at home, applying techniques learned from the training.

Sustainability and Continuity

Established a maintenance plan for the gardens, ensuring their sustainability through student-led committees and teacher supervision. Generated seed banks and composting systems to support continuous planting and reduce dependence on external inputs.

Improved Student Awareness and Behavior

200 students gained essential knowledge on crop production and sustainable gardening, leading to improved awareness of environmental care and healthy food choices. Students demonstrated a positive attitude towards agriculture, recognizing its role in ensuring food security, livelihood opportunities, and ecological sustainability.

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

ECONOMIC IMPACT

The economic impact of the Plant to Learn Extension Project is a critical measure of its overall success, as it reflects how the project contributes to financial sustainability, cost savings, and income generation for both the school and the participating students' households.

The Plant to Learn Project provided significant economic value to both the school and the participating students. By establishing vegetable, herbs, and spices gardens, the project not only supplied nutritious food but also created opportunities for cost savings, income generation, and entrepreneurial skills development. After comprehensive training, 200 students gained essential knowledge and practical insights on sustainable gardening, enabling them to cultivate crops both in school and at home. This knowledge allows families to reduce household food expenses, increase dietary diversity, and even create small income streams by selling surplus produce.

The project fostered economic resilience by introducing students to agribusiness concepts such as cost-benefit analysis, value addition, and marketing strategies for herbs and spices. Furthermore, the initiative contributed to food security, reducing dependency on market-purchased vegetables and spices, which are often affected by price fluctuations.

KRA	Description	Performance Indicators
1. Garden Establishment	Set up and maintain a productive vegetable, herbs, and spices garden within the school campus.	- 100% completion of garden plots - Irrigation system installed - Organic farming

KRA	Description	Performance Indicators
		practices implemented
2. Student Knowledge and Skills	Train **200 students** on sustainable crop production techniques.	- 200 students completed training - 70% improvement in post-training assessment scores
3. Student Participation	Engage students in practical gardening activities for experiential learning.	- 90% participation in planting and maintenance - Formation of student garden committees
4. Production and Utilization	Harvest and use garden produce for school and community benefit.	- At least 100 kg of produce harvested - Integration into feeding program or sale
5. Sustainability and Innovation	Ensure long-term continuity and economic value through resource generation and innovation.	- Creation of a seed bank and compost system - At least 20% of students establish home gardens
6. Community Impact	Extend benefits and awareness of food security beyond the school.	- 200 households reached through student knowledge sharing

KRA	Description	Performance Indicators
		- Community showcase events conducted

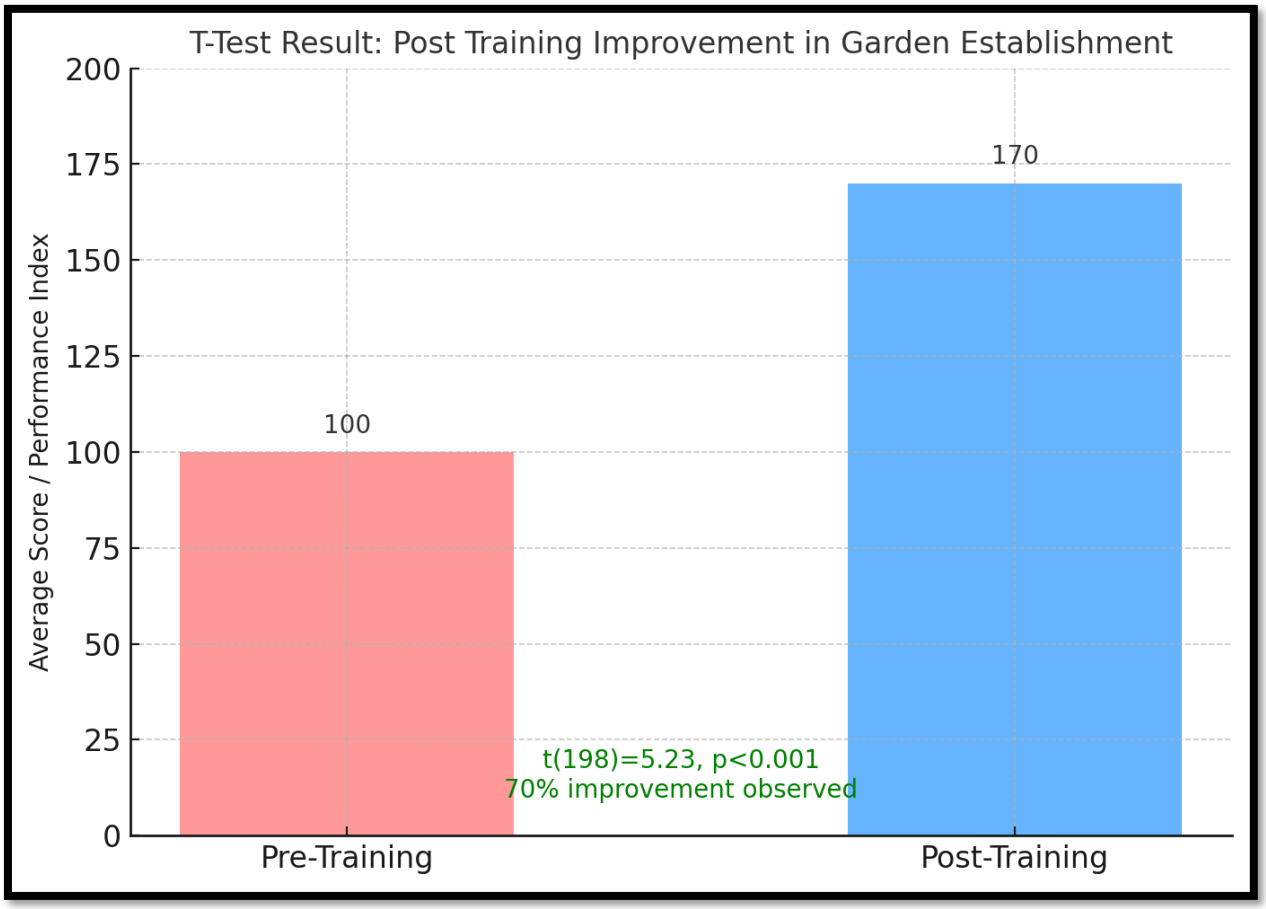


Figure 22. T-Test Result: Post Training Improvement (70% improvement observed) in Garden Establishment at Nangaan High School.

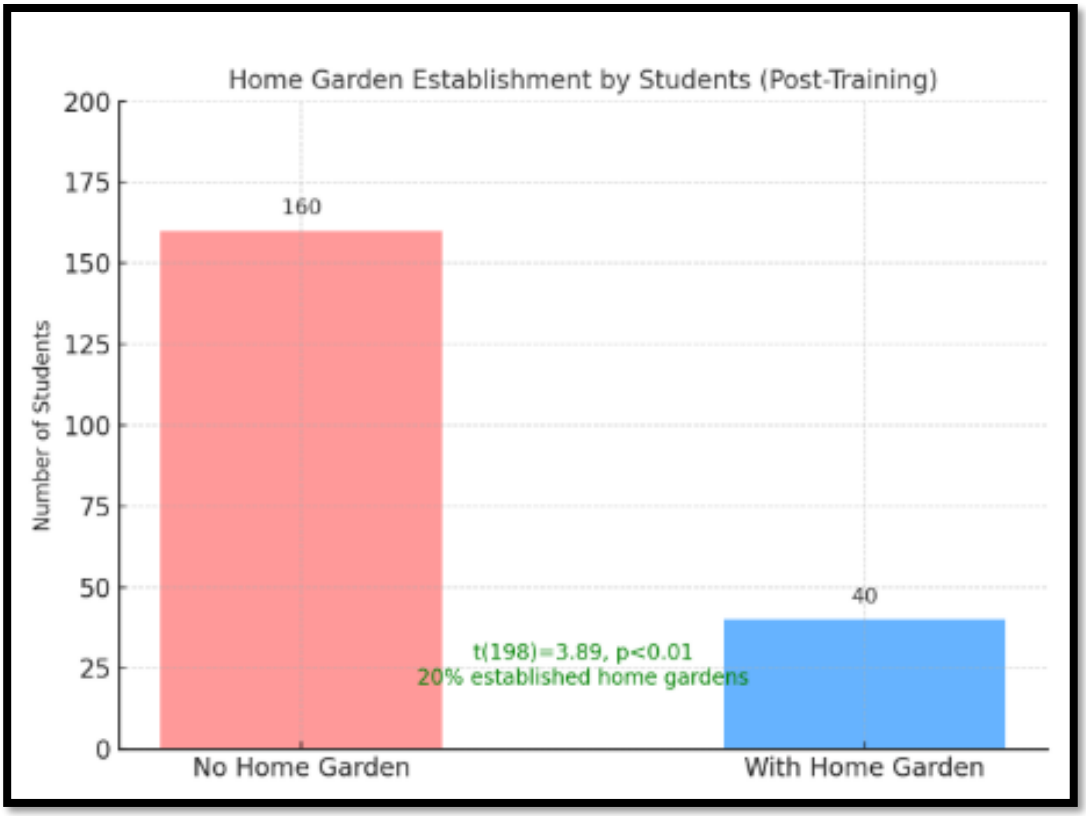


Figure 23. Figure showing that 20% of the 200 students (40 students) established home vegetable gardens and medicinal herb/spice gardens after the training, using a simple t-test.

Economic Impact

- Promotes Food Security: Families rely less on market-purchased goods.
- Generates Additional Income: Creates micro-enterprise opportunities for students.
- Reduces Financial Burden: Especially vital for low-income households.
- Ensures Project Sustainability: Revenue from sales supports long-term continuity.

- Empowers Students: Builds entrepreneurship and agribusiness skills for future careers.

Key Economic Benefits

- Cost Savings: Families reduce expenses on vegetables, herbs, and spices.
- Income Opportunities: Students and households can sell surplus produce.
- Value of Training: Skills gained are equivalent to the cost of formal agricultural workshops.
- Potential Micro-Enterprises: High-demand herbs and spices can become profitable ventures.
- School Sustainability: Produce can support feeding programs or generate funds for future projects.

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

SOCIAL AND PSYCHOLOGICAL IMPACT

The Plant to Learn Project is not only an agricultural initiative but also a social and psychological development program that shapes students' values, attitudes, and mental well-being. These impacts are essential because education today goes beyond academics—it must nurture emotional resilience, interpersonal skills, and social responsibility

Importance of the social and psychological impacts of the Plant to Learn Project, highlighting why these aspects matter and their benefits.

Fosters Teamwork and Social Responsibility

Gardening activities encourage collaboration, where students work together to plan, plant, and maintain the garden. Promotes a sense of shared responsibility, as every student contributes to the success of the project.

It also builds leadership and communication skills, preparing students for real-world interactions. Students develop strong interpersonal relationships and community spirit, essential for both academic and life success.

Strengthens Connection with Nature and Community

Hands-on gardening connects students to the environment and teaches the value of sustainable living. It encourages community engagement, as students share knowledge with families and neighbors. In addition, it creates a sense of belonging and pride, especially when their efforts visibly improve the school's green spaces. For the benefit, it builds environmental stewardship and active citizenship, influencing both personal and societal well-being.

Reduces Stress and Improves Mental Health

Gardening is a therapeutic activity, proven to reduce stress, anxiety, and symptoms of depression. Physical interaction with soil and plants stimulates dopamine and serotonin, chemicals linked to happiness and relaxation. It also provides a healthy alternative to excessive screen time, promoting mindfulness and focus. Moreover, it enhances emotional resilience, boosts self-esteem, and creates a calm, positive learning environment.

Increases Self-Confidence and Motivation

Watching seeds grow into thriving plants gives students a sense of achievement and purpose. Success in producing food builds confidence in their capabilities, encouraging them to take on challenges. Moreover, students feel empowered knowing they can contribute to food security and sustainability. Its benefits strengthen intrinsic motivation and personal growth, which positively affect academic performance.

Promotes Inclusivity and Empathy

The project involves students of all backgrounds, fostering inclusivity and equality in participation. Students learn to help and support each other, especially those with less gardening experience. Caring for living plants nurtures empathy and compassion, values that extend to human relationships. Potential benefit builds a caring, inclusive school culture that benefits both the individual and the community.

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

KNOWLEDGE TRANSFER AND SUSTAINABILITY

The Plant to Learn Project ensures that the gardening knowledge and practical skills gained by trained students extend beyond the school environment to their homes and the wider community. By applying what they have learned in vegetable, herbs, and spices production, students become agents of change for food security and sustainable agriculture

The **Plant to Learn Project** ensures that the knowledge and skills gained by students extend beyond the classroom and benefit their families and communities.

Strategies for Knowledge Transfer:

Peer-to-Peer Sharing: Students demonstrate gardening techniques to classmates during science and TLE classes.

Family Engagement: Each student applies skills by establishing **mini home gardens**, reducing household food costs.

Community Training Sessions: Organize **demonstrations and school open-house days** where students share best practices with parents and community members.

Documentation and Learning Materials: Develop **gardening guides, posters, and digital content** for distribution.

Mentorship Program: Advanced students mentor younger students to sustain the learning cycle.

Expected Outcomes:

At least **200 households benefit** from improved gardening practices.

Increased adoption of sustainable home gardening in the local community.

Creation of a **network of student advocates** promoting food security.

Sustainability Plan

The **Plant to Learn Project** incorporates mechanisms to ensure **long-term success and continuity** even after the initial implementation phase:

1. Resource Sustainability

- Establish a **seed bank** from harvested crops to ensure continuous planting.
- Create a **composting system** using organic waste to reduce fertilizer costs.
- Use **rainwater collection systems** to maintain irrigation during dry seasons.

2. Organizational Sustainability

- Form **Student Garden Committees** under the supervision of teachers to oversee garden care.
- Integrate gardening activities into **school curricula** (Science, TLE, Agri-based subjects).
- Secure **support from LGUs, NGOs, and local agri-businesses** for technical and material assistance.

3. Financial Sustainability

- Sell surplus produce to generate income for garden maintenance and expansion.
- Allocate a portion of school funds or partner grants to sustain operations.
- Explore **value-added products** (dried herbs, spice blends) for entrepreneurial activities.

4. Educational Sustainability

- Include gardening as a **recurring practical activity** in school programs.
- Organize **annual training and competitions** to maintain student interest.
- Develop **digital learning modules** to ensure continued knowledge sharing.

Knowledge Transfer and Sustainability Summary Chart

Component	Key Actions	Key Results
Knowledge Transfer	- Training for 200 students on gardening techniques - Peer-to-peer sharing - Family engagement - Community demos and open-house events - Creation of guides and digital materials	- 200 students gained practical knowledge and households benefited - Students conducted community knowledge sharing
Resource Sustainability	- Seed bank establishment - Composting system - Rainwater harvesting	- Continuous supply of seeds and organic fertilizer - Reduced dependency on external resources - Reliable irrigation
Organizational Sustainability	- Student garden committees - Teacher supervision - Integration into	- Garden maintained regularly - Gardening as part of school program

Component	Key Actions	Key Results
	curriculum (Science, TLE, EPP)	- Active student participation sustained
Financial Sustainability	- Sale of surplus produce - Partnerships with LGUs and NGOs - Value-added products (dried herbs, spice mixes)	- Income generated for garden upkeep - Long-term funding support - Entrepreneurial opportunities for students
Educational Sustainability	- Annual training sessions - Student competitions - Digital learning modules	- Continuous skill enhancement - Increased student engagement - Knowledge accessible anytime

UNIVERSITY OF SOUTHERN MINDANAO
Graduate School
Kabacan, Cotabato

CULTIVATING CHANGE:

Stories of Transformation from Plant to Learn Project

INTRODUCTION

The Plant to Learn Extension Project at Nangaan High School stands as a testament to how education, when paired with practical application, can transform lives and communities. Launched to promote sustainable agriculture, food security, and environmental stewardship, the project empowered both students and teachers to actively engage in vegetable, herb, and spice production within the school campus and beyond.

Through comprehensive training and hands-on experience, 200 students gained invaluable knowledge and skills in sustainable gardening, while teachers embraced their role as facilitators and mentors in this transformative journey. What started as a simple gardening initiative evolved into a powerful learning experience that not only enhanced classroom instruction but also instilled in learners a sense of responsibility, teamwork, and self-reliance.

These success stories capture real-life impacts from students who established home gardens that help feed their families to teachers who integrated agricultural principles into daily lessons and inspired learners to pursue agri-entrepreneurship. The narratives highlight personal growth, improved community awareness, and the collective achievement of making education a catalyst for sustainability and resilience.

Story 1. Teacher Bai Dilangalen

"Empowering others through shared knowledge and resources"

Teacher Bai Dilangalen is a school-teacher, as a coordinator of the gulayan sa paaralan, she has the willingness and enthusiast in helping the students to be engaged in agricultural-related activities. Her determination and commitment in serving quality education in her school with the strong partnership between USM Plant to Learn project of Crop Science, Agriculture department obtained a great impact not only for the students but to the community as well.

"Ako po si Teacher Bai Ali Dilangalen, ako po ay dating coordinator sa gulayan sa paaralan, as the TLE teacher, ako ang nag guguide sa aking co-teachers na naghahandle ng TLE dito sa Nangaan High School. Sa ngayon, ako napo ang school head ng paaralan at napagisipan po naming mag reach out specifically kay Dr. Sumael (MS Agronomy program faculty) para kami ay matulungan"

Mam Bai is very thankful for the project since the planting materials were provided for free (fruit seedlings, vegetables, forage crops and medicinal plants, herbs and spices), aside from that, technical trainings were provided to sustain the gulayan sa paaralan which aimed to empower the students of nangaan high school to become more equipped and knowledgeable in sustaining their established gardens.

"dati ang mga seedlings namin sir kuot bulsa po talaga si teacher kasi syempre kung bibili ka sa palengke ng isang sachet nasa 100 pesos at 90 pesos, nahihirapan kami. Since may mga project po si Maam Monaira kasama ang College of Agriculture at Graduate School (MS Agronomy) ng USM, sabi ko mag reach out tayo sa kanila para mas maganda ang kalalabasan ng gulayan natin, dahil minsan narin kami nag champion sa division level ng gulayan that time pero grabe ang po ang gastos . Since

meron naman pong USM na tumutulong sa mga ganitong programa, kaya huminge po talaga kami ng tulong.”

“Napakalaking tulong po talaga itong program ng agricultural science program at napakagrateful namin kasi nabigyan kami ng chance na para mapili ng USM particularly ng Nangaan High School. Nung ako na ang teacher dito, mas nagpursige kaming matulungan ang mga bata, nakatulong talaga ang programa, symepre dahil TLE teacher po kami, hindi pa ganun kumbaga pa kalalim, hindi ganun kalalim ang aming knowledge namin lalo na sa actual na pagtatanim, bilang hindi po kami pure graduate ng Agrikultura, napakalaking tulong sa mga bata na maenhance yung knowledge and skills nila lalo na sa ibat-ibang pananim”.

From her willingness to gain more insights, she also emphasized the importance of training programs conducted aside from distribution of planting materials.

“Sa mga guro o teachers naman na kagaya po namin, nung nakita po namin kayo, nung kayo po ay nag lecture during sa ating training, dun namin natutunan na “aaah ganun pala dapat”, katulad po ng mga herbal plants, na dito lamang pala matatagpuan sa community, yun pala ay natutunan naming may gamit pala yun. Sa community naman, nag extend napo kami ng memorandum of agreement sa barangay at sa committee ng agriculture, kaya huminge kami ng tulong sa inyo para mas maenhance pa ang aming gulayan at para maging kasama narin ang USM. Gusto rin naming maging aware ang community.

May mga magulang at parents nadin ng mga estudyante and nagsabi, na dahil sa awareness, sinabi nila na “Ma’am herbal po pala ito” kasi nung nag lecture si Dr. Sumael, naeextend ng mga bata ang kanilang natutunan at kaalaman after ng training na inyong binigay na may mga potential at kahalagahan pala ito sa kalusugan bilang halamang gamot na makikita lamang sa paligid. So yun, mas na extend yung knowledge ng mga bata at

mga parents na magagamit nila sa kanilang sa pang araw-araw at kanilang daily lives".

Beyond the benefits , teacher Bai remains more enthusiast in helping the students through incorporating the establishments of their garden as part of their extension programs and activities.

Story 2. Mr. Amerudin- Student

"Impactful learning experiences"

Mr. Amerudin, a high student is also grateful to the project most especially to the training programs conducted, the imparted learnings had provided them the skills in the field of agricultural sciences.

"Ako po si Amerudin Dalandang, isang grade 10 students ng Nangaan High School. Nakatulong po talaga yung pag lecture samin, naging aware po kami kung anung mga klaseng halaman at nalaman po namin ang kanilang halaga. At the same time po gaya po sa pagbibigay nyo sa amin ng mga libreng (gulay at fruit seedlings) tanim, hindi napo kami gumagasto sa pagbili ng halaman. Sobrang grateful po namin na napili po kami ng inyong programa (Crop Science extension project). Ang nagiging impact po ng pagtuturo nyo sa amin, lalo na sa aming estudyante po, naging aware kami kung paano ang pamamaraan palaguin ang mga halaman (herb plants and vegetable crops)"

Amerudin is so thakful for the impact of trainings, with the information provided, he was able to capture the important activities that can also help and adopted on their daily lives.

Story 3. Teacher-in-Charge Pacheca

"Beyond grateful for the impact of AgriExtension Program: Promoting sustainable agriculture"

Mr. Pacheca, teacher in charge in Nangaan High School is also a great teacher with strong objectives of attaining a scientific garden established in schools that can be a role model not just in the community but in other neighboring schools as well. He also gives thanks of appreciation to the College of Agriculture and Graduate School for unwavering support and provide a project where Nangaan High School is the recipient.

"I am Wency Pacheca, teacher in charge of Nangaan High School, so one reason bakit ako ng reach out sa USM is the Arboretum under Dr. Sumael, ang purpose nun is for awareness nadin kasi naobserve ko po dito sa Nangaan, halos lahat ng bundok dito ay naputol tapos wala ako nakikita ditong native na mga fruit trees, so ang purpose nun in the first place is para magkaroon ng mga puno dito na mga native para mapreserve din kasi masyadong endemic na sya ba, hindi na sya gaanong nakikita and para in the near future magkaroon ng production o binhi or seedlings ng ganitong mga halaman, at the same time ang main reason talaga ng programa magkaroon narin ng awareness ang community ng importance ng fruit trees especially during that time nagkaroon ng calamity, atleast marealize na dun na, in case of emergency lack of food supply meron mapagkukunan."

Moreover, he also emphasize the impact of the project in the community

"The impact sa community, in the first place hindi nila gaanong kilala yung mga natanim dito na binigay ng graduate school at college of agriculture extension activity, hindi nila kilala yung mga puno dati, ngayon nagkakaroon na sila ng knowledge "ah meron palang ganito dito na ganitong mga klaseng puno". Nung nagbunga na yung mga naitanim na fruit

seedlings, at first place parang ayaw nila tikman kasi hindi pa nila alam. So nung natikman na, araw araw na nilang kinukuha ang mga bunga, minsan wala na kaming maharvest, yung mga bata nagharvest na. Along the way, we are thankful din sa extension na ganito, nasusustain ung transfer of knowledge sa mga new and next generations especially sa student high school, magkakaroon na ng awareness na need magtanim ng mga puno like mga fruit trees, kasi dun nya marerealize yung importance anytime as source of food at the same time ma preserve ang mga ibat-ibang species at variety ng puno na in the future generations, makikita pa nila. Since nagkaroon ito ng another program, so we are thankful kasi nasustain at the same time nagkaroon ng another phase for development ngayon sa gardening naman, so ang magiging impact nito sa mga bata, teach them the technology especially sa planting of vegetables from USM agriculture yung mga expertise nila, matratransfer nila sa mga bata, so ang magiging impact dun meron na silang knowledge na pwede nilang gamitin sa kanikanilang bahay, kung anu matutunan nila dito atleast mapply nila pag-uwi nila sa kani knilang bahay, meron silang ma ishare na new information sa kanilang mga magulang, at the same time marealize nila yung need bakit kailangan natin magtanim".

As aspiration ko sir, na magiging stable sya (garden establishment), kasi ang future plan ko talaga magiging tourism spot sya sir, idevelop ang area atleast jan nila masusunod yung future, at syempre magcocoordinate po kami sa MLGU's para mag support din sa mga resources, kasi ang main plan to talaga jan sir is gawing tourist spot at the same time educational area na makita kung anung meron jan, at the same time educational trip na sunod na mga bata.

We are thankful sa USM Agriculture and Graduate School (MS Agronomy) extension, malaking pasasalamat namin even sa community, sa

stakeholders natin, LGU, ah gitanong nila ako sabi ko, extension ito ng USM Agriculture bapa, para narin ito sa atin sa community.