

Academe-led Community Organizing in the Philippines's Economically Disadvantaged Areas: The Case of Science and Technology Community-Based for Inclusive Development (STC4iD) Program

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ABSTRACT. Part of the mandate of educational institutions, particularly State Colleges and Universities (SUCs) is to provide various forms of community, public, and volunteer services that contribute to the country's social and economic development, hence the emergence of extension programs facilitated by the academe. Considered a novel concept is the academe-led participatory extension program such as the DOST-PCAARRD's Science and Technology Community-Based for Inclusive Development (STC4iD) Program. This program introduces new community organizing (CO) perspectives in the geographically, economically, and socially disadvantaged areas (GESDA) of the Philippines. Hence, there is much to be learned about how academe-led CO can be instrumental to achieving inclusive development. Focusing on five partner community-based organizations (CBOs), this descriptive case study explains the STC4iD Program's journey in conducting an academe-led CO for inclusive development. Results show that with the application of CO approaches and processes, the partner SUCs were able to organize and strengthen their respective partner CBOs. Partner

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CBOs were provided with capability-building and technical trainings that enhanced their knowledge and skills in their adopted Agriculture, Aquatic, and Natural Resources (AANR) technologies. In general, the STC4iD is anticipated to eventually generate positive economic, social, and environmental impacts leading to the sustainability and self-reliance of partner communities. Recommendations include wider adoption of the STC4iD Program in other areas of the country to continue testing how it can help realize inclusive development, with additional components on ensuring sustainability through continuous learning between and among partner SUCs and CBOs and harnessing support from different stakeholders.

Keywords: *Community organizing, inclusive development, participatory extension*

INTRODUCTION

Stakeholder involvement in all stages of program implementation is vital in attaining inclusive development. Participation helps clarify and stabilize communication and power relationships between stakeholders while encouraging ownership, commitment, and accountability (Kapoor, 2001). Engagement with stakeholders should be human-centered (Anand & Sen, 2000) and inclusive because diversity is a resource of community outcomes (Talmage & Knopf, 2017). Inclusive development, at its core, shows the scale of involvement of individuals and groups who have been generally excluded and deprived of social, economic, and other services. Essentially, inclusive development has always been tied up with the concept of sustainable development.

Inclusive development, as defined by the Asian Development Bank, is growth coupled with equal opportunities, coming in several dimensions (Rauniyar & Kanbur, 2009). All members in society can participate in the same way and even degree, and contribute to the growth or development process. To achieve equity, ADB has emphasized effectively reducing poverty. This requires a comprehensive and socially responsive program that improves access to essential services such as education, health, among others (human capital development); increases the involvement opportunities for the poor (social capital development); uplifts women and their participation in society; and addresses vulnerability and risks. Four mutually-reinforcing measures are necessary, namely: 1) promoting efficient and sustainable economic growth; 2) ensuring a level political playing field, which implies the need to improve policies and institutions; 3) strengthening capacities, which

include technical, economic and social capabilities; and 4) providing social safety nets to prevent a poor family from falling back into poverty. Such forms of support may be in the form of LGU-subsidized health, medicine, water and sanitation services, or even market promotion opportunities (Rauniyar & Kanbur, 2009).

Part of the mandate of educational institutions, particularly State Colleges and Universities (SUCs) in the Philippines, is to provide various forms of community, public, and volunteer services that contribute to the country's social and economic development. Hence, the academe (faculty, researchers, etc.) often facilitate extension programs. One such program initiated by the University of the Philippines-Los Baños (UPLB) is the Science and Technology for Community-based Inclusive Development (STC4iD) Program.

The STC4iD Program is funded by the Department of Science and Technology-Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (DOST-PCAARRD). It aims to capacitate various SUCs by proposing and partnering with them in implementing various programs that target the country's Geographically, Economically, and Socially Disadvantaged (GESDA) communities. The STC4iD Program is spearheaded by UPLB in coordination with the regional consortia, SUCs, and the DOST regional offices. The program involves technology transfer in multi-locations to "establish sustainable and resilient AANR-based communities through science and technology." It serves as a vehicle for reaching stakeholders at the grassroots level to bridge gaps in technology, information, and practices. Hence, it assumes a critical role in poverty alleviation and advancement of the AANR sector.

The STC4iD Program applied community organizing (CO), a participatory extension approach, to achieve inclusive development involving various stakeholders. Through the years, CO has been defined and redefined in a variety of contexts. Historically, CO has mainly focused on building social movements in small settings such as a single neighborhood. Its focus on building individual and institutional power distinguishes it from other social change strategies (Duthy & Bolo-Duthy, 2003). According to Christens and Speer (2015), CO requires a community that "collaboratively investigates and takes collective action regarding social issues of mutual concern". It primarily aims to change policies on certain local issues by utilizing various methods of intervention to deal with social problems within a democratic system of values (Kramer & Specht, 1975). CO aims to empower individuals and groups and build relationships and organizations that lead to social change (Alinsky, 1946; Bobo et al., 1991; Kahn, 1991; Beckwith & Lopez, 1998).

This study discusses the STC4iD Program's journey in conducting an academe-led community organizing for inclusive development in the country's GESDA communities. Specifically, it aimed to: 1) describe the STC4iD Program as technology transfer modality; 2) describe the community organizing processes applied by the SUCs partners; 3) discuss problems and challenges encountered in conducting CO; 4) discuss the program's intended economic, social, and environmental impacts; and 5) formulate recommendations for future adoption of the STC4iD Program framework.

Given the nature of the study, findings are limited to the context of the five community-based organizations (CBOs) of the STC4iD partner SUCs. Field observation and actual site monitoring of the projects were also heavily affected due to the travel restrictions brought about by the COVID-19 pandemic.

METHODOLOGY

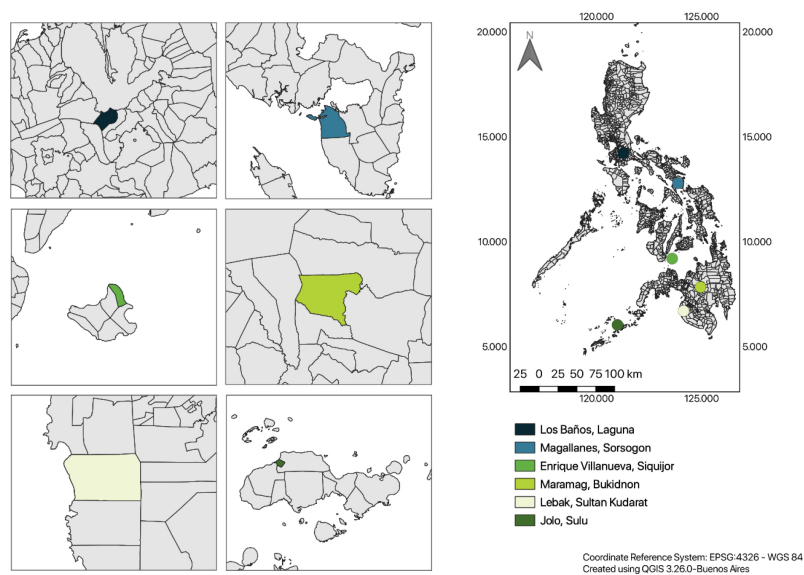
Analyses follow the Theory of Change (ToC) as guiding analytical framework. The ToC for the STC4iD program takes off from considering and reflecting on how the CO processes and strategies contribute to the journey of empowering the selected community-based organizations. It also sheds light on why there is a need to have a long-term commitment in the process of reflection, action, and transformation in improving the livelihood activities of the target sector. By understanding the internal and external environment of the CBOs and their partner SUCs, the program's ToC intensifies the discussions on how to better improve the CO processes. Improving the processes make these more enabling in support of establishing a sustainable and resilient AANR-based Science and Technology (S&T) community livelihood and promote inclusive development for both men and women. Applying the ToC framework makes more relevant and meaningful the analysis of an extension program designed to explore pragmatic solutions to uplift the quality of life of the disadvantaged and vulnerable groups.

Locale of the Study

The study was conducted in the different STC4iD project sites in the Philippines: 1) Barangay/Village Kiharong, Maramag, Bukidnon; 2) Barangay/Village Salangsang, Lebak, Sultan Kudarat; 3) Barangay/Village San Raymundo, Kasalamatan, Jolo and Barangay/Village Baggua, Patikul,

Sulu; 4) Barangay/Village Bitaug, Enrique Villanueva, Siquijor, and 5) Barangay/Village Biga, Magallanes, Sorsogon (Figure 1).

Figure 1
Location map of STC4iD project sites



Research Design

This is a descriptive case study (Yin, 2014) describing the STC4iD as an academically-led CO program. Case studies have been largely used in the social sciences and have been found to be especially valuable in practice-oriented fields such as education, management, public administration and social work (Starman, 2013). The case study approach is recognized as one of the research methods in the field of community development and community organizing. Another essential element in using a case study is its being context-specific (Baxter & Jack, 2008), which enables focus on the multifaceted factors and conditions of a phenomenon. The approach allows the researcher to determine the differences and similarities on the journey towards promoting inclusive development. For this study, the approach was crucial for profiling diverse community-based organizations alongside their corresponding partner-SUCs.

Process documentation was done to examine the STC4iD Program's journey in conducting an academe-led CO for inclusive development in its five partner communities. Process documentation is an essential tool for synthesizing evidences needed for decision and policy-making. This is especially useful in capturing lessons and insights in the implementation of community-based projects and activities where the identities and characteristics of project stakeholders are important to capture, together with the documentation of their roles and interaction. Aside from documentation of activities, process documentation prioritizes the documentation of processes, program accomplishments, and targets (for target-oriented programs) (Society for Participatory Research in Asia, 1993).

The project team per study area was involved in documenting the CO processes. Each team was composed of five to six members with respective roles and responsibilities. They submitted project reports monthly, quarterly, semi-annually, and annually.

Since the concept and scope of community organizing are diverse, this study limited the documentation of the program's CO journey to five areas: 1) its nature as an extension modality; 2) the community organizing processes used; 3) problems and issues encountered; 4) its economic, social, and environmental impacts; and 5) recommendations for future adoption of the STC4iD Program framework.

The STC4iD program's periodic reports, monitoring and evaluation reports, training reports, assessment reports, and other program documents were reviewed. The data gathered were analyzed qualitatively to come up with more in-depth and substantial information from which to draw out research conclusions and recommendations.

RESULTS AND DISCUSSION

The STC4iD Program

As the lead council at DOST supporting national research and development efforts in agriculture, forestry, and natural resources of the Philippines, PCAARRD has long been affirming that R&D results are best utilized if technology is linked to and adopted by its intended beneficiaries. The conduct of technology transfer activities as well as the development and testing of technology transfer modalities have always been aimed to be collaborative and context-specific. Hence, DOST-

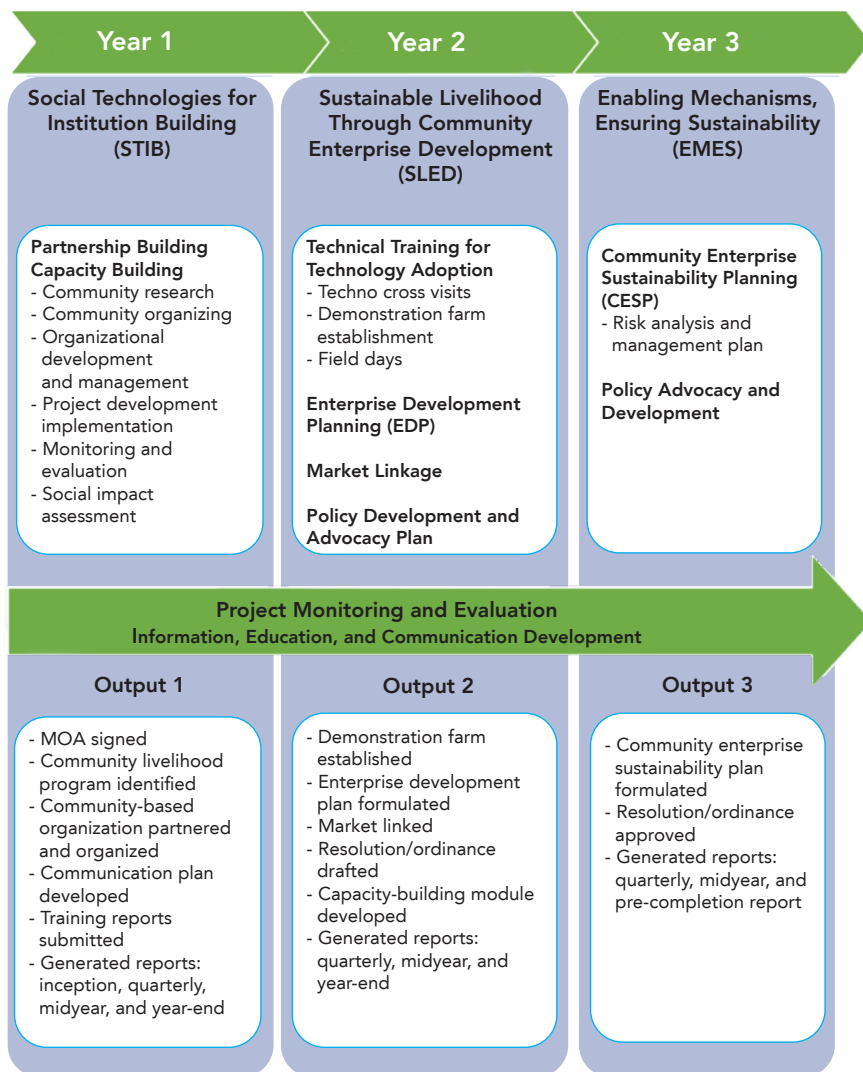
PCAARRD in partnership with SUCs has developed a convergence program named STC4iD, or Science and Technology Community Based for Inclusive Development Program. This is an innovative technology transfer modality under the Harmonized National Research and Development Agenda (HNRDA), which is conducted in multi-locations and focused on disadvantaged communities and social groups in the AANR sector.

The program anticipates establishing sustainable and resilient AANR-based S&T community livelihood and promoting inclusive development for the men and women in the different STC4iD project sites in the Philippines. It intends to showcase the technology transfer modality among the identified GESDA and social groups in the AANR sector, prioritizing a combination of the following group/s: 1) poverty-stricken areas (based on the highest poverty incidence in the 2015 data); 2) indigenous people's communities; 3) conflict-vulnerable communities (including conflict-affected or victims of conflict); 4) coastal or fishing communities; and 5) upland farm communities. Given the appropriate interventions, communities are deemed to become empowered, food secure, and economically improved for a resilient and sustainable future.

The STC4iD Program had six component projects with specific cooperating agencies/SUCs: 1) Project 1: University of the Philippines-Los Baños (UPLB); 2) Project 2: Central Mindanao University (CMU); 3) Project 3: Sultan Kudarat State University (SKSU); 4) Project 4: Mindanao State University-Sulu (MSU-Sulu); 5) Project 5: Siquijor State College (SSC); and 6) Project 6: Sorsogon State University (SSU). The implementation of the STC4iD Program in five sites was guided by an operational framework (Figure 2).

For the first year, UPLB capacitated the partner SUCs on Social Technologies for Institution Building (STIB). These STIB capacity-building activities ensured that the SUC-identified partner communities were involved starting from the early stages of project management for them to have a concept of social acceptability and ownership of the intervention. The second year was focused on stakeholders' capacity-building on Sustainable Livelihoods through Community Enterprise Development (SLED), while the third year targeted the sustainability of the program through the utilization of Enabling Mechanisms, Ensuring Sustainability (EMES). Throughout the program, the UPLB team conducted monitoring and evaluation of the five projects and information, education, and communication (IEC) development. The SUC partners participated in a "training for trainers" on capacity-building training on STIB, SLED, and EMES.

Figure 2
STC4iD Program operational framework



Being funded by DOST-PCAARRD, the STC4iD Program catalogued its results in terms of the 6Ps, i.e., 1) places & partnerships, 2) people & services, 3) patents, 4) policies, 5) publications, and 6) products. Such outputs were integrated across all the CO processes and strategies. The program was also aligned with the research and public service

initiatives of UPLB and the College of Human Ecology's Department of Social Development Services (CHE-DSDS), particularly with the Social Development Management Program framework, which ensures that it can contribute to the empowerment of human organizations and social institutions (HOSI).

The SUC partners implemented the project activities in their particular areas. Table 1 summarizes the partner SUCs, the CBOs organized/strengthened, and the livelihood/enterprise/s identified per project.

Community Organizing Journey of STC4iD Partner SUCs

Community organizing emphasizes the community's participation in identifying their problems and in finding solutions through collective action. The process primarily promotes community empowerment and the development of social and environmental institutions (Dizon, 2012). CO was one of the approaches applied by the STC4iD Program partner SUCs in organizing and strengthening the capacities of the partner CBOs.

SUCs' *entry and integration* with their respective communities started through partnership building. The STC4iD team, together with DOST-PCAARRD, organized an inception workshop that aimed to harmonize the work plans of partners to the approved plan of UPLB concerning program management, capacity development, monitoring, and evaluation. Aside from this, each component project team also conducted its inception meeting during the first quarter of the year. These inception meetings were conducted to equip the program implementers and partners with the necessary perspective and direction to ensure a smooth program implementation.

The team conducted a series of community visits and consultation meetings. They initiated partnerships and linkages with different social institutions and organizations through the signing of a memorandum of agreement (MOA). A total of six MOAs were signed: one between PCAARRD as the funding agency and UPLB to provide program leadership; and another five among UPLB, PCAARRD, and each of the five partner SUCs. Likewise, the partner SUCs forged partnerships with their respective local government units (LGUs) at the barangay and municipal levels, government agencies, private institutions, and non-government organizations (NGOs).

Table 1
STC4iD component projects

Project	Covered Area	Partner SUCs	Partner CBOs	Livelihood/ Enterprise Development
S&T Community-Based Project for Inclusive Development (STC4iD) for Bukidnons through Project CLImB	Maramag, Bukidnon	Central Mindanao University	Kiharong Women's Association (KWA)	organic vegetable, mushroom, and goat raising
S&T Community-Based Project for Inclusive Development (STC4iD) for Upland Farmers in Salangsang, Lebak, Sultan Kudarat	Lebak, Sultan Kudarat	Sultan Kudarat State University	Salangsang Vegetable Farmers' Association (SaVeFA)	vegetable production and seed production
S&T Community-Based Project for Inclusive Development (STC4iD) for Internally Displaced Person (IDPs) in Jolo, Sulu	Jolo, Sulu	Mindanao State University – Sulu	Sulu Farmers for Internally Displaced Persons Organization (SFIDPO)	high yielding cassava variety production
S&T Community-Based Project for Inclusive Development (STC4iD) for Selected Farmers and Fisherfolks in Enrique Villanueva, Siquijor	Siquijor, Siquijor	Siquijor State College	Bitaug Small Coconut Farmers' Association (BISMACOFA)	vegetable production
S&T Community-Based Project for Inclusive Development (STC4iD) for Selected Farmers and Fisherfolks in Magallanes, Sorsogon	Magallanes, Sorsogon	Sorsogon State University	Biga Innovative Group for Advancement and Inclusiveness Association (BIGANI)	fish processing

Social investigation and identification of problems were conducted through community profiling (CP) and community needs assessment (CNA). CP and CNA covered the general description and needs of the community in terms of the basic biophysical, and the social, economic, scientific, and technological aspects. These baseline studies were crucial in identifying any capacity-building activities and livelihood/enterprise development initiatives.

After the training on CP and CNA, the partner SUCs initiated community meetings to facilitate community profiling and community needs assessment of their partner communities. By the end of the first quarter of year 1, all partner SUCs were able to complete their CP and CNA and submit the community outputs to the CD PM&E team. The CP and CNA reports were reviewed and consolidated.

It was found that majority of the CBO members were aged 40 to 59 years old, female except for the SFIDPO, and elementary and high school graduates. Their household size ranged from four to nine and three or less household members were contributing to their income. In terms of farming profile, most of the five CBO members were landowners, they owned one to three farm lots, and they had more than 15 years of farming experience. Only BISMACOFA has availed of the crop insurance offered by the government. But most of the CBO members relied on the government for information related to agriculture.

All of the four CBOs except KWA claimed to have access to organizational services offered by the government and other institutions. This was supported by their lists of partner institutions and organizations, mostly government agencies and their respective LGUs at the barangay and municipal levels. The CBO members availed from these institutions various services such as funding support, technical assistance, and farm inputs and tools. Availability of important food groups such as rice, corn, vegetables, fish, fruits, bread, and root crops varied in five partner CBOs. Most food groups such as rice and vegetables were available to KWA, SaVeFa, and SFIDPO while fish was often available to BISMACOFA and BIGANI.

The ***core group formation and planning*** was facilitated by the partner SUCs in selected community leaders per project site. The partner community-based organizations were assisted in planning and developing different plans including the strategic action plan, enterprise development plan, policy development plan, and community enterprise sustainability plan. To strengthen the CBOs in becoming major players

and partners in the program, the partner SUCs initiated several activities. These included core member identification, organization's formation, visioning, and team building as part and parcel of the foundation of a community-based organization. They likewise conducted meetings, interviews, and trainings/workshops among the organizations to equip and strengthen the cooperators and their organization as a whole.

To enhance and strengthen the partner CBOs, **organizational development** was conducted through capacity-building and training activities. The capacity-building focused on the social preparation of the community beneficiary for the S&T livelihood enterprise as well as for partnership building and sustainability mechanisms.

The **mobilization** phase included the conduct of regular meetings with the partner CBOs and the development of working committees. This also involved assisting the community beneficiary to be organized as a formal community-based organization. The partner CBOs registered with the Department of Labor and Employment (DOLE) and/or Security Exchange Commission as legal entities that can venture into a community enterprise. The CBOs were equipped with the knowledge and skills needed to develop their respective enterprise development plans and formulate mechanisms to sustain the community enterprise through technical training, market linkage, and policy support.

To further strengthen technology adoption by the different community-based organizations, demonstration farms were established and cross visits were conducted among the various sites. The sites visited ranged from farms and agencies to other project sites. The capacity-building training paved the way to building up the mass base of the community that would sustain the program's initiatives to alleviate poverty and eventually lead to development.

The STC4iD Program was able to organize and strengthen five CBOs as follows:

- 1) KWA is a non-stock, non-profit association of 36 women in Barangay Kiharong, Maramag, Bukidnon. It was initially organized on June 10, 2016 and registered with the DOLE on September 2, 2016. This organization was strengthened by the CMU to become a model women's association with the mission to become the center of organic vegetables in Bukidnon through dynamic and innovative strategies of committed and engaged members;

- 2) SaVeFA was organized and registered at DOLE with the assistance of SKSU in 2019. At present, it has 40 members and continues to accept interested farmers as new members. The organization aims to establish a sustainable vegetable and seed production enterprise;
- 3) SFIDPO was organized in 2019 with 40 members consisting of cassava farmers and internally displaced peoples (IDPs). The IDPs came from the Municipality of Indanan, Patikul, Parang, Talipao, Maimbung, and Luuk Sulu and are now living in San Raymundo, Jolo, Sulu. In partnership with MSU-Sulu, the organization envisions establishing a sustainable post-harvest enterprise on cassava;
- 4) BISMACOFA had 35 active members as initial program beneficiary-members. They were recruited in collaboration with the local government unit of Barangay Bitaug, the municipal local government unit of Enrique Villanueva, and the provincial local government unit (PLGU) of Siquijor. Sustainable vegetable farming with vermicast fertilizer and livestock production, native chicken, and pig was established in partnership with SSC; and
- 5) BIGANI is a local organization created by the SSU in partnership with the University of the Philippines in 2019. It currently has 30 members. Since Barangay Biga is a coastal community, BIGANI ventures into fishing and aquaculture. BIGANI was able to establish a postharvest fish product that they use to supplement their incomes when they had low fish harvests.

Table 2 summarizes the profile of the selected CBOs.

Table 2
Profile of the community-based organizations

Name of Organization	Year Organized	No. of Members
Kiharong Women's Association (KWA)	2016	36
Salangsang Vegetable Farmers' Association (SaVeFA)	2019	40
Sulu Farmers for Internally Displaced Persons Organization (SFIDPO)	2019	40
Bitaug Small Coconut Farmers Association (BISMACOFA)	2019	35
Biga Innovative Group for Advancement and Inclusiveness Association (BIGANI)	2019	30

The CBOs participated in 17 capability-building trainings in the span of three years, 2019-2021. Social Technologies for Institution Building (STIB) included trainings on Community Profiling and Community Needs Assessment (CP/CNA); Community Organizing and Organizational Development (CO/OD); Team Building; Visioning and Strategic Planning; Formulation and Recordkeeping; Financial Literacy; Leadership; Organizational Management and Development; and Program Development, Implementation, Monitoring, and Evaluation (PDIME). Sustainable Livelihood through Community Enterprise Development (SLED) included Enterprise Development Planning (EDP); and technical training while Enabling Mechanisms, Ensuring Sustainability (EMES) training on Policy Development and Advocacy Planning (PDAP); and Community Enterprise Sustainability Planning (CESP).

Aside from these trainings, appropriate technical training (24) was also offered by the partner SUCs to equip the CBOs with the knowledge and skills needed in their respective livelihood programs. Some of the technical trainings participated in by the KWA members were Organic Vegetable Production: Bio-intensive Gardening (BIG) Approach; Vertical Gardening and Seminar on Understanding Markets and Marketing; Training on Mushroom Production; Training on Rapid Composting; Training on Goat Health and Nutrition; and Training on Vermicomposting.

For SaVeFA members, the trainings included: Organic Vegetable Production; Vermiculture and Vermicompost Production and Management; Pest and Diseases Management Strategies; Vegetable Seed Production; and Vegetable-based Food Technology Utilization.

The SFIDPO members, on the other hand, attended training on producing cassava and high yielding cassava cultivar.

The BISMACOFA members attended technical training on Egg-laying Chicken Seminar; Botanical Concoctions; Vermicompost Production; and Organic-Based Backyard Vegetable Production: Urban Gardening/Edible Landscaping and Peanut Production Management.

Lastly, BIGANI members participated in the following technical trainings: Good Manufacturing and Safety Hygienic Practices; and Skills Training; Competency Assessment; Sardines Production/Processing; Bangus Processing; and Saline Tilapia Farming. The CBOs likewise received other services such as the establishment of communal garden/demonstration farms.

Based on self-reported knowledge and skill gains of the CBO member participants, the STC4iD Program resulted in capacity improvements in terms of self-confidence and leadership, partnership-building and networking, strategic planning, organizational management, project management, and basic financial literacy. Likewise, the STC4iD's capability-building trainings garnered high ratings from the CBO participants.

In terms of their involvement, the CBO participants registered a high level of participation in the activities of the projects on capacity-building trainings, technology adoption, regular meetings, field visits, and in the establishment of a demonstration farm/common facility.

Figure 3 summarizes the process documentation of community organizing among the partner SUCs in implementing the STC4iD program in their respective sites.

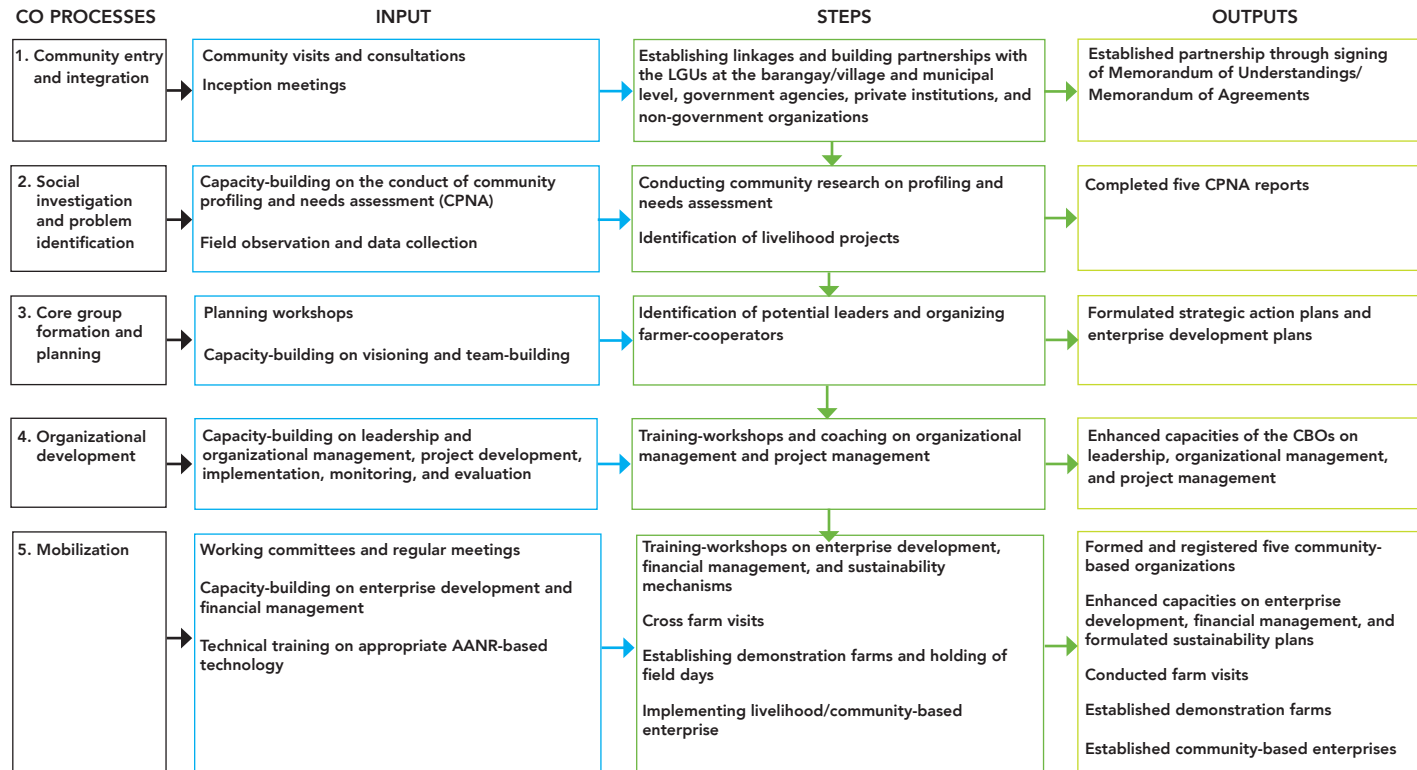
Problems and Challenges in Conducting CO in Program Sites

Leadership and group composition. Changes in leadership and diverse group composition were encountered during program implementation. Likewise, the multi-designation of the project staff was another challenge, which hampered their ability to sustain the quality of their engagement in project activities. Some project staff had different designations in the university, hence the difficulty in assigning them tasks related to the project.

For the SUCs where there was change in leadership, transition was not difficult because the new Project Leader recommended by the Chancellor/University President was originally part of the project team. The project team developed systematic keeping of records, files, and data of the program/project in hard and soft copy and documenting administrative process flows and learnings. Record keeping was meant for easier retrieval and turn-over of program/project documents in case of change in leadership and composition of team members.

Utilities and communication. The stability of the Internet connectivity and electricity were major challenges in some project sites as there were multiple power outages in a day. Communication between the partner SUCs and CBOs was at times difficult due to limited internet access, unavailability of mobile network, and lack of facilities for online learning. This held true for project sites in remote areas in Visayas and

Figure 3
Process flow of community organizing in the STC4iD sites



Mindanao. To address this issue, communication with the partner SUCs was optimized by providing them means for sustained internet connection through increased budget allotment for prepaid internet and phone card expenses.

Peace and order. Peace and order concerns such as bombings, kidnappings, and shootings in project areas affected project implementation since it limited mobility for conducting and monitoring and evaluation of the program's activities. For instance, the conduct of trainings and the establishment of demonstration farms in every project site were delayed due to security concerns in some project areas. Given this situation, project activities were re-scheduled; local guidelines regarding security and safety of the study areas were observed.

Accessibility of the community. Partner SUCs faced challenges due to the relatively remote location of their partner CBOs. Despite this, the CBOs were resilient in producing their commodities and in marketing their products. The project team maximized the conduct of project activities during fieldworks in the study areas.

COVID-19 pandemic. The most pressing factor that affected the program implementation was the unexpected occurrence of the COVID-19 pandemic. In early 2020, the government placed the Philippines under enhanced community quarantine and implemented several restrictions per municipality/area of the country. This affected the mobility of technical and financial support of the STC4iD Program. Some of the project team members even contracted COVID-19 and were required to undergo days of quarantine. These challenges delayed the implementation of some program activities. With the effects of the COVID-19 pandemic, the teams had to recalibrate the implementation strategies of the program. They shifted the conduct of capacity-building training, mentoring sessions, and monitoring from face to face to online transactions via email and online messaging and videoconferencing applications such as Facebook Messenger and Zoom.

Intended STC4iD Program Impacts

With the application of CO in program implementation, positive economic, social, and environmental impacts on the partner CBOs are expected to manifest in the years to come. While it is too early to determine the program impacts, this section provides a short discussion of what particular impacts can be anticipated and later investigated for validation.

Davis et al. (2008) defined impacts as changes in markets (input cost, output price, quantities) and in the state of common resources (ecosystem health and biodiversity) and communities (livelihood opportunities, health, security, equity). Moreover, impacts can also be defined as the changes in economic, environmental, or social conditions that can result from the aggregation of changes in practice, products, or policies across the different user groups. Impacts can eventually include changes in demand, supply, environmental pressures, social pressures, and risk.

Social impacts. The STC4iD Program enabled the CBOs to establish new linkages and partnerships with the local government, national government agencies, and other CBOs. Direct relationships with officials of different agencies/offices/organizations were also initiated. These immediate results are promising as successful programs are those that involve different providers, agencies, and investors (Rural Health Information Hub, 2017). Strengthening of social ties within and across CBOs can promote unity and camaraderie.

Self-esteem and a sense of independence gained from the newly acquired knowledge and skills through the trainings are likewise expected to make CBO participants open to new technologies for farming and vegetable production. Moreover, the SUC team members benefit from the capacitation received through the various trainings they have attended. Trainings of Trainers (ToT) were directly empowering for the SUC team members who re-echoed the training to their respective partner CBOs. Lastly, improved health and well-being can facilitate better access to healthier food such as vegetables for the communities.

Economic impacts. During the implementation period, CBO members were able to gain access to agricultural inputs and supplies through their respective projects. This enabled them to use these resources to improve their demonstration farms. The STC4iD Program also provided beneficiaries with a means to augment their incomes through the various capacitation and marketing interventions such as the use of vegetable stalls, on-farm marketing, as well as the “buy and sell” schemes. Moreover, the CBOs gained benefits from the livelihood projects organized by the local government and national government agencies. If the established linkages remain and the enabling local environments are maintained, the beneficiary communities could improve their economic welfare that comes with equity.

Environmental impacts. The STC4iD Program gave way to the use of idle lands, and in some cases, efficient use of scarce land resources. Environmental awareness trainings and other interactive activities

such as tree planting and proper waste management were part of the individual projects. These projects are expected to influence the CBO members' attitude and change their behavior.

CONCLUSION AND RECOMMENDATIONS

The STC4iD Program demonstrates a technology transfer modality in multi-locations with focus on disadvantaged communities and social groups in the AANR sector. Hence, the program would lead the participants to experience inclusive development and establish sustainable and resilient community-based livelihoods. The program intended to establish a sustainable and resilient AANR-based S&T Community Livelihood, and promote inclusive development for the men and women in the different STC4iD project sites in the Philippines.

While academe-led community organizing may be quite new to many SUCs in the Philippines, the STC4iD Program has shown promising results of such a collaborative CO approach on the inclusive development of local communities in the country and beyond.

Empowerment of the five partner CBOs was translated into improved farming/fishing practices and improved social competencies in terms of building relations with the organization and community members. Participating CBO members attribute these changes to the knowledge and skills they gained from the technical training and capacity-building provided by the STC4iD program for organizational development.

Other evident results of the program include the enhancement of self-reliance of the CBO members and the improvement of their nutrition status. The CBO members now grow their own food from their backyards and farms for household consumption, and this was especially beneficial during the COVID-19 pandemic when the project was run. Hence, at present, they now have access to safe and nutritious food due to the application of farming techniques learned from the program.

Further, the members are generating additional income by selling their surplus farm produce to the community livelihood projects established by their respective organizations. An important development is that the CBO members have learned to take care of their environment to maintain the sustainability of their community resources, which are their ultimate sources of livelihood.

The program had its share of challenges including changes in leadership and group composition; poor utilities and communication due to limited internet access and unavailability of mobile network; peace and order issues; inaccessibility of the community; and the breakout of the COVID-19 pandemic. All these issues contributed to the delay in implementing program activities. To address these challenges, the STC4iD Program Team re-calibrated its strategies and adjusted its workplans. They shifted the conduct of capacity-building training and mentoring sessions from face-to-face to scheduled online mode and remote learning. Similarly, they conducted the monitoring and evaluation through online transactions using email and videoconferencing applications.

The academe-led CO stands to make relevant contributions to inclusive development in the selected GESDA communities. Participation of the community members and stakeholders from planning to implementation and evaluation, as well as in establishing a partnership with the government and non-government organizations, are critical to effect and maintain changes toward sustainable and self-reliant communities.

Based on the results of the study, the following are recommended:

1. Re-calibration of the strategies of program implementation depending on the effects of disasters and outbreaks such as the COVID-19 pandemic;
2. Continuous and collaborative learning between and among partner SUCs and CBOs are observed to provide insights and lessons useful for SUC-led community-based extension programs;
3. Harnessing the support of LGUs, other non-government, and private institutions through continuous coordination and communication; and
4. Adoption of the STC4iD Program framework in other areas of the country to continue testing how it can help realize inclusive development.

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REFERENCES

- Alinsky, S. D. (1946). *Reveille for radicals*. The University of Chicago. https://www.historyofsocialwork.org/1946_Alinsky/1946%20-%20Saul%20Alinsky%20-%20Reveille%20for%20Radicals.pdf
- Anand, S., & Sen, A. (2000). The income component of the human development index. *Journal of Human Development*, 1(1), 83-106. <https://doi.org/10.1080/14649880050008782>
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559. <https://doi.org/10.46743/2160-3715/2008.1573>
- Beckwith, D., & Lopez, C. (1998). *Community organizing: People power from the grassroots*. Center for Community Change. <https://www.participatorymethods.org/resource/community-organizing-people-power-grassroots>
- Bobo, K., Kendall, J., & Max, S. (1991). *Organizing for social change: A manual for activists in the 1990s*. Seven Locks Press.
- Christens, B. D., & Speer, P. W. (2015). Community organizing: Practice, research, and policy implications. *Social Issues and Policy Review*, 9(1), 193-222. <https://doi.org/10.1111/sipr.12014>
- Davis, J., Gordon, J., Pearce, D., & Templeton, D. (2008). *Guidelines for assessing the impacts of ACIAR's research activities* (Impact Assessment Series Report No. 58). Australian Centre for International Agricultural Research. https://www.aciar.gov.au/sites/default/files/legacy/node/10103/ias58_pdf_20268.pdf

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- Dizon, J. T. (2012). Theoretical concepts and practice of community organizing. *Journal of Public Affairs and Development*, 1(1), 89–123. <https://jpad.cpaf.uplb.edu.ph/articles/theoretical-concepts-and-practice-of-community-organizing/>
- Duthy, S., & Bolo-Duthy, B. (2003). Empowering people's organizations in community-based forest management in the Philippines: The community organizing role of NGOs. *Annals of Tropical Research*, 25(2), 13–28. <https://espace.library.uq.edu.au/view/UQ:8171>
- Kahn, S. (1991). *Organizing: A guide for grassroots leaders*. NASW Press.
- Kapoor, I. (2001). Towards participatory environmental management? *Journal of Environmental Management*, 63(3), 269–279. <https://doi.org/10.1006/jema.2001.0478>
- Kramer, R., & Specht, H. (1975). *Readings in community organization practice*. Prentice-Hall, Inc.
- Rauniyar, G., & Kanbur, R. (2009). *Inclusive growth and inclusive development: A review and synthesis of Asian Development Bank literature*. Asian Development Bank. <https://www.adb.org/sites/default/files/evaluation-document/35885/files/op8-inclusive-growth-development.pdf>
- Rural Health Information Hub. (2017). *Characteristics of a successful program*. <https://www.ruralhealthinfo.org/toolkits/rural-toolkit/3/success-characteristics>
- Society for Participatory Research in Asia. (1993). Process documentation in social development programme. <https://www.ircwash.org/sites/default/files/125-11859.pdf>
- Starman, A. B. (2013) The case study as a type of qualitative research. *Journal of Contemporary Educational Studies*, 1, 28–43. https://www.sodobna-pedagogika.net/en/articles/01-2013_the-case-study-as-a-type-of-qualitative-research/
- Talmage, C., & Knopf, R. C. (2017). New dimensions in community well-being. In P. Kraeger, S. Cloutier, & C. Talmage (Eds.), *Rethinking diversity, inclusion, and inclusiveness: The quest to better understand indicators of community enrichment and well-being* (pp. 7–27). Springer Cham. https://doi.org/10.1007/978-3-319-55408-2_2
- Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). Sage Publications, Inc.