



## **Innovative Approach to Promote Package of Technologies (POTs): The SciCAT (Science for The Convergence Of Agriculture and Tourism) Way**

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### **ABSTRACT**

*The tourism sector plays a significant role in the Philippine economy, with its contribution amounting to at least 12% of the GDP prior to the pandemic. With the country's domestic tourism expenditure reaching a record-high of 61 billion US dollars last 2019, the government aims to continue this pre-pandemic momentum. The domestic tourism expenditure's average growth rate of 17.4% (2000-2019) also indicates a strong desire of locals to explore the country's tourist spots (PSA, 2020). More importantly, the country was also proactive in diversifying tourism by introducing a game-changing support policy known as the Farm Tourism Development Act of 2016 (Republic Act 10816). Its key principle, among others, is the recognition of the state that "tourism, coupled with agriculture extension services, can disseminate the value of agriculture in the development of the country..." To achieve this, relevant government agencies led by the Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD) and the University of the Philippines – Institute for Small Scale Industries (UP ISSI) have collaborated to implement the vision of the act. This collaborative project, entitled "The Establishment of the Science for the Convergence of Agriculture and Tourism Program," aims to showcase agriculture technologies developed by State Universities and Colleges (SUCs) in farm tourism sites. It targets market segments in the hope of inspiring and encouraging farming and improving the productivity of farm owners with the adoption of new technologies learned from these farm tourism sites. The methodology includes upgrading the competency in enterprise planning and management for identified farm owners. In addition, the government supports the renovation and improvement of facilities in farm tourism sites to improve their attractiveness for tourist guests. Overall, this collaborative effort aims to promote Agri-tourism while encouraging the adoption of new farm technologies. By providing a unique experience for visitors, farm tourism sites can showcase the value of agriculture in the country's development, while inspiring others to go into farming or replicate these technologies to improve productivity.*

Keywords: science, agri-tourism, agriculture technologies

### **INTRODUCTION**

In the Philippines, a reported 5.56 million farms/holdings covering 7.19 million hectares were used for agricultural purposes. On average, about 1.29 hectares of land are used in farming (PSA, 2015). Employment

in the agricultural sector continued to decline from 2015 to 2019, resulting in a 22.9% decrease in total employment contribution (PSA, 2020). The agricultural contribution to GDP also decreased from 13.9% in 2000 to a mere 10.2% after two decades (UP ISSI & PCAARRD, 2022). Compared to the USA and Israel where farmers belong to the middle class, Filipino farmers are still classified as poor. Many are forced to sell their lands and seek employment in the industry sector due to the impacts of globalization, industrialization, and development encroachment (Yamagishi *et al.*, 2021). Arguably, impactful intervention programs focused on agricultural modernization and technology adoption are required to boost the productivity of farmers to dissuade them to leave the said sector.

Despite the shortfall in the agriculture industry, the Philippines has a lot to offer with its diverse natural resources and rich cultural heritage (Yamagishi *et al.*, 2021). From white beaches to the lush green forests, and from great gastronomic delights to other countless leisure activities, the country's tourism sector can provide a full-on experience to visitors. These, however, do not translate to a significant amount of tourism revenue, especially for grassroots communities (UP ISSI & PCAARRD, 2022).

In response to this reality, the Republic Act 10816, also known as the Farm Tourism Development Act (FTDA) of 2016, was enacted. The law recognizes that tourism, paired with accessible and quality agriculture extension services and assistance, could upsurge the country's agriculture and tourism performance and provide additional income for farmers, farm workers, and fisher folks (UP ISSI & PCAARRD, 2022).

Moreover, the FTDA acknowledges the state's recognition that "*tourism, coupled with agriculture extension services, can disseminate the value of agriculture in the economic and cultural development of the country...*" It further declares that this activity can "*catalyze the development of agriculture and fishery communities...*" by providing more opportunities to generate income for farmers and fisherfolk.

Section 13 of this act provides for Institutional and Human Resource Development that will enable capacity-building programs for farmers and farm tourism operators.

In terms of technology promotion and adoption, the Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD), an attached agency of the Department of Science and Technology (DOST), is mandated by FTDA to include the technology needs of farm tourism camps in its research and development programs in Agriculture, Aquatic, and Natural Resources (AANR) sectors. In support of this, PCAARRD saw the opportunity to engage in establishing a farm tourism program by integrating a package of technologies and other technology transfer-related services aimed in maximizing the value of innovations generated from government-supported R&D projects.

Realizing this, PCAARRD launched a collaborative project that taps various agencies to effectively design and implement an intervention program. This program must converge concepts and elements of agriculture and tourism to allow the wider promotion and reach of mature POTs to farmers, agribusiness owners, and potential agriculture and tourism-related entrepreneurs.

This led to the establishment of a four-year (2018-2022) project titled Science for the Convergence of Agriculture and Tourism (SciCAT). The project shows PCAARRD's commitment to the realization of the provisions enshrined in RA 10816 by maximizing the agricultural and tourism potentials of the country (UP ISSI & PCAARRD, 2022).

## **FRAMEWORK AND METHODS**

### **Framework**

The primary purpose of the project was to develop a new technology transfer modality by establishing a farm site that embodies the concept of science-based farm tourism. These farm sites were branded as SciCAT Farms, which was the result of the convergence of technology and innovation in farming and tourist experiences such as recreational activities.

In particular, the project aimed to transform farmer-scientist or *Magsasaka-Siyentista* (MS) Farms, micro, small and medium enterprises (MSME) Farms, and Institutional Farms into SciCAT Farm Enterprises through enterprise diagnosis, planning, and mentorship programs which then may lead to the creation of employment and entrepreneurship opportunities.

What differentiates a SciCAT Farm from a traditional farm tourism site is the showcase of packages of technologies (POTs). Such POTs were generated by various State Universities and Colleges (SUCs) and were funded by PCAARRD. The prominent POTs introduced in the SciCAT Farms are drip technology, overhead irrigation, chemical-free production of sweet pepper and cabbage, citronella production, post-harvest processing and packaging for commodities such as papaya processed into pickle (*atsara*), and dragon fruit processed into jams, tissue culture for dwarf bananas, native pig and chicken production, zero-waste pig production, vermicomposting, and grafting technology among others.

As a collaborative project, PCAARRD facilitated and arranged different stakeholders with defined roles based on their mandate and expertise to support the project's planning and implementation. Table 1 shows the agencies which were involved in the project.

Table 1. List of partners and roles in the project

Agency	Role
The University of the Philippines – Institute for Small-Scale Industries (UP-ISSI)	Provide assistance to DOST-PCAARRD in the overall project concept development and partner in monitoring and evaluation (M&E)
Bureau of Plant Industry (BPI), Laguna	Project implementer; source of technology/POTs adopted by the SciCAT farms; provide guidance and supervision to Magsasaka Siyentista (MS)/farm owners in project implementation.
Department of Environment and Natural Resources - Ecosystems Research and Development Bureau (DENR-ERDB)	
Department of Science and Technology (DOST) Region III	
Department of Science and Technology (DOST) Region VI	
Department of Science and Technology (DOST) Region VII	
Department of Science and Technology (DOST) Region VIII	
Department of Science and Technology (DOST) Region XII	
Department of Science and Technology (DOST) Region X	
Benguet State University (BSU)	
Don Mariano Marcos Memorial State University (MSU)	
Cavite State University (CvSU)	Direct beneficiary of the project; adopt the technology recommended by the project partner; manage the overall farm activities
Bohol Island State University (BISU)	
University of Southeastern Philippines (USEP)	
<i>Magsasaka Siyentista</i> /Farm Owners	

The State Universities and Colleges (SUCs), DOST Regional Offices, Research and Development Institute (RDI), and DENR-ERDB were vital partners in this project given their technical expertise in the technology/POT development.

There are two (2) beneficiary segments of the project: Component A and Component B. Component A of the project involves the scientist farm owners or *Magsasaka-Siyentista* (MS), who are long-time partners of PCAARRD and who are successful in using new technologies in their farms. Moreover, the MS serves as a vital partner in testing and adopting the technologies developed by SUCs in the laboratory. The main objective for Component A is the transformation of production farms into SciCAT Farms.

Transformation of traditional production farms to SciCAT Farms requires planning. This planning activity is undertaken and supervised by UP ISSI with the assistance of the participating SUCs.

The first step is the profiling and assessment of the current condition or situation of the farm, the community surrounding it, and how it interacts with institutional stakeholders. A feasibility study is then conducted to validate its potential for absorbing POTs and sustaining the farm enterprise under a farm tourism model.

The final stage in the planning process is the development of a business plan where the farmer, together with UP ISSI and SUCs/RDIs, develops a plan to launch the SciCAT Farm. Strategies are also included in the plan to counter weaknesses and threats to achieve sustainability and be able to expand its impact on the community.

To further assist the MS and farm owners, a mentoring program is conducted to handhold the farmer in the implementation of the business plan and to troubleshoot and improve their operations. This is undertaken and supervised by UP ISSI with the help of SUCs/RDIs and other agency partners.

The market relevance is strengthened by aligning the SciCAT Farm to the requirements of the DOT as provided for in RA 10816. During this phase, UP ISSI and its partners prepared the farms for level one (1) accreditation, which includes establishing and installing the following minimum requirements:

- Decent wash areas and comfort rooms for guests;
- First aid kits and medical supplies;
- Fire extinguishers located in easily accessible areas;
- Directional and safety signages;
- Appropriate waste disposal system; and
- Proper storage area for farm equipment.

The second segment is Component B which involves enterprises engaged in retail of agricultural commodities and farm tourism sites. These micro-sized enterprises are chosen to be assessed and improved in terms of business operations (technological needs and productivity enhancements). The main activities for this component are business planning and mentorship program.

The conceptual framework shown in Figure 1 guides the establishment and promotion of SciCAT as a modality for technology promotion.

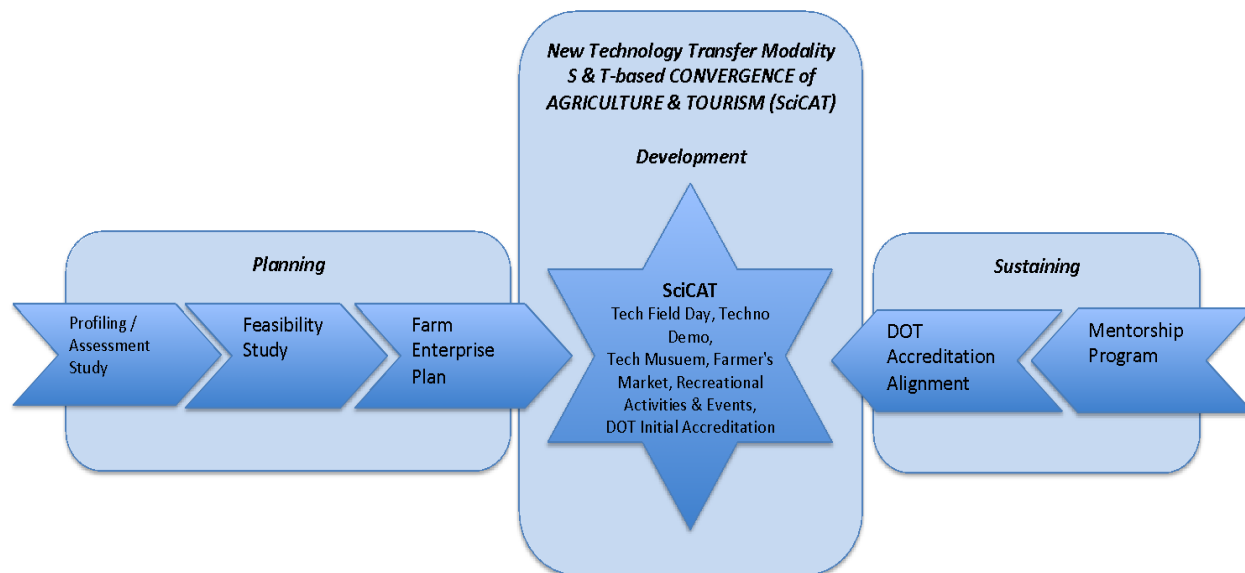


Figure 1. SciCAT Technology Transfer Modality

## Methodology

This section presents in detail the key activities performed using the SciCAT Technology Transfer modality framework.

### *Profiling /assessment*

This was the initial activity used to establish baseline information on the farm operations and current conditions. Key Informants Interview (KII) and Focus Group Discussion (FGD) were the major activities undertaken in this stage. The following details were gathered:

- Background of the MS / Farm Owner;
- Location;
- Current Business Model;
- Current Market Profile;
- Current Technology/ies Implemented;
- Current Operation Process / Management;
- Current Organization;
- Current Financial Condition;
- SWOT Analysis – Economic, Environmental, Local Regulations, and Impact on Community; and
- Initial Findings and Recommendations.

### *Feasibility study (FS) preparation*

A feasibility study for each farm was done to determine the viability of transforming *Magsasaka-Siyentista* Farm (MSF) into SciCAT sites. The study analyzed the farm's overall potential for adopting technology and sustaining the business as a tourism site. The FS contains the following details:

- Agriculture and Tourism Industry Profile;
- Product;
- Technology;
- Market Environment and Competition;
- Environment: Impact on Natural Resources and Carrying Capacity;

- Critical Risk Factors and Analysis - Economic, Environmental, Local Regulations, and Impact on Community;
- Financial Projections; and
- Recommendations.

*Business planning (including Component B)*

Business plans were also crafted per farm to establish their businesses and formulate strategies to counter the identified weaknesses and threats. The following aspects served as a guide for the SciCAT Farm Enterprise implementation:

- Brief Profile of the Venture;
- Vision / Mission;
- Business Model;
- Marketing Plan;
- Operation / Production Plan (including Technology Adoption Plan);
- Organizational Plan;
- Financial Plan; and
- GANTT Chart (Schedule of Activities).

*Farm Master Plan (FMP) development*

FMPs were also developed to ensure that the structures or attractions in the proposed SciCAT farms are designed and organized in a manner convenient to the guests and attuned to the farm's natural surroundings and carrying capacity. An ideal FMP pays a high premium on promoting biodiversity, showcases the farm's unique technologies, and systematically connects the natural features of the farm with its artificial structures.

*Mentoring (including Component B)*

Mentoring was performed to personally guide the beneficiary farmer in implementing the strategies identified in the business plan. The handholding process enhanced the sustainability of the SciCAT Farm in terms of expansion and replication efforts.

*Department of Tourism (DOT) accreditation*

SciCAT farms were assisted and prepared for DOT accreditation. The ultimate objective of accreditation is for the farms to be recognized as a Farm Tourism Site as stipulated in RA 10816. Under this activity, the SciCAT Farms prepared the necessary requirements for the DOT Accreditation (i.e., provision of the parking area, information center, etc.).

*Monitoring and Evaluation (M&E)*

UP ISSI was tasked to supervise and coordinate the activities with the project team and PCAARRD. A Project Coordinating Team was then created to make sure of the effective rollout and performance of the project.

Periodic review and evaluation of the SciCAT Project activities were conducted in accordance with PCAARRD-DOST guidelines. The Project Coordinating Team and the SUCs/RDIs and other agencies regularly perform monitoring and evaluation of the project in the various sites. Field monitoring is conducted to check the implementation of the program based on the agreed Schedule of Activities and the corresponding Expected Outputs. This was also done to determine if the targets set were being met.

It was also important to assess actual situations so that changes or adjustments can be introduced in the project implementation. The information gathered during M&E can also be used to improve the management and implementation of the project.

## DISCUSSION OF RESULTS

*“The SciCAT Project pioneered the offering of comprehensive support programs for technology-based startups in the field of agri-tourism entrepreneurship. Together with its partners and collaborators, SciCAT was able to improve the farmers’ skills in navigating the field of Agri-tourism and in improving the market viability of the farm using a multidisciplinary approach” (UP ISSI & PCAARRD, 2022).*

In the span of four (4) years, the SciCAT project was able to accomplish major feats and deliverables considering the COVID-19 pandemic, which halted the country’s economy for most of 2021 to 2022. The tourism sector was significantly impacted as travel restrictions were massively implemented within the country. As a result, the SciCAT Farms’ income was heavily affected. Nonetheless, the project team devised ways to continue with the intervention program by shifting focus on the eventual recovery of the economy. Considerable investments were put on capacitating the farm owners to handle and manage digital marketing. Each farm set up their social media pages to increase their visibility to local tourists who may be planning to travel once restrictions were lifted.

### *The Project Beneficiaries*

The final SciCAT project beneficiaries were as follows:

#### Component A. *Farms for complete transformation from traditional to SciCAT Farm*

- Silan Agrifarm (Tambo Kulit, Indang, Cavite);
- Seeds & Seedlings (S&S) Plaza (Los Baños, Laguna);
- Mt. Kitanglad Agri-Tourism Farm (Malaybalay, Bukidnon);
- Dimpas Greentegrated Farm (Banay-banay, Davao Oriental);
- Sanoy Heritage Farm (La Trinidad, Benguet);
- Rocapor's Farm (Balaoan, La Union); and
- Oikos Peace and Wellness Garden (Bilar, Bohol).

#### Component B. *Farms for business planning and productivity enhancement intervention measures only*

- Zarraga Integrated Diversified Organic Farmers Association (ZIDOFA) (Zarraga, Iloilo);
- Dalaguete Techno-Demo Farm (Dalaguete, Cebu);
- Villaconzoilo Farm (Jaro, Leyte);
- Garden City Multi-Purpose Cooperative (Guiguinto, Bulacan);
- Felicidad Orchard and Garden Organics (General Santos City); and
- Katilingban San Pumuluyo Nga Naga-atipan Sang Watershed Sang Maasin (KAPAWA) (Maasin, Iloilo).

Farm sites under Component A were successfully converted into SciCAT farms. Required branding such as logo, uniform signage, and photo booth are shown in the proceeding sections.

All but one site (Sanoy Heritage Farm) had not completed the DOT Level 1 Accreditation.

## Major accomplishments

### 1. *Mentoring Program*

A dedicated mentor visited or met (via online) the enterprise owner every month to discuss plans, troubleshoot problems, and design strategies to resolve challenges or maximize opportunities. This program was critical to assess the entrepreneurial competence of the mentee in terms of actual application of knowledge received from training.

The following areas were emphasized during the monthly sessions:

- Monitoring of guests received (pre-pandemic);
- Assessment of profitability through cash flow analysis including handholding in writing financial statements;
- Designing of marketing strategies (especially digital marketing during the pandemic);
- Designing pivot strategies to minimize risk of the impact of pandemic to profitability; and
- Development of lean but effective organizational structure, which can efficiently perform both for production and tourism activities.

The most challenging issue to handle was the impact of the pandemic on the farm's profitability. Due to the halt in the tourism sector, the farm owners had to rely on selling commodities and expanding their market reach to areas where purchasing power was not significantly affected. Entrepreneurs were able to adjust slowly by diversifying commodities and services to sell. They also invested heavily to establish COVID-19 protocols (e.g., social distancing, strict "mask on" policy) to still be able to operationalize the tourism activities for their guests.

## 2. *SciCAT Branding*

The tagline "*Siyensya. Saka. Saya.*" (Figure 2) or "Science. Farming. Happy." conveys the program's overall message that science in farming creates joyous activities, which leads to inspiring people to engage in farming.



Figure 2. SciCAT Logo

## 3. *Preparation of various marketing campaign materials*

The marketing campaign supported the goal of inspiring people to farm, especially in the signage and photo booth (Figure 3). The content (stories, secondary tagline, messages, vlogs, infomercials, etc.) tapped into and revolved around the core brand, including the distinction of SciCAT Farms from ordinary farm tourism sites.





Figure 3. SciCAT Signage and Photobooth

#### 4. Empowering SciCAT Farms through the Digital Platform

The recent COVID-19 pandemic has significantly altered the way people do things. Businesses, especially micro and small enterprises were heavily affected by the imposition of community quarantines as a response to slowing down the number of persons infected. The majority of them, mostly from the non-essential goods and services, had no choice but to close down or significantly reduce their production cost due to their declining sales. Since movement was limited and close contact was not permitted, businesses resorted to e-commerce and other online platforms to continue selling and getting customers.

The project acquired the services of a social media management consultant to capacitate the farm owners in the field of digital marketing and guide them for six (6) to eight (8) months in designing online posters, scheduling of posts, virtual tour, and conducting live webinars. This intervention resulted in the improvement in Facebook page likes and followers of each farm (Table 2).

Table 2. Social media campaign performance

	<i>Before</i>		<i>After</i>		<i>% Change</i>	
	Page Likes	Page Followers	Page Likes	Page Followers	Page Likes	Page Followers
Mt. Kitanglad Agri-Tourism Farm	879	940	1,188	1,268	35%	35%
Silan Agrifarm	1,138	1,211	2,678	2,982	135%	139%
Dimpas Greentegrated Farm	1,105	1,123	1,406	1,438	27%	28%
Seeds & Seedlings Plaza	579	582	1,025	1,076	77%	85%
Sanoy Heritage Farms	325	-	368	373	13%	Increase
Oikos Peace and Wellness Garden	1,030	1,059	1,117	1,150	8%	9%
Rocapor's Farm	1,794	1,841	1,975	2,045	10%	11%
<b>TOTAL</b>	<b>6,850</b>	<b>6,756</b>	<b>9,757</b>	<b>10,242</b>	<b>42%</b>	<b>52%</b>

The diversification of marketing activities to social media helped in the preparation for the eventual reopening of the tourism sector, focusing on domestic tourists, who will “revenge travel” after the easing or complete lifting of travel restrictions.

5. *Technology Transfer at the Farm Site*

A series of training was conducted for the partners and beneficiaries to promote the advantage of innovation and to push the mainstreaming of POTs in farm production across regions (Table 3).

In the said training, SciCAT farms were also able to showcase the tourism activities offered by their sites. Demo areas were also established to show farmers, associations/cooperatives, and tourists how POTs can be used or applied.

Table 3. Number of trained farmers for POT adoption

SciCAT Farm	No. of Trained Farmers or Cooperatives	No. of Actual POT Adopters
Dimpas Greentegrated Farm	138	58
Oikos Peace and Wellness Garden	90	4
Silan Agrifarm	312	11
Rocapor Farm	62	40
Seeds and Seedlings Plaza	353	8
Mt. Kitanglad Agri-Tourism Farm	511	52
Sanoy Heritage Farm	4	4

6. *Preparation of Farm Master Plan*

The FMP was an effective document, which enabled the farm owners to visualize the intended land-use arrangement (e.g., placement of demo areas, multipurpose hall, toilets, etc.), proposed design of tourism facilities, landscape, and tourism circulation map. Figures 4 and 5 show an excerpt from the FMP results.



Figure 4. Site development plan

**5.0 Proposed Structures**  
Dimpas Greentigrated Farm

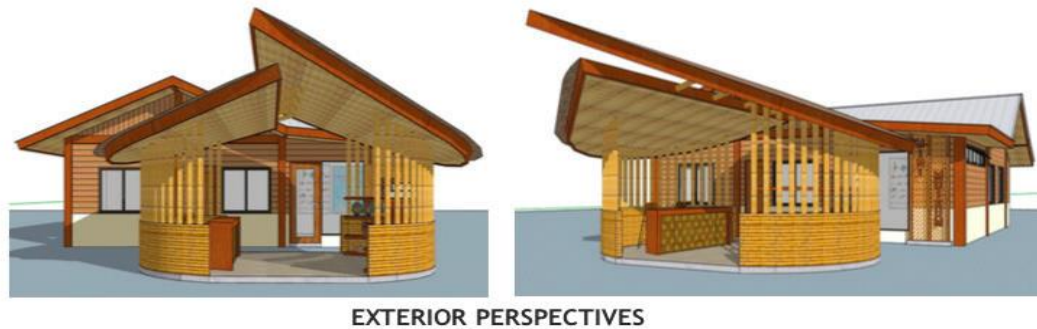


Figure 5. Proposed structures

7. *Development of the SciCAT guidebook*

The process of converting a production farm to a SciCAT farm was documented and translated into a guidebook to serve as reference material for interested farmers or potential agriculture-based entrepreneurs. This book aims to minimize the trial-and-error approach of most entrepreneurs by providing them with a systematic process (Figure 6), which will enable them to study and evaluate all aspects of the enterprise, including drivers of its growth.

<b>PLANNING</b>	<b>Step One:</b> The farm owner, with assistance from the SUC and other concerned organizations, will assess the strengths and weaknesses of the farm, as well as the opportunities for and threats to it.
	<b>Step Two:</b> The farm owner, with assistance from the SUC and other concerned organizations, will determine the farm’s carrying capacity. The carrying capacity refers to the maximum number of individuals, equipment, and vehicles that the farm can suitably accommodate at any given time.
	<b>Step Three:</b> The farm owner, with assistance from the SUC and other concerned organizations, will examine the viability of transforming the farm into an agritourism enterprise. This step includes risk assessment, the preparation of a feasibility study, and the selection of services and technologies that the farm will showcase.
	<b>Step Four:</b> The farm owner, with assistance from the SUC and other concerned organizations, will prepare the Farm Enterprise Plan for the proposed agritourism destination. The farm enterprise plan (FEP) encompasses cash flow statements, profitability ratios, the “4Ps” of Marketing, business model, process flow, quality control, waste management, among others.
	<b>Step Five:</b> The farm owner, with assistance from the SUC and other concerned organizations, will develop the Master Plan for the proposed agritourism destination. Simply, the Master Plan is the layout of the surroundings and amenities at the agritourism destination.
<b>SUSTAINING</b>	<b>Step Six:</b> The farm owner, with assistance from the SUC and other concerned organizations, will secure accreditation from DOT and ensure that the agritourism destination remains abreast of tourism trends.
	<b>Step Seven:</b> The farm owner will seek partnerships with various institutions for continuing mentoring and technology assessment.

Figure 6. 7-Step SciCAT farm development process



## CONCLUSION

The facilitation of a collaborative environment has proven to be key to accomplishing the primary objective of the project. During the conceptualization stage, the operational framework was already clarified and established to promote complementarity as opposed to overlaps and duplications.

It must be emphasized to partners and beneficiaries that plans should be updated as soon as new data or information has been received. No plan can be cast in stone. During enterprise planning, pivot strategies were found to be challenging, especially when chosen market segments were limited in movement as a result of the pandemic.

Collaborative enterprise planning is critical, especially the support of the academe, to be able to explore all possible opportunities.

Given the onslaught of the pandemic, the direct impact of the project in terms of farms' profitability cannot be measured. However, the SciCAT beneficiaries, evidently, were able to seek ways to keep their survival by engaging in pivot strategies. With this, continuous institutional partnership is imperative. An entrepreneur, especially small ones, cannot do it alone. The concerned SciCAT project teams also had to be creative, as they adjusted their activities to be able to continue implementation amidst the challenges they faced.

The SciCAT Guidebook produced by the project team is a practical manual that can be used by any farm owner who intends to diversify his/her farm by establishing POTs as one of its main attractions. Other interested parties like the local government, SUCs, and agricultural cooperatives may refer to the SciCAT concept and even extend its scope to include tourism cluster models.

Overall, the SciCAT project was a success in midst of the challenges posed by the pandemic. The promotion of POTs was still carried out with minimal face-to-face mode and heavier virtual (or digital) exposure. The first batch of SciCAT farms could now contribute to raising the country's agricultural output and generate new employment opportunities by showcasing their productivity-enhancing farming technologies to budding and established farmers.

## REFERENCES

- Hootsuite. (2020). Digital 2020: The Philippines. <https://datareportal.com/reports/digital-2020-philippines>
- Philippine Statistics Authority. (2015). Special Report - Highlights of the 2012 Census of Agriculture (2012 CA). <https://psa.gov.ph/content/special-report-highlights-2012-census-agriculture-2012-ca>
- Philippine Statistics Authority. (2020). 2019 Philippine Tourism Satellite Accounts (PTSA) Reports. [http://www.tourism.gov.ph/industry\\_performance/Dissemination\\_forum/2019\\_PTSA\\_Report.pdf](http://www.tourism.gov.ph/industry_performance/Dissemination_forum/2019_PTSA_Report.pdf)
- Philippine Statistics Authority. (2020). Agricultural Indicator System: Employment and Wages in the Agriculture Sector. [https://psa.gov.ph/sites/default/files/AIS\\_Employment\\_and\\_Wages\\_signed\\_1127.pdf](https://psa.gov.ph/sites/default/files/AIS_Employment_and_Wages_signed_1127.pdf)
- University of the Philippines – Institute for Small-Scale Industries & Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development. (2022). Guidebook on SciCAT Farm Planning (An Instructor's Manual). UP Campus, Diliman, Quezon City
- Yamagishi, K., Gantalao, C., & Ocampo, L. (2021). The future of farm tourism in the Philippines: challenges, strategies, and insights. *Journal of Tourism Futures*, ahead-of(ahead-of-print). <https://doi.org/10.1108/jtf-06-2020-0101>

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### **AUTHORS' CONTRIBUTIONS**

Conceptualization, Reynold Ferdinand G. Manegdeg, and Lucy A. Lastimososa; writing – original draft preparation, Reynold Ferdinand G. Manegdeg; writing – review and editing, Reynold Ferdinand G. Manegdeg and Lucy A. Lastimososa. All authors have read and agreed to the published version of the manuscript.

### **COMPETING INTERESTS**

The authors declare no conflicts of interest.