

# EMPOWERING COMMUNITY IN THE PROVINCE OF COTABATO: MEETING SUSTAINABLE DEVELOPMENT GOALS (SDGS) IN LIVELIHOOD THROUGH SCIENCE, TECHNOLOGY, AND INNOVATION (STI)

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## Abstract:

The study aims to establish a progressive, resilient, & empower the community through Science, Technology & Innovation, particularly to determine the respondents' history, demographic, and economic profile and determine appropriate DOST technologies needed by CEST Community. The study used a mixed-method approach, qualitative and quantitative for the data collected through key informant interviews and Focus Group Discussions (FGD). It shows that all of the respondents belong to Kalipi Association who directly benefited from the DOST-CEST program. The majority of respondents were in the 26 to 33 year age group, housewives and housekeepers, Ilonggo, and chose the five components of the CEST as the needed interventions in the community. Generally, all of the respondents were answered "very effective" on aspects of Economic Development measured. These are Technology Trainings Aspects, Consultancy Aspects, Testing, and Calibration Aspects, Packaging, and Labelling Design, Innovation System Support Fund. Based on a two-way Analysis of Variance, the results show a significant difference among age groups with a p-value of 0.00000005887, less than 0.05 level of significance. Based on thematic analysis, Key Informant Interview, there were six (6) unified themes extracted. These are Impact of DOST-CEST XII Program; Assistance Needed; Accountability and Sustainability; Impact to individual, family, and community; Status of employment, and Values learned. The formulated KPI shows that intervention, progress indicator, and success indicator of the current KPI established by DOST-CEST coupled with alignment on the Philippine/Regional Development Plan, EO70, and SDG as the focus group discussion results.

**Keywords:** Empowering community, meeting sustainable development goals, livelihood through Science, Technology, and Innovation (STI)

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## Introduction

Community empowerment is vital in the development of an underserved sector of our society. Potentials among various organizations should be utilized to generate a massive and significant outcome. The deprived community is of great interest to this study. Cotabato Province is well known as the battlefield for armed conflicts. The livelihood and source of living are greatly affected. The social and academic factors among the affected community are also observed. It enables to empower communities, and individuals cannot be empowered by others. They can only empower themselves by obtaining greater authority in various ways. It suggests that people are their resources to achieve the community's shared goal to lead in the right direction. According to Executive Order No. 128, the Department of Science and Technology is mandated to lead and provide central advice, coordination, and leadership of scientific and technological efforts and ensure that the result from the place is geared and utilized in maximum economic and social benefits the people (Biden, 2023).

The Department of Science and Technology's empowerment of communities to lift the Filipino people out of poverty initiates a process of renegotiating power to get more access in a remote place. It recognizes that others will share and relinquish some of their current authority (Baum, 2008). As a result, DOST used a comprehensive approach to building a foundation that would empower a community. Community Empowerment through Science and Technology (CEST) aims to support and empower the poorest of the poor communities in the country through aid with the Science and Technology interventions in a vast array of components. These components are water and sanitation, education, livelihood, health and nutrition, disaster risk reduction, and climate change mitigation (DOST-VIII CEST-NCO, 2020).

Aligned in the CEST is Geographically Isolated Disadvantage Area or GIDA. The latter refers to an area within the Philippines with geographical barriers that impede on reaching mainstream society. The obstacles are due to road access, weather conditions, and distance. Socio-economic factors such as armed conflicts are also considerable barriers to reaching these communities.

Furthermore, the government established the NTF- ELCAC or National Task Force End Local Communist Armed Conflict. The task force has aimed to harmonize the conflicts in the area affected by armed communist terrorists for almost 50 years. Thus, this study incorporates the NEDA's AMBisyon Natin 2040: "*matatag, maginhawa, at panatag na buhay*," which embodies all the Filipino people's shared vision for themselves and the Philippines over long years to achieve the United Nations Sustainable Development Goals.

## Statement of the Problem

1. What STI programs and services are needed by a CEST Community to be progressive, resilient, and empowered?
2. What are the impact of DOST XII interventions in a CEST community meeting Economic Development (ED)?
3. What are the Key Performance Indicators (KPI) used to assess the effectiveness of the agency's intervention?

## Research Design

Based on the problem statement, the researcher utilized quantitative and qualitative Methods. For the quantitative method, the study used descriptive analytics to evaluate the demographics of the respondents. The focus of the research would be on primary and secondary data. However, details of primary significance would be prioritized early in the study. It used a survey that includes in many tests. It was collected through a questionnaire that was adopted and used in several studies. Respondents were asked to rate their opinion on 5 points Likert Scale in the prescribed format.

For the qualitative method, the researcher used thematic analysis. The thematic analysis is an extensive process in which researchers can detect various links between the data on the evolving subjects of research (Hayes 1997). It allows researchers to approach research patterns in two ways: inductive and deductive (Niece, 2011). This makes the theme analysis procedure more suitable when the purpose of research is to extract information to evaluate the relationship of variables and compare different sets of evidence about the same study to different scenarios.

## Locale of Study

The study mainly focuses on the CEST-identified community. Cotabato province lies on the eastern part of Region XII and is strategically located in the central part of Mindanao. It is bounded on the north by the provinces of Lanao del Sur and Bukidnon, on the east by Davao City, on the southeast by Davao del Sur, on the west by Maguindanao province, and the southwest by Sultan Kudarat. Cotabato Province has two Congressional Districts with 17 Municipalities, one component city, and 544 Barangays.

According to CENSUS (2020), The total population of Cotabato, as of May 1, 2000, was 958,643 persons and spatially distributed on 17 municipalities and one city as rice and corn are the main cultivated crops. Of the total 957 thousand household population in Cotabato, 31.68 percent classified themselves as Hiligaynon/Ilonggo, 22.64 percent as Cebuano, 17.75 percent as Maguindanao, 6.88 percent as Ilocano, 4.70 percent as Karay-a, 4.37 percent as Manobo/Ata-Manobo, and 3.60 percent as Boholano. About 8.38 percent considered themselves as belonging to other ethnic groups.

## **Unit of Study**

One (1) CEST Community was selected in Cotabato Province. The population size is to be defined based on identified CEST Community in Cotabato province. Participants of the study were selected through purposive sampling. A pilot testing was done to ensure the components of the guided questionnaire fit the understanding of respondents. Heterogenous purposive sampling was done to gain all angles of perspective from particular respondents in every community.

## **Sampling Design**

For the quantitative method, this study used descriptive analytics to evaluate the impact of DOST interventions in terms of livelihood. This study used Cochran Formula for Sample Size Calculation in smaller populations. The researcher employed Cochran Formula to consider especially appropriate in situations with large populations. A sample of any given size provides more information about a smaller population than a larger one, so there's a 'correction' through which the number given by Cochran's formula can be reduced if the whole population is relatively small.

## **Data Collection Procedures**

The researcher identifies and selects one (1) CEST Community in the Cotabato Province. The Researcher then computes the number of populations with the use of Cochran's formula. A guided questionnaire was disseminated to the respondents, and the statistician tallied the results and treated the data accordingly.

This study adapted the technique used by Braun and Clarke 2006. They used this method to gather data and information significantly. The technique helped the researcher to investigate how chosen purposively chosen participants experienced the effects of DOST XII interventions as CEST community meeting Economic Development (ED). The President and other members of the chosen barangay should give the study their complete ethical approval. All of the participants signed a written informed consent form. They were informed in the research brief that they withdraw if the participants don't feel to do it anymore. Participants agreed to have their interviews taped, which were then anonymized and transcribed. All data was privately and securely through a storage bank or computer that hosted the interviews.

## **Findings and Analysis**

### **Sample and Sampling Technique – Quantitative Approach**

Barangay Camutan, Antipas, Province of Cotabato was the selected Barangay for the study. A purposive sampling technique was adopted to select the sample respondents, particularly, Kalipi Association of the said Barangay. The survey questionnaire was administered to 25 respondents. The questionnaire are composed of demographic information, DOST-CEST interventions needed by the community, and effects of DOST XII interventions in a CEST community in meeting Economic Development (ED).

The demographics assessed were age, tribe, gender, and nature of work. In DOST-CEST interventions needed by community, the respondents chose the needed assistance by the community such as economic development / livelihood component, education and human resource development, community literacy enhancement thru science and technology, health and nutrition, and disaster risk reduction and management and climate change adaptation. In the effects of DOST XII interventions, there were five aspects of Economic Development measured, these are Technology Trainings Aspects, Consultancy Aspects, Testing and Calibration Aspects, Packaging and Labelling Design, Innovation System Support Fund. The following aspects were measured using five-point Likert scale, where 1 indicates Totally Not Effective; 2 indicates Not Effective; 3 indicates Neutral; 4 indicates Effective; and 5 indicates Very Effective. The reliability of the scales was tested using Cronbach's alpha and is reported in the description of tools. Content validity of the statements was established by a thorough review by respondents of ten (10) Barangay Officials from Barangay Camutan, Antipas.

**Techniques of Analysis**

The data collected from the respondents were analyzed through appropriate statistical techniques. The rating questions were analyzed using descriptive statistics (Means and Standard Deviations). Differences between groups were analyzed using two-way ANOVA (between age groups).

**Respondent Profile**

The profile of respondents is presented in Table 2. There were 25 respondents (3 male and 23 female) who participated in this study. All of the respondents who belong to Kalipi Association directly benefited from the DOST-CEST program. In terms of age group, the majority of respondents were in the 26 to 33 year age group (36%), followed by the 34 to 41 year age group (28%), 18– 25 year age group (20%), and 4 % for 42 yrs. old up. In terms of nature of work, majority of the respondents are housewives and housekeeper with an equal percentage of 36, followed by student, driver, and government employees with an equal percentage of 8, and farmer with a percentage of 4. Based on the tribe, the majority of respondents are Ilonggo with 13 or 52 %, followed by Indigenous People with 7 or 28 %, Manobo with 3 or 12 %, and Cebuano and Maguindanaon with equal respondents of 1 or 4 %.

**Table 2. Indicating the Profile of the Respondents**

<b>Variables</b>	<b>Total Number</b>	<b>Percentage</b>
<b>Name of Organization</b>		
Kalipi Association	25	100
<b>Age</b>		
18-25	5	20
26-33	9	36
34-41	7	28
42 and above	4	16
<b>Sex</b>		
Male	3	12
Female	22	88
<b>Nature of Work</b>		
Housewife	9	36
Housekeeper	9	36
Farmer	1	4
Student	2	8
Driver	2	8
Government Employee	2	8
<b>Tribe</b>		
Ilonggo	13	52
Indigenous People	7	28
Manobo	3	12
Cebuano	1	4
Maguindanaon	1	4

**DOST-CEST Interventions/Components Needed by the Community**

Based on Table 3, all of the respondents chose all the components of CEST as the needed intervention in Barangay Camutan. Generally, prior to the interventions such as technology trainings, provision of educational tools ( DOST-STARBOOKS ), provision of complementary food products, and trainings/seminars on disaster prevention, mitigation and preparedness, DOST Personnel should conduct CNA or Community Needs Assessment. The conduct of the Community Needs Assessment is to thoroughly assess the science, technology, and innovation needed by the community. In this case, a community needs assessment identifies the strengths and resources available in the community to meet the needs of children, youth, and families (American Community Survey 2017). The assessment focuses on the capabilities of the community, including its citizens, agencies, and organizations. It provides a framework for developing and identifying services and solutions and building communities that support and nurture children and families (Child Information Gateway, 2019).

**Table 3. List of DOST-CEST Interventions/Components Needed by the Community**

Components	Mean
<p><b>Economic Development / Livelihood Component</b>                      The DOST XII, through its Community Empowerment thru Science and Technology (CEST) program will provide technical assistance in the acquisition of appropriate technologies/equipment and materials being requested by the proponent</p>	5
<p><b>Education and Human Resource Development</b>                      Literacy of the community will be improved by preparing their children for a smarter education.</p>	5
<p><b>Community Literacy Enhancement Thru Science and Technology</b>                      The communities will be assisted thru installation of Science and Technology Academic and Research-Based Openly Operated Kiosk Stations (STARBOOKS), an educational innovation in line with DOST's aim to provide the public with relevant and timely S&amp;T information.</p>	5
<p><b>Health And Nutrition</b>                      The communities will be provided with complementary food products. Dissemination of the DOST-FNRI Project on Complementary Food Production and ready-to-eat processed foods, NUTRIBUN products will be conducted to make them aware of the benefits of the products.</p>	5
<p><b>Disaster Risk Reduction and Management and Climate Change Adaptation</b>                      The communities will be provided with trainings/seminars on disaster prevention, mitigation and preparedness will be conducted to the community.</p>	5

**Technology Training Aspects**

Table 4 shows the mean and standard deviation of the effects of DOST XII interventions in technology training aspects. The results show that all of the respondents were favored the interventions offered by the agency. The respondents find the technology training "Very Effective. Item 1 and 3 got the highest mean of 4.92. Item 1 or "The DOST-CEST intervention on Technology Trainings brought huge impacts on our livelihood," and Item 3 or "The DOST-CEST intervention on Technology Training brought additional employment to the community." This was followed by Item 2 or "The DOST-CEST intervention on Technology Training are timely and relevant to the available raw materials and the needs of the community." The other remaining items (Item 4 and 5) got an equal mean of 4.80. Although there is a slight difference in the mean for the following items, all the items are still interpreted as "Very Effective." According to Oizumi (2004) and Prateep (2004b), the project should be community-driven to ensure that the knowledge and technologies developed in the process will be utilized properly. The program's goal is to grow through empowering communities via science and technology so that the community can become self-sufficient and pass on their inheritance to others through livelihood interventions.

**Table 4. The Mean and Standard Deviation of the effects of DOST XII Interventions in a CEST community in meeting Economic Development (ED) through Technology Training Aspects.**

Items	Mean	Interpretation	SD
The DOST-CEST intervention on Technology Trainings...			
1. Brought huge impacts on our livelihood.	4.92	Very Effective	0.28
2. Are timely and relevant to the available raw materials and the needs of the community.	4.88	Very Effective	0.33
3. Brought additional employment to the community.	4.92	Very Effective	0.28

4. Brought additional income to the community.	4.80	Very Effective	0.41
5. Enhance the products in terms of food safety, food handling, and shelf-life we produce.	4.80	Very Effective	0.40

Table 5 shows the mean and standard deviation of the effects of DOST XII interventions in Consultancy Aspects. The results show that all of the respondents were favored on the interventions offered by the agency. The respondents find the Consultancy Aspects "Very Effective. Item 2 and 4 got the highest mean of 4.88. Item 2 or "The intervention such as the one-on-one Consultancy towards the chosen program of the community are timely and relevant to the available raw materials and the needs of the community," and Item 4 or " The Consultants motivate and inspire the community during consultation for them to be well equipped in terms of mentality, personality, and among others." The other remaining items (Item 1,3, and 5) got an equal mean of 4.84. Although there is a slight difference in the mean for the following items, still all the items interpret as "Very Effective." The agency should identify and assemble a diverse community team, develop a team strategy, define community to assess region, village, identify community sectors to assess health care, schools, and among others, identify community components to evaluate nutrition, develop questions to ask for each community component, select sites and number of sites to visit within each sector, and determine existing data to use or to use or to use or to use or to use Determine who to contact for information (Community Assessment Guide Book, North Carolina Department of Health 2002). Through the use of science and technology, the Community Empowerment through Science and Technology (CEST) program hopes to reduce poverty in rural areas. Technology-based livelihood initiatives are provided and transferred to designated communities in order to carry out the program's execution.

**Table 5. The Mean and Standard Deviation of the effects of DOST XII Interventions in a CEST community in meeting Economic Development (ED) through Consultancy Aspects.**

Items	Mean	Interpretation	SD
1. The intervention such as the one-on-one Consultancy towards the chosen program of the community has brought huge impacts on our livelihood.	4.84	Very Effective	0.37
2. The interventions such as the one-on-one Consultancy towards the chosen program of the community are timely and relevant to the available raw materials and the needs of the community.	4.88	Very Effective	0.33
3. The intervention on Consultancy, such as focus group discussion on the community, is continuously observed to empower the community and encourage them to go beyond their limits.	4.84	Very Effective	0.37
4. The Consultants motivate and inspire the community during consultation for them to be well equipped in terms of mentality, personality, and others.	4.88	Very Effective	0.33
5. The Consultants are open to suggestions and recommendations from the community to look for the problem on the ground that needs to be resolved.	4.84	Very Effective	0.37

Table 6 shows the mean and standard deviation of the effects of DOST XII interventions in testing and calibration aspects. The results show that all of the respondents were favored the interventions offered by the agency. The respondents find the technology training "Very Effective. Item 1,4 and 5 got the highest mean of 4.88. Item 1 or "The intervention on Testing and Calibration on our produced products brought a huge impact to the quality of our products.", Item 4 or "The Consultants motivate and inspire the community

during consultation for them to be well equipped in terms of mentality, personality, and among others.” and Item 5 or “The Consultants are open for suggestions and recommendations from the community to look for the problem on the ground that needs to be resolved.”. The other remaining items (Item 2 and 3) got an equal mean of 4.84. Although there is a slight difference in the mean for the following items, still all the items interpret as “Very Effective.” Product development includes using research and development to improve the product's quality, laboratory testing and analysis, packaging and labeling, and all other requirements that must be met before the product can be approved by the Food and Drug Administration (FDA), such as Food Safety, Good Manufacturing Practices, Hazard Analytical Critical Control Points (HACCP), and Standard Systems Operating Procedures (SSOP) Product development includes accreditations such as ISO accreditation and packaging and labeling support (DOST-VIII CEST-NCO, 2020).

**Table 6. The Mean and Standard Deviation of the effects of DOST XII Interventions in a CEST community in meeting Economic Development (ED) through Testing and Calibration Aspects**

Items	Mean	Interpretation	SD
1. The intervention on Testing and Calibration on our produced products brought huge impact to the quality of our products.	4.88	Very Effective	0.33
2. The intervention on Testing and Calibration on our produced products brought a huge impact on the safety of our products and to the consumers of our products.	4.84	Very Effective	0.37
3. The intervention on Testing and Calibration on our produced products brought a huge impact to standardize our products.	4.84	Very Effective	0.37
4. The Consultants motivate and inspire the community during consultation for them to be well equipped in terms of mentality, personality, and among others.	4.88	Very Effective	0.33
5. The Consultants are open to suggestions and recommendations from the community to look for the problem on the ground that needs to be resolved.	4.88	Very Effective	0.33

Table 7 shows the mean and standard deviation of the effects of DOST XII interventions in packaging and labeling aspects. The results show that all of the respondents were favored on the interventions offered by the agency. The respondents find the technology training “Very Effective. Item 1 got the highest mean of 4.84. Item 1 or “The intervention on Packaging and Labelling Design on our produced products brought huge impact to the promotion of our products.”. while Item 2 or “The intervention on Packaging and Labelling Design on our produced products brought huge impact in terms of income generation. “Got the lowest mean of 4.76. The other remaining items (Item 3, 4, and 5) got an equal mean of 4.80. Although there is a slight difference on the mean for the following items, still all the items interpret as “Very Effective”.

**Table 7. The Mean and Standard Deviation of the effects of DOST XII Interventions in a CEST community in meeting Economic Development (ED) through Packaging and Labelling Design**

Items	Mean	Interpretation	SD
1. The intervention on Packaging and Labelling Design on our produced products brought huge impact to the promotion of our products.	4.84	Very Effective	0.37
2. The intervention on Packaging and Labelling Design on our produced products brought huge impact in terms of income generation.	4.76	Very Effective	0.44

3. The intervention on Packaging and Labelling Design on our produced products brought huge impact to reach market standards.	4.80	Very Effective	0.41
4. The trainer/expert motivates and inspire the community during Packaging and Labelling Design trainings through showing some outputs done on other related field.	4.80	Very Effective	0.41
5. The trainer/experts on Packaging and Labelling Design are open for suggestions and recommendations from the community for the prescribed designs and logo of the products.	4.80	Very Effective	0.41

Table 8 shows the mean and standard deviation of the effects of DOST XII interventions in Innovation System Support Fund aspects. The results show that all of the respondents were favored the interventions offered by the agency. The respondents find the technology training “Very Effective. Item 1 and 2 got the highest mean of 4.88. Item 1 or “The intervention on Innovation System Support Fund provides better assistance for the upgrading of existing production facilities in our community” Item 2 or “The intervention on Innovation System Support Fund on our produced products brought huge impact in terms of income generation”. The other remaining items (Item 3, 4, and 5) got an equal mean of 4.84. Although there is a slight difference on the mean for the following items, still all the items interpret as “Very Effective”. System of Institutional Support and Funds Provision is the act of supplying adequate and timely technological inputs in the form of machinery, equipment, and materials required to establish a firm. Existing ones could be modified to increase efficiency and streamline operations through the procurement of such supports, resulting in increased productivity and competitiveness (DOST-VIII CEST-NCO, 2020).

**Table 8. The Mean and Standard Deviation of the effects of DOST XII Interventions in a CEST community in meeting Economic Development (ED) through Innovation System Support Fund**

Items	Mean	Interpretation	SD
1. The intervention on Innovation System Support Fund provides better assistance for the upgrading of existing production facilities in our community.	4.88	Very Effective	0.33
2. The intervention on Innovation System Support Fund on our produced products brought huge impact in terms of income generation.	4.88	Very Effective	0.33
3. The intervention on Innovation System Support Fund on our produced products brought huge impact to reach market standards.	4.84	Very Effective	0.37
4. The intervention on Innovation System Support Fund on acquisition of other critical requirements in the production line is well observed.	4.84	Very Effective	0.37
5. The intervention on Innovation System Support Fund improve our product quality and productivity in order to ensure market competitiveness	4.84	Very Effective	0.37

**Analysis of Variance**

This study used a Two-way Analysis of Variance to determine the level of significance among the age groups. This study found out that there are significant differences in the intervention on Economic

Development offered by DOST-CEST towards Barangay Camutan with a level of significance of 0.05 (See table 9) among age groups. Community accountability and empowerment interventions, like many interventions in international development, are complex. They are inserted into diverse contexts; they attempt to achieve different goals; they work in different ways; they are affected by a wide variety of factors at national, subnational, and local levels; and effective interventions are responsive and adaptive (Prateep 2004b; Shiratori 2005).

Table 9 shows the Analysis of Variance among the age groups. The results show a significant difference among age groups with a p-value of 0.00000005887 less than 0.05 level of significance. This implies that every age group has its own point of view for different intervention aspects such as Technology Trainings Aspects, Consultancy Aspects, Testing, and Calibration Aspects, Packaging and Labelling Design, Innovation System Support Fund.

**Table 9. Analysis of Variance between Age Group**

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	Computed F	P-value
Age	3	0.33474	0.11158	108.330097	5.88717E-09*
Interventions	4	0.00732	0.00183	1.77669903	0.198331767 <sup>ns</sup>
Error	12	0.01236	0.00103		
TOTAL	19	0.35442			

\*Significant at the .05 level

### Key Informant Interview – Qualitative Approach

Table 10 shows the summary of common themes extracted among the participants. There were five (5) participants for the qualitative approach. The researcher used an interview guide to effectively and uniformly gather information from the participants. There were six (6) unified themes extracted. These are Impact of DOST-CEST XII Program; Assistance Needed; Accountability and Sustainability; Impact to individual, family, and community; Status of employment, and Values learned.

#### Impact of DOST-CEST XII Program

The impact of the DOST-CEST XII Program brought significant implications to the community, particularly a positive impact. Based on the initial code extracted from the participants found the assistance of DOST as outstanding and excellent, efforts are being acknowledged, grateful, and thankful to the agency, and providing ease and opportunity during the pandemic. The following are the raw and transcribed statements from the participants regarding the impact of the program.

#### Participant 1

*The DOST XII assistance is outstanding and excellent. Currently, DOST XII-PSTO Cotabato province to reach out to the community in the province, especially here in Barangay Camutan, Antipas, Cotabato, and I acknowledge their efforts to help and empower the community*

#### Participant 2

*Here in our Barangay, we are very grateful to DOST, especially for facilitating it [ DOST-CEST], because it is a big help to the community of Barangay Camutan, especially now because we are experiencing a pandemic. The community of Barangay Camutan needs livelihood programs. We are thankful because DOST XII is here to conduct such opportunities towards our organization, especially in women’s organizations, because many of us started from scratch due to pandemic crises. We had no more jobs; our incomes were a bit lesser as well. We are all thankful for all the help given by DOST and our government especially through the ELCAC program of the national government. Nevertheless, the best thing that happened to us here is that this is the first time that we have received help here in our Barangay. Through the help of our government and the tireless support of our Governor Nancy A. Catamco. As the representative of our organization, we are very grateful because this project significantly enhances and upgrades our community.*

#### Participant 3

*The DOST XII has brought a huge opportunity to our community regarding livelihood assistance that may contribute to our source of daily needs.*

**Participant 4**

*With the help of DOST, I can say the gratitude of barangay Camutan for what DOST had given to the community of Camutan because before, no government agencies came here, now; we are also very grateful to the government's ELCAC.*

**Participant 5**

*That's a good question, sir. I saw earlier our people who processed the program you provided. Our Kalipi members are happy. The people here in barangay Camutan are really happy. First time it happened here in barangay Camutan that DOST went to the ground and then implemented a project that is a big help to barangay Camutan because barangay Camutan is an interior barangay here in the town of Antipas, it is a plated area from boundary Magpet, boundary Arakan, the people of the town here in barangay Camutan know that it was really not like this before that there was a government agency that came here to the barangay because of the critical area. But now, with the help of our President Duterte, who has implemented the E.O. 70 and then we were admitted to ELCAC, the functions of the government that now come here have disappeared, and then the number one gave a lot of help here in barangay Camutan.*

**Table 10. Thematic Matrix**

Primary theme	Subthemes	Initial Codes	Final Code
Impact of DOST-CEST XII Program	Significant Impact of DOST-CEST Program on the Community	- Assistance is outstanding and excellent	- Positive Impact
		- Efforts of the DOST program is acknowledged by the community	- Positive Impact
		- The community is grateful to DOST	- Positive Impact
		- Big help to the community during the pandemic	- Positive Impact
		- Thankful to the Program of DOST, especially the Women's Organization.	- Positive Impact
		- More incomes, jobs, and opportunities	- Positive Impact
		- Significantly enhances and upgrade the community	- Positive Impact
		- brought huge opportunity and source of living to the community	- Positive Impact
		- The community expresses gratitude for to presence of the DOST program to the community. The organization is happy to program DOST	- Positive Impact

Assistance Needed	Identified Assistance in the Community	<ul style="list-style-type: none"> <li>- livelihood assistance towards the people is much priority of the community</li> <li>- we need livelihood projects</li> <li>- The livelihood program through techno-training conducted by DOST XII in our community is a huge help for us</li> <li>- I wonder what else DOST projects can provide for barangay Camutan (techno training conducted currently done</li> <li>- The people here in the barangay are happy because this is the first stepping stone that we can make a product here in barangay Camutan.</li> </ul>	<ul style="list-style-type: none"> <li>- livelihood assistance</li> </ul>
Accountability and Sustainability	Strategies to Manage the Program	<ul style="list-style-type: none"> <li>- Monitor regularly the assistance given by DOST-PSTO Cotabato Province</li> <li>- The Community will do everything we can so that we can grow the projects that have been given to us.</li> <li>- manage the assistance [equipment and training] given by DOST XII by using it properly</li> <li>- managing it well through the conduct of monitoring.</li> <li>- to monitor the projects and manage like monitoring to grow program provided by DOST</li> </ul>	<ul style="list-style-type: none"> <li>- Proper management through monitoring</li> <li>- Proper management through grow well the program/projects</li> <li>- Proper utilization of equipment</li> <li>- Proper management through monitoring</li> <li>- Proper management through monitoring</li> </ul>
Impact to individual, family, and community	Significant Impact of DOST-CEST Program as Income Generating Project	<ul style="list-style-type: none"> <li>- Very effective through its sustainability plan.</li> <li>- Earn extra income to individual, family, and community</li> <li>- Very effective in terms of earning extra income</li> </ul>	<ul style="list-style-type: none"> <li>- Effective Intervention</li> <li>- Effective Intervention</li> <li>- Effective Intervention</li> </ul>

		<ul style="list-style-type: none"> <li>- Concrete source of income to individual, family, and community</li> <li>- Very happy due to the job opportunities brought by the DOST-CEST Program</li> </ul>	<ul style="list-style-type: none"> <li>- Effective Intervention</li> <li>- Effective Intervention</li> </ul>
Status of employment in the community	Employment Effect	<ul style="list-style-type: none"> <li>- The employment starts right after the technology training was conducted, and currently, the assistance serves as the Income Generated Project of the community.</li> <li>- There is no single agency that has given us anything</li> <li>- Most of the jobs of the residents here in our community are farmers</li> <li>- Before the intervention of DOST, the community was very poor in terms of living.</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the number of employment right after the interventions.</li> <li>- Apparent Assistance from National Government</li> <li>- Increase the number of employments right after the interventions.</li> <li>- Increase the number of employments right after the interventions.</li> <li>- Apparent Assistance from National Government</li> </ul>
Values learned	Values Learned from interventions	<ul style="list-style-type: none"> <li>- Appreciate the Projects given to the community.</li> <li>- Thankful for the opportunities.</li> <li>- Used all learnings from the training in real life.</li> <li>- Keep in the heart all the learnings the community learned.</li> <li>- Appreciate the Projects given to the community.</li> <li>- Thankful for the opportunities.</li> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- Gratitude</li> <li>- Gratitude</li> <li>- Application</li> <li>- Gratitude</li> <li>- Gratitude</li> <li>- Gratitude</li> </ul>

## **Assistance Needed**

Based on Table 10, the Assistance Needed by the community, all of the respondents chose livelihood assistance. Based on the initial codes extracted, livelihood assistance towards the people is much priority of the community and serves as the stepping stone that they can make a product in the community. The following are the raw and transcribed statements from the participants regarding the assistance needed by the community.

### **Participant**

*Generally, based on the target focus areas and community profiling, the assistance needed by the community is arranged within the DOST-CEST program. Specifically, livelihood assistance towards the people is much priority of the community and believed that this intervention [Livelihood] would help touch their lives and be empowered significantly.*

## **Accountability and Sustainability**

Based on Table 10, Accountability and Sustainability of the Program, the majority of the participants strategized to manage properly and monitor the program. Based on the initial codes extracted, participants' strategies are proper management to grow well the program/projects, proper utilization of equipment, and proper management through monitoring. The following are the raw and transcribed statements from the participants regarding on the assistance needed by the community.

### **Participant**

*Regarding management, it is very important, because we should appreciate the projects provided by our government and consider how we can grow that. Our management must be good and no matter what help is given to us, we will appreciate it for the next time, what other projects will come to us, they will never tire of helping us. that is the most important so for our part we will do everything we can so that we can grow the projects that have been given to us.*

## **Impact On Individual, Family, and Community**

Based on Table 10, Impact to Individual, Family, and Community, all participants found it effective intervention. As for the record, the economic growth posted a -9.5 decline in GDP in 2020 from + 7.34 on 2010 and + 6 on its previous year (2019). The statistics showed it to us that COVID 19 negatively affects Philippine Economy. The following are raw and transcribed participants' statements regarding the impact of an intervention on the community.

### **Participant 1**

*The DOST-PSTO Cotabato Province interventions in the community [Barangay Camutan] is very effective because it has a sustainability plan incorporated in their assistance, projects, and programs.*

### **Participant 2**

*Of course, through the projects provided by our government and with the help of DOST, that is a big help for the income that we will get. If we manage well [the assistance], we will get a lot [of income]. We can help our community or [and] our family. If we can manage the projects properly [Income Generating Projects], we can earn income [for our family], and we can earn a lot.*

### **Participant 3**

*The assistance offered by DOST XII in our community is very effective. We significantly use it for our livelihood [soap making and banana chips making] and business venture [calamansi juice producer in Arakan Valley Complex].*

## **Status of Employment**

Based on Table 10, on Status of Employment of the Community, there is an increasing number of employments right after the interventions. Based on the initial codes extracted, The employment starts right after the technology training was conducted, and currently, the assistance serves as the Income Generated Project of the community. The following are the raw and transcribed statements from the participants regarding the assistance needed by the community.

**Participant 1**

*The Presence of DOST was not felt before by the people, but with its new Regional Director [Engr. Sammy P. Malawan], the life of the chosen community [Barangay Camutan] has change. The employment starts right after the technology training was conducted and currently the assistance [trainings and equipment] serve as the Income Generated Project of the community.*

**Values learned**

Based on Table 10, on Values Learned by the community, they are full of gratitude to the programs offered by DOST XII. Based on the initial codes extracted, they learn to appreciate the projects given to the community, thankful for the opportunities and used learnings from the training in real life. The following are the participants' raw and transcribed statements regarding the assistance needed by the community.

**Participant 3**

*We are thankful for the opportunities given by DOST XII. This opportunity will guide not only me but all the people here in our barangay. We will make sure that we will use all our learning from the training in real life. We will keep it in our heart and use it properly [the lessons and wisdom from DOST-CEST interventions]*

**Key Performance Indicator – Qualitative Approach**

The study aims to enhance the Key Performance Indicator or KPI of the DOST-CEST Program (see figure 2). The Focus Group Discussion with NEDA XII, Province of Cotabato Planning Office, and DOST XII officials formulated KPI (see table 11). The researcher organized a meeting online to discuss the said indicator/s on the Economic Development components of the DOST-CEST program. The group thoroughly discussed the KPI further through a google sheet set by the researcher.

**Figure 2. DOST-CEST Key Performance Indicator**

Economic Development		
INTERVENTIONS	PROGRESS INDICATORS	SUCCESS INDICATORS
Provide livelihood opportunities <ul style="list-style-type: none"> <li>• Innovation Support System</li> <li>• Fund</li> <li>• Technology Trainings</li> <li>• Consultancy</li> <li>• Testing/calibration</li> <li>• Packaging and Labelling Design</li> </ul>	No. of S&T Interventions provided  No. of startups/firms assisted  No. of new jobs generated	% increase in number of alternative source of income/ livelihood  % increase in average annual income (gross sales) Increase in the number of persons employed

Generally, the current KPI (see figure 2) only focuses on general interventions such as providing livelihood opportunities through Innovation Support System Fund, Technology Training, Consultancy, Testing/Calibration, and Packaging and Labelling Design. Aligned in the interventions are progress indicators such as the number of S&T interventions provided, startups/firm assisted/ and new jobs generated. The success indicators are mainly focused on a % increase in the number of alternative sources of income/livelihood, a % increase in average annual income, and a % increase in the number of persons employed.

The formulated KPI in table 11 shows the intervention, progress indicator, and success indicator of the current KPI established by DOST-CEST coupled with alignment on Philippine/Regional Development Plan, EO70, and SDG as the results of focus group discussion.

Specifically, the committee aligned the following indicators in interventions for providing livelihood opportunities in Philippine/Regional Development Plan. The latter includes the following alignment. These are Chapter 14: Vigorously Advancing Science, Technology, and Innovation, Chapter 9C: Expanding Access to Economic Opportunities in I&S for Startups, MSMEs, and Cooperatives, and Chapter 8: Expanding Economic Opportunities in Agriculture, Forestry, and Fisheries and Ensuring Food Security. Furthermore, in EO70 and SDG, these include Poverty Reduction, Livelihood, and Empowerment; Peace, Law Enforcement and Development Support; Situational Awareness and Knowledge Management, and Goal 8, Target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading, and innovation,

including through a focus on high-value-added and labor-intensive sectors, respectively. According to Ambisyon Natin 2040, Economic growth must be relevant, inclusive, and sustainable. Over the next 25 years (until 2040), per capita income must increase by at least three-fold. More than the increase in income, economic growth must progressively improve the quality of life of most Filipinos. Thus, this KPI alignment may help DOST-CEST Program to assess effectively the assistance given to a particular community.

**Table 11. Formulated Key Performance Indicator**

Economic Development Component of CEST					
Key Performance Indicator			Alignment		
Intervention	Progress Indicator	Success Indicator	Philippine/Regional Development Plan	EO 70	SDG
<p>Provide livelihood opportunities for marginalized sectors (self-employed, jeepney drivers, rural workers like fisherfolks and farmers. etc.), women's organizations, indigenous people, including those in the communities with conflict as well as geographically isolated and disadvantaged areas through the following DOST-CEST Program</p> <ul style="list-style-type: none"> <li>•Innovation System Support Fund (ISSF)</li> <li>•Technology Training</li> <li>•Consultancy Services</li> <li>•Product Standardization and Laboratory Testing Services</li> <li>•Packaging and Labelling Design</li> </ul>	<p><b>No. of S&amp;T Interventions provided for a CEST Community:</b></p> <ol style="list-style-type: none"> <li>1. Innovation System Support Fund (ISSF)</li> <li>2. Technology Trainings</li> <li>3. Consultancy Services</li> <li>4. Product Standardization and Laboratory Testing Services</li> <li>4. Packaging and Labelling Design</li> </ol> <p>No. of CEST Community assisted per Sector</p> <ol style="list-style-type: none"> <li>1. Marginalized Sectors (self-employed, jeepney drivers, rural workers like fisherfolks and farmers, etc.)</li> <li>2. Women's organizations</li> <li>3. Indigenous people</li> <li>4. Community w/ conflicts</li> <li>5. GIDA Communities</li> </ol>	<p>% Increase in S&amp;T Interventions provided per sector to start-up/community-based MSMEs</p>	<p>Chapter 14: Vigorously Advancing Science, Technology, and Innovation</p> <p>Chapter 9C: Expanding Access to Economic Opportunities in I&amp;S for Startups, MSMEs, and Cooperatives</p> <p>Chapter 8: Expanding Economic Opportunities in Agriculture, Forestry, and Fisheries and Ensuring Food Security</p>	<p>Clusters:</p> <p>9) Poverty Reduction, Livelihood and Empowerment;</p> <p>10) Peace, Law Enforcement and Development Support;</p> <p>12) Situational Awareness and Knowledge Management;</p>	<p>Goal 8, target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors</p>
	<p><b>Value of income increased for S&amp;T beneficiaries</b></p>	<p>% Increase in sales generated and income of the STI beneficiaries compared to the non-STI beneficiaries</p>			<p>Goal 1, target 1.2: By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to</p>

					national definitions
<b>Intervention</b>	<b>Progress Indicator</b>	<b>Success Indicator</b>	<b>Philippine/Regional Development Plan</b>	<b>EO 70</b>	<b>SDG</b>
	No. of new jobs generated per sector with sex disaggregation  1. No. of new jobs generated for marginalized sectors male employees 2. No. of new jobs generated for marginalized sectors female employees 3. No. of new jobs generated for women's organizations employees 4. No. of new jobs generated for indigenous people male employees 5. No. of new Jobs generated for indigenous people female employees	% Increase in new employment generated per sector due to STI provided	Chapter 14: Vigorously Advancing Science, Technology, and Innovation  Chapter 9C: Expanding Access to Economic Opportunities in I&S for Startups, MSMEs, and Cooperatives  Chapter 8: Expanding Economic Opportunities in Agriculture, Forestry, and Fisheries	Clusters: 9) Poverty Reduction, Livelihood and Empowerment;  10) Peace, Law Enforcement and Development Support;  12) Situational Awareness and Knowledge Management	Goal 8, target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
	<b>Value/amount of S&amp;T Interventions provided per Sector</b>	Efficiency of STI provided per sector (Cost of STI provided over the Increase in income/sales generated)			Goal 8, target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors
	<b>Number of Filipino patent registered/S&amp;T interventions adopted per Sector</b>	% of interventions adopted (STI adopted in Cotabato Province over total STI nationwide)  % of new patent registered (New patent registered in Cotabato Province over total registered Filipino patent-nationwide)			

	<p><b>Customer Satisfaction (ISO 9001:2015, 9.1.2)</b></p> <p>Total No. of CSF Respondents per Sector Number of customers rated VS or better Total No. of Requests Received</p>	<p>% of Overall Customer Satisfaction Rating</p> <p>% of requests acted within standard time</p>			
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The committee also added Value of income increased for S&T beneficiaries. The success indicator is % Increase in sales generated and income of the STI beneficiaries compared to the non-STI beneficiaries, which anchored to SDG on Goal 1, Target 1.2: By 2030, reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions. The following are the raw and transcribed statements from the committee members regarding the addition of the following alignment.

**NEDA XII**

*May I ask, how is the livelihood programs and projects of DOST different from the livelihood programs and projects of DOLE and other related agencies?*

**DOST XII – Province of Cotabato**

*Actually, sir ang difference ng program ng DOST is that meron tayong scientific approach. First we conduct community needs assessment. Pangalawa po, all our RDIs or all our agencies yung mga technologies po nila na readily available na pwede natin i-transfer sa communities ay binibigay po natin. Not only that, we conduct also laboratory analysis assistance and all the consultancies na I believe na dun sa other po na mga livelihood na assistance na binibigay ng iba ay parang wala pa po sa kanila. But, for us po is it's a holistic approach may mga kwan po tayo consultance, in fact we have an engineers na pumupunta po to conduct a training. And we believe naman po although may Nakita kaming mga livelihood assistance for the other agencies we always compliment sa kanila po.*

**DOST XII – Province of Cotabato**

*Ang set-up program sir is the small enterprise technology upgrading program. Meaning po it is for the MSMEs. Yung MSMEs po through po yun sya sa innovation system support fund. May refund po yung sa set-up sir. Yung sa community is all given sa kanila for free. Ang set up is for the MSM po they will pay that, refund that amount in the form of equipment kasi binibigay natin not in the form of money po. Yun po ang binibigay natin for three years and then with the one year grade period. Lahat po non is no interest at all pero nirerefund po yun ng mga MSMEs. Ito po they are organizations po based doon sa categories. So it's parang grant po na binibigay natin sa mga communities.*

**DOST XII – Province of Sarangani**

*In addition, doon sa sabi mo [DOST XII – Province of Cotabato] kasi ang CEST is based on the community's needs after the thorough assessment. So the livelihood that will be given to them is based doon sa recommendation natin after the assessment so that is the unique way of our program. So per community is the... iba yung needs nila doon sa iba so kaya iba-iba yung mga project natin.*

**DOST XII – Regional Office**

*Ang CEST is we have objective to build or develop with the communities to be progressive, resilient and empowered. So these communities are really kwan kung ano pa sir helpless sila that's why DOST in general had identified entry points, science and technology based entry points wherein we believe that this entry point yung namention kanina ni Michael na health and nutrition, education, livelihood, and among others, we really help them or we really bring impact to their lives so that the CEST program is given to them for free.*

**NEDA XII**

*Mostly marginalized sector yung beneficiary? Beneficiaries are ELCAC right?*

**DOST XII – Regional Office**

*They can be classified as beneficiaries sir. Meron din sir in not ELCAC areas and regular communities po na they really need S&T interventions. Yun po ang pagkakaiba ng mandate namin from other agencies na we believe this SMEs interventions we really be sustainable sya sir ba hindi lang sya pang-today but it will go long long way po.*

**NEDA XII**

*Tama ba ang pagka-understand ko po that this study kumbaga gi-highlight mo lang yung CEST framework kung ano yung contribution nya towards SDG and EO 70 na implementation so parang ang pagtingin namin dito sa what you have presented earlier is yung parang in academic setting sya ang pagtingin namin during this presentation, tama ba sir?*

**DOST XII – Province of Cotabato**

*Yes ma’am and also in addition po ma’am itong gagawin po natin, itong key performance indicator it will be given po sa mga LGUs as part of devolution transition that’s why we’ll be conceptualize or re-visit po ito syang nagawa na po natin na KPI.*

For the number of new jobs generated per sector with sex disaggregation, the committee added specific details such as a number of new jobs generated for marginalized sectors for male employees, female employees, women's organization's employees, indigenous people male employees, indigenous people female employees with success indicators in % increase in new employment generated per sector due to STI provided. These are aligned to Philippine/Regional Development Plan, EO70, and SDG ( specifically on Goal 8, Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value ( see table 11). The following are the raw and transcribed statements from the committee members regarding the addition of the following alignment.

**NEDA XII**

*Ang question kasi in general po, nakaprepare ka na po ba nung parang study framework mo na like diba napresent mo kanina yung CEST framework? So from CEST framework, identified mo na ba yung kumbaga specific na indicators or target for the EO 70 or SDG, parang naga-contribute yung CEST framework na yon.*

**DOST XII – Province of Cotabato**

*Actually meron na po tayong KPI dito na available so we’ll just have to re-visit that and at the same time for the CEST po only the economic component po ang madedevolve po muna natin since all the rest po is medyo highly technical that’s why po we focus on the economic aspect po of the CEST. As presented po, we identified CEST under economic component level one technologists sila po yung mga in default po natin sa mga LGUs po. So, initial lang po ito that we re-visit the KPI and then after that po we will be calling another meeting para po mapresent po natin sa mga boss natin, sa mga NGAs LGUs po in our region.*

**Cotabato Province Planning Office**

*If I may inform everybody, thus, the mission of the devolution transition plan on our cities and municipalities is on November 12 na po. They are finalizing now and most of our LGUs here in Cotabato province are on the final critiquing na and for submission to their Sanggunians na for approval na po. For your information lang po.*

**DOST XII – Province of Cotabato**

*For the economic development, we have the categorized this into interventions, progress indicators, and success indicators. For the Interventions po, we provide livelihood opportunities such as the innovation support system fund, ito po yung fund na binibigay natin sa kanila, technology trainings, consultancy services, testing laboratory services, packaging and labelling designs. So, for the existing progress indicators ito na po yung nakalagay natin na number of S&T Interventions provided, number of startups firms assisted, and*

*number of new jobs generated. And then its success indicators is percent increase of number of alternative source of income or livelihood, increase in average annual incomes (gross sales) and increase in the number of persons employed.*

**NEDA XII**

*For your success indicator po siguro sir kailangan i-specify mo ang... parang lagyan mo sya or i-emphasize mo yung science and technology kasi diba kumbaga ang key feature nito is because of the science and technology intervention dapat mag-increase yung income nila, yung livelihood nila, or yung employment generated. So, if ano po yung sa success indicator nyo halimbawa like percent increase in number of science and technology alternative source of income or livelihood na provided mga ganon para ma-highlight mo po talaga that what we will be monitoring later on is yung may mga S&T interventions po talaga.*

**DOST XII – Province of Cotabato**

*Actually ma'am mas tutukan natin yung economic development kasi ito yung isa sa ibibigay natin sa DTP na part ng DTP natin. Hopefully, ito po yung matutukan natin kasi all the rest naman sa baba is highly technical pa sya di pa natin kayang i-devolve but for the economic development ito po most likely ang ma-dedevolve na din po natin. So, mas maganda kung mas ma-expound pa natin ito something realistic po yung mga success and progress indicators natin.*

**DOST XII – Province of Sarangani**

*Additional din if I may suggest. Kasi we are also talking on the percentage of increase so meaning there is... we should have a baseline data to compare yung the trends kasi we are talking on the increase eh from... like source of specific income so after that is ilan yung na-kwan nila additional income so siguro need natin yung baseline data. Like yung kasi sa success indicator ilan yung income nila before then tapos after CEST kung nag-increase yung income nila. So, kailangan din natin siguro ng data.*

**DOST XII – Regional Office**

*And then may additional lang ako sir Mike. Ung sa success indicator meron kasi nakalagay don increase in average annual income pero sa progress indicators natin walang nakalagay na indicator for income padagdagan nalang sya. Ihiwalay lang siguro yung ano annual income at saka persons employed.*

**NEDA XII**

*Para hindi ka mahirapan sa pag come up ng KPI syempre diba naka ano parin sya dapat align padin sya with the PDP if ever din kasi na magbabago tayo ng PDP natin by next year, yung magformulate tayo ng successor plan natin I think ito parin po yung magiging outcome nya.*

*The first one Is the STI utilization and agriculture industrial services sector increase. So, kumbaga dapat lahat-lahat ng KPI mo on economic development dapat nagacontribute sya doon kasi diba at the regional level pwede naman tayo mag add-on ng mga indicator. So, I suggest sir Mike since mag-share ka man lang ng google disk mamaya and mostly kasi like sa DILG on the ground po sila , so, nakikita din nila po yung anong applicable na indicator.*

The committee also set parameters on Progress Indicator such as the Value/amount of S&T Interventions provided per Sector, the number of Filipino patent registered/S&T interventions adopted per Sector, and Customer Satisfaction (ISO 9001:2015, 9.1.2). For the Value/amount of S&T Interventions provided per Sector, the success indicator is the Efficiency of STI provided per sector (Cost of STI provided over the Increase in income/sales generated). For the number of Filipino patent registered/S&T interventions adopted per Sector, the success indicator are % of interventions adopted (STI adopted in Cotabato Province over total STI nationwide) and % of a new patent registered (New patent registered in Cotabato Province over total registered Filipino patent-nationwide). Lastly, for the Customer Satisfaction (ISO 9001:2015, 9.1.2), the success indicators are % of requests acted within standard time and % of Overall Customer Satisfaction Rating.

### Conclusion

In conclusion, DOST-CEST Program is a very effective intervention towards Barangay Camutan, Antipas, Cotabato, particularly its Economic Development Component among age group, tribe, and nature of work. Putting a significant effort into livelihood programs may help the community achieve sustainable development. The livelihood program may change the lives of the individual within the community during the pandemic in terms of a direct source of income.

The alignment of the Key Performance Indicator ensures a concrete and specific basis of the Projects/Programs' impact to the community patterned and anchored to Philippine/Regional Development Plan, EO70, and SDG as the results of focus group discussion.

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