

**EVALUATION OF THE TRAINING OF TRAINERS (TOT) ON
COMMUNITY SEED BANKING IN REGION VIII**

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TABLE OF CONTENTS

TITLE	PAGE
TITLE PAGE	i
APPROVAL SHEET	ii
BIOGRAPHICAL SKETCH	iii
ACKNOWLEDGMENT	iv
TABLE OF CONTENTS	vii
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF APPENDICES	x
ABSTRACT	xi
 CHAPTER	
I INTRODUCTION	
Statement of the problem	2
Importance of the Study	3
Objectives of the Study	4
Scope and Limitations of the Study	5
Conceptual Framework	6
 II METHODOLOGY	
Research Site	7
Research Design	8
Research Instrument	9
Data Gathering Procedure	9
Data Analysis	9
 III RESULTS AND DISCUSSION	
Socio-Demographic Profile of	10
Level of Knowledge Gained Regarding the	12
CSB Concept, Guidelines and Technologies	
Inherent to CSB Training	
`Action Plan Implementation	14
Ways of Plan Implementation	15
Types of extension support	
Relationship between Selected Socio Demographic	17
Characteristics, level of knowledge and Extension	19
support services to the Utilization of Knowledge on CSB	20
Problems Encountered	21
Solutions Made in the Implementation of the AEWs`	
Action Plan	22

IV	CONCLUSION AND RECOMMENDATIONS	
	Conclusions	22
	Recommendations	23
V	LITERATURE CITED	
VI	REVIEW OF LITERATURE	
	Community Seed Banking Perspective	25
	Facts of village-based seed production	30
	Importance of training and role of Non- formal Education	32
	Significance of training program evaluation	33
	Monitoring and Evaluation	34
	 Literature Cited	
	 APPENDICES	
	Appendix A	35
	Appendix B	36
	Appendix C	37
	Appendix D	43
	Appendix E	45
	Appendix F	46

LIST OF TABLES

Table No.	Title	Page
1	Distribution of Respondents	43
2	Respondents' Socio-Demographic Characteristics	11
3	Respondents' Level of the Knowledge Gained Regarding the Community Seed Banking Concept, Guidelines and Technologies Inherent To CSB Training	13
4	Action Plan Implementation	14
5	Ways of Implementation	15
	5a Action Plan Implementation	15
6	Type of support	16
7	Relationship between the levels of knowledge gained to the utilization of knowledge on CSB	17
8	Relationship between Socio-Demographic variables and Utilization of knowledge.	18
9	Correlation between level of utilization and type of support System	19
7	Problems Encountered	20

LIST OF FIGURES

Figure No.	Title	Page
1	Schematic Diagram of the Conceptual Framework Showing the Relationship of Variables	46
2	Map of Region VIII showing the 52 municipalities as the covered sites of the study.	7

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	Letter request to Municipal Agriculture Office (MAO)	35
B	Evaluation Tool for AEWs	36
C	Definition of Terms	41
D	Distribution of Respondents	43
E	Chi-Square test	45
F	Dependent and Independent Variable	46

ABSTRACT

The study was conducted focusing mainly on the effectiveness of the training of trainers on Community Seed Banking conducted by Agricultural Training Institute (ATI) in Region VIII. A complete enumeration of 94 Agricultural Extension Workers who participated and eventually graduated from the training were the respondents. Data were gathered using a questionnaire and were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics as totals, percentages, frequencies and ranges were used to describe the respondents. Chi-Square test was used to determine the relationship between the respondents' demographic characteristics, level of knowledge and extension support to the utilization of knowledge gained by the respondents.

Out of 94 respondents, half were males and half were females. Majority were married and college graduates and employed as agricultural technicians as rice experts. On the average, the respondents have rendered 17 years of service and covered seven barangays and served 75 farmers. In terms of trainings, most of them (86.0%) have attended 12 trainings or less and are experts on crops (82.2%). Right after the training most of the participants responded positively with the significant increase from medium to high level of knowledge gained from the training.

Majority of the respondents (94.7%) imparted their knowledge and learnings down to the farmer level through meetings with creating awareness on CSB as the highest ranked activity implemented. The level of knowledge utilization is mostly medium to high.

Highest extension technical support was from DA-LGU with material support from DA-RFO.

Educational attainment is significantly associated to the utilization of knowledge on CSB among the respondents.

Moreover, results showed that those provided with technical extension support and have high level of knowledge gained from the CSB training had significantly higher level of utilization of the CSB technology.

The most mentioned problem was the lack of financial support from DA-LGU, thus AEWs incorporated the CSB training with other trainings to fastrack dissemination and awareness generation at the farmer level.

CHAPTER I

INTRODUCTION

Seed is the most valuable input in farming. It has gained the unique status as a natural resource that evolved with human civilization. In other words, it is a plant genetic resource, which was inherited from past generations of human beings. One can imagine the role played by nature as well as human beings over a long period in creating such a diverse and wonderful resource. If any portion of it is lost by one or other means, it is going to be lost forever. Unfortunately, the modern agricultural trend enhanced the erosion of agrobiodiversity resulting in loss of valuable local crop germplasm. To arrest further loss of traditional crops and varietal diversity, global concern is gaining much importance in the form of preservation, conservation, and enhancing the local agrobiodiversity for sustainable food and nutritional security.

The government, through its “Agri Pinoy” program, strongly supports initiatives and action plans on the development of various systems where farmers themselves can take active role and where communities can have wider access to seed sources. One of these systems is the Community-Based Seed Bank (CSB) that offers appropriate seed technologies and best management practices to ensure seed and food security.

Establishing seed banks, seed breeding and multiplication are in line with the attainment of the objective to achieve genetic resource conservation. That is why the concept of community seed banking has to be understood fully and should gain strong support from the government to strengthen the seed supply system.

In region 8, trainers training on CSB commenced last July 2012 participated by Agricultural extension workers regionwide. This pool of trainers will then be expected to utilize the output of the training to disseminate information to the local community down to the end beneficiaries, the farmers. ATI as a training arm of the Department of Agriculture is mandated to facilitate the conduct of TOT training on CSB in the region.

Importance of the Study

Farmers need seeds because without viable seeds, the survival of their household is endangered. In fact, the ways that farmers obtain seed are as old as agriculture, and most small-scale farmers in developing countries routinely save their seed from one harvest to the next. Intervention such as trainings, seminars and workshops/meetings has to be given to the ATs down to the local farmers' level to strengthen the seed supply system, These include establishing seed banks and seed breeding and multiplication parallel to achieve genetic resource conservation at the community level within the framework of sustainable agriculture.

Given the above, evaluation of the training of trainers conducted by the Agricultural Training Institute will provide relevant and much-needed feedback of the training programs strong and weak points, the problems encountered, as well as the needs for future training. The findings and results obtained from this study can help implementers and agencies such as the Department of Agriculture, Agricultural Training Institute, PhilRice as well as local agriculture offices in deciding whether the training program needs to be maintained, redesigned or improved..Generally, the ultimate aim of this development effort on the training of trainers' evaluation is to

provide the necessary information on the effectiveness of the TOT on community seed banking with regard to the nature and extent of involvement of individuals and agencies as program implementers with the improvement of the latter's performance and effectiveness.

In region 8, TOT on CSB commenced in July 2012. Since then, no study was conducted to determine if the knowledge gained by the participants from the training redound to the farmers, hence, this study.

OBJECTIVES OF THE STUDY

This study has been conceptualized within the context of the following objectives:

1. To present the socio-demographic profile of the Agricultural Extension Workers (AEWs);
2. To assess the knowledge gained by the AEWs regarding the concept, guidelines and technologies inherent to CSB training;
3. To determine the action plan implementation and extension support made available to the program;
4. To determine the relationship between selected socio-demographic characteristics, extension support services and level of knowledge to the utilization of knowledge on CSB among the respondents and
5. To identify the problems encountered and the solutions made in the implementation of the AEW's action plan.

Scope and Limitation of the Study

The study focused mainly on the effectiveness of the training of trainers on Community Seed Banking conducted by ATI last July 2012 for 2 batches with a total of 121 participants. A complete enumeration of Agricultural Extension Workers who participated and eventually graduated from the training were the respondents of the study. They are coming from different municipalities within Region 8. Yet, out of 121 targeted respondents only 94 were interviewed by the researcher due to the following reasons: transferred to other working/agencies (16), deceased (5), migrated abroad (2) and retired (4).

Conceptual Framework

Technology transfer has been defined as a process of moving information and skills from information or knowledge “generator” to its intended clientele like the farmers who are the intended users (Yap, 2004). One of the ways to disseminate technologies is through training. Agricultural extension workers like other individuals, have distinct attitudes and characteristics which influence their views, opinions, and behavior in the facilitation of CSB technology and have different levels of comprehension, adoption and utilization of knowledge gained from the training. Talking about innovation, its acceptance or rejection, levels of utilization and adoption of CSB technology varies due to several factors namely, socio demographic characteristics, level of knowledge, and support from any agency extended to them.

In this view, Roger’s theory pointed out that adoption of the new idea, behavior or product does not happen simultaneously in a social system, rather, it is a process whereby some farmers are more apt to adopt the innovation than others. When promoting an innovation to the farmers, it is important to understand their characteristics that will help or hinder the adoption of the innovation (Editor, Journal of Educational Technology, 2006).

CHAPTER II

METHODOLOGY

Research Site

Region 8 is composed of six provinces namely Samar, Eastern Samar, Northern Samar, Leyte, Biliran, and Southern Leyte. These six provinces were covered by TOT on Community Seed Banking program.

From the six provinces, municipalities of Calbiga, Catbalogan, Basey, Jiabong, San Jorge, Paranas, Motiong, Gandara, Pinabacdao, Sta. Rita, Hinunangan, Palo, Bato, St. Bernard, Kananga, Hinundayan, Mayorga, Almeria, Kawayan, Caibiran, Calubian, Matag-ob, Merida, Naval, Biliran, Cabucgayan, Matalom, Capoocan, Javier, Dulag, Abuyog, Inopacan, Bontoc, Julita, Sta. Fe, San Isidro, Maslog, Sulat, Hernani, Oras, Giporlos, Can-avid, Quinapondan, Balangiga, Lawa-an, Salcedo, Culaba, and cities of Maasin, Baybay, Tacloban, and Calbayog were identified because of their potentials to handle community seed banks given the right technology to farmers and training to extension workers who had attended any TOT.

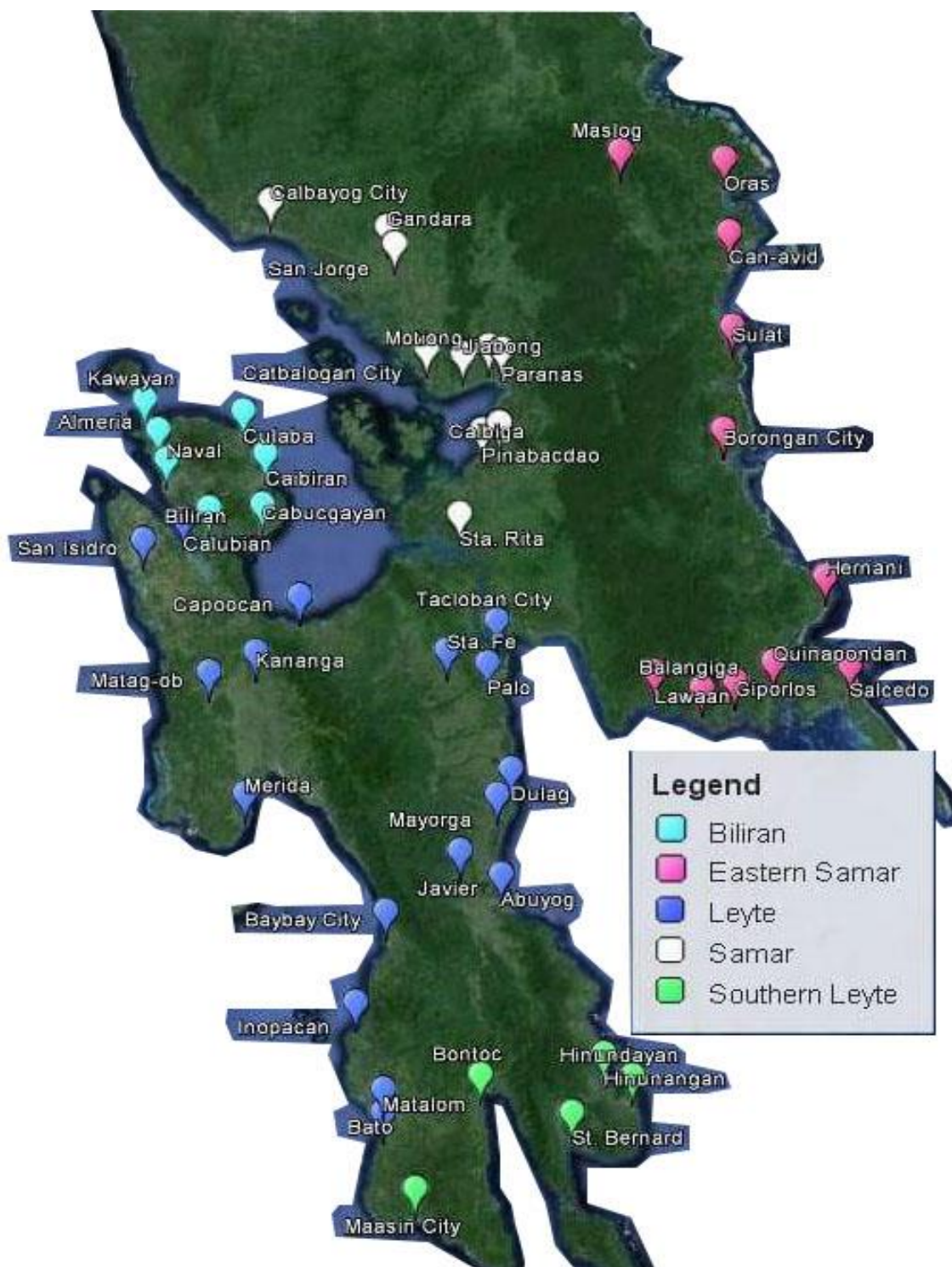


Figure 1. Map of Region VIII showing the 52 municipalities as the covered sites of the study

Research Design

This study followed a one-shot survey to determine the relevance of the training of trainers on community seed bank and the level and application of knowledge gained from the training, the extent of implementation of action plan and factors that motivate or discourage them to use the knowledge gained.

Research Instrument

Data were gathered using a questionnaire which had been developed in a workshop attended by ATI M and E and planning officers nationwide. The questionnaire was pre-tested five agricultural extension workers to ensure the validity and reliability as well as clarity and appropriateness in gathering the data. The questionnaire was composed of five parts.

- a. Demographic Characteristics
- b. Level of the Knowledge Gained Regarding the CSB Concept, Guidelines and Technologies Inherent to CSB Training
- c. Utilization of Knowledge/Learning on CSB
- d. Action Plan Implementation and Other Extension Activities Undertaken by AEW
- e. Problems Encountered and the Solutions Made in the Implementation of the AEWs' Action Plan

Data Gathering Procedure

A communication with attached questionnaires was handed personally to the MAOs and CAOs copy furnished the respondent-technicians informing them the purpose of the study. When the target respondent is not around, the questionnaire was left to the MAOs and CAOs and a specified date for data collection was set by the researcher. During encoding, vague responses were validated through phone calls.

Data Analysis

Data were encoded in Microsoft Excel and analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as totals, percentages, frequencies and ranges were used to describe the respondents' socio-demographic characteristics, level of information exposure, psychosocial factors, level of the knowledge gained regarding the CSB concept, guidelines and technologies inherent to CSB training, level of utilization of knowledge/learning on CSB, action plan implementation and other extension activities undertaken by AEW, and problems encountered and the solutions made in the implementation of the AEWs' action plan.

Chi-Square test was used to determine the relationship between the utilization of knowledge and the relationship between selected socio-demographic characteristics, level of knowledge and extension support to the utilization of knowledge gained.

CHAPTER III

RESULTS AND DISCUSSION

Socio-Demographic Profile of Training Participants

Respondents are within the age range of 28 – 78 years old. Those who were 52 – 64 years of age constitute 44% while those who were 65 years and above were only 12%. On the average, respondents were 52 years old. Half (50%) of the respondents were females and half (50%) were males. Regarding educational attainment, 63% were college graduates, 16% got an MS degree, 12% were elementary and only 3% were high school level. Majority of the respondents were married while only few were single (6%) and widow (3%). As to the participants' occupation, majority of them were ATs (60%), and others were Farmer Leaders (34%) and Municipal Agriculturists (6%). Regarding work assignment, most participants (83%) were assigned specifically on rice only while the rest were assigned to work on rice and also other crops/livestock and fisheries. Their work experience as extension worker ranges from 3 – 34 years of service. While 31% had been in the job for 10 years and below, there were those whose length of service were 30 years and above. On the average, respondents had 17 years of work experience as Extension Worker. All respondents have attended trainings. Among them, 43% were able to attend 1 – 5 trainings and 32% attended 6 – 10 trainings. From a range of 1- 20 trainings, respondents attended eight trainings on the average. As to their field of expertise, most of them were experts on crops (82%). The respondents' average number of barangays and farmers served was six and seventy-five, respectively

Table 2. Respondents' Socio-Demographic Characteristics

Variable	Frequency	Percent (%)
Age		
38 and below	13	15
39-51	26	30
52-64	38	44
65 and above	<u>10</u>	<u>12</u>
Total	8	100
Mean: 52		
Range: 26 – 78		
Sex		
Male	47	50
Female	<u>47</u>	<u>50</u>
Total	98	100
Educational Attainment		
Elementary	11	13
High School	3	3
College Level	59	63
MS	<u>15</u>	<u>16</u>
Total	94	100
Civil Status		
Married	85	91
Single	6	6
Widower	<u>3</u>	<u>3</u>
Total	94	100
Occupation/position		
AT	56	60
FL	32	34
MA	<u>6</u>	<u>6</u>
Total	94	100
Work assignment		
Rice alone	83	83
Rice with other	<u>11</u>	<u>12</u>
Total	94	100

Table 2. cont.

Variable	Frequency	Percent (%)
No. of years working as Extension Worker		
10 and below	21	3
11 – 19	16	24
20 – 29	20	30
30 – and above	<u>10</u>	<u>15</u>
Total	94	100
Mean = 17		
Range = 3 – 34		
No. of trainings Attended		
5 and below	40	43
6 – 10	30	32
11-15	10	11
16 and above	<u>14</u>	<u>15</u>
Total	94	100
Mean = 8		
Range = 1 – 20		
Field of Expertise		
Animals	8	9
Crops	74	83
Crops/animal/fisheries	4	5
Fisheries	3	3
Vegetables	<u>1</u>	<u>1</u>
Total	90	100
No. of Baragay served		
10 and below	70	81
10 – 18	11	13
19 and above	<u>5</u>	<u>5</u>
Total	86	100
Mean = 6		
Range = 3-20		
Number of Farmer served		
100 and below	66	70
101 – 200	18	9
201 and above	<u>10</u>	<u>11</u>
Total	94	100
Mean = 75		
Range = 80-250		

Levels of Knowledge Gained Regarding the CSB Concept, Guidelines and Technologies Inherent To CSB Training

The respondents were asked to assess the level of knowledge gained regarding the CSB concept, guidelines and technologies inherent to CSB training. The levels of knowledge gained by the respondents were assessed before and after the training based on the topics discussed using the following rating scale: 3-High; 2- Medium; 1-Low; 0-None. The topics covered from the trainings include: Overview of Community Seed Banking Program, CSB Guidelines on Procurement Phase, CSB Guidelines on Distribution Phase, CSB Guidelines on Repayment Phase, CSB Guidelines on Storage Facilities, Seed Quality and Variety Selection, Seed Certification and Standard, Seed Quality Guarantee System, Seed Health for Crop Improvement, Procedures in Producing Good Quality Seeds (from 2kgs), and Harvest and Postharvest Management. Most participants had none to low level of knowledge regarding the CSB concept, guidelines and technology inherent to CSB training, however, after the training their knowledge on the topics significantly increase from medium to high level.

Table 2. Respondents 'Level of the Knowledge Gained Regarding the CSB Concept, Guidelines and technologies Inherent to CSB training

Training Topics	Before CSB Training				After CSB Training				t value	p-value
	None	Low	Med	high	None	Low	Med	High		
Overview of CSB	35	41	16	2	0	2	42	50	20.72	0.00
CSB Guidelines on Procurement	42	34	17	1	0	4	48	42	19.67	0.00
CSB Guidelines on Distribution	43	35	14	2	1	6	39	48	20.08	0.00
CSB Guidelines on Repayment	42	38	13	1	1	5	41	47	20.81	0.00
CSB Guidelines on Storage	42	34	15	3	0	2	42	50	20.53	0.00
Seed Quality & Variety	35	33	20	6	0	3	35	56	17.04	0.00
Seed Certification & Standard	38	37	13	6	0	3	44	47	17.90	0.00
Seed Health for Crop Improvement	37	37	15	5	1	4	37	52	17.32	0.00
Procedures for Producing Quality Seeds	37	42	10	5	0	4	38	52	19.46	0.00
Harvest & Postharvest Mgmt	30	43	17	4	0	2	35	57	19.82	0.00
Model in CSB	38	41	14	1	1	6	42	45	19.65	0.00

Action plan implementation

As an output of the CSB training, participants prepared an action plan for implementation after the training. Finding shows that majority of the respondents (95%) were able to implement their plans. Of all the activities indicated in the plan, the following were mostly implemented; The highest activity in rank was the conduct of meeting with the farmers to create awareness on CSB (82%), followed by the identification of farmers who are members of the identified farmers' association as starter seed beneficiaries (79%), and the Monitoring of seed distribution (78%) and others (Table 4). These activities were implemented through meetings (67%), farm and home visits (52%), farmer field school (44%) and training (35%). However, there were also some activities which were not implemented due to the following reasons: lack of financial support, destruction by typhoon Yolanda, uncertainties of employment and large area of assignment.

Table 3. Respondents Response to Action Plan Implementation

Response\	Frequency\	%
Yes	89	95
No	5	5

Table 4. Action Plan Implementation

Activities	Implemented		Not implemented	
	No. of respondents	%	No. of respondents	%
1. Courtesy call with the Municipal Local Executives	68	72	26	28
2. Briefing of the Local Executive and the MAO on CSB Program	71	76	23	24
3. Courtesy call with the Barangay Officials	69	73	25	27
4. Conduct of meeting with the farmers to create awareness on CSB	77	82	17	18
5. Selection of farmer participants	70	74	24	26
6. Selection of site	66	70	28	30
7. Establishment of demo trial	60	64	34	36
8. Conduct of FFS or farmers' meeting on critical stages of the crop	62	66	32	34
9. Site Selection and identification of farmers' association as proponent	72	77	22	23
10. Identification of farmers who are members of the identified farmers' association as starter seed beneficiaries	74	79	20	21
11. Monitor distribution of seed	73	78	21	22

Table 4a. Ways of Implementation

Method Employed in the Implementation of Activity	Frequency	Rank
Meeting	67	1 st
Farm and home Visits	52	2 nd
FFS	44	3 rd
Training	35	4 th
Technical Briefing	28	5 th
Dialogue with farmers	1	6 th
Method/Demo	1	6 th
One - on - one interview	1	6 th

*multiple response

Types of extension support

After the training, the AEWs or the training participants expected to receive support from DA-LGU, DA-RFO or from other organizations and agencies. Types of support were technical, financial or material. It can be seen from Table 6 that 63 of the respondents(67%) mentioned having received technical support from DA-LGU , 14 (15%) received technical support from DA-RFO and only two (2%) were able to get support from other agencies and non-government organizations. In terms of financial support, the respondents revealed that they got less support from the DA-LGU and DA-RFO (14%). However, almost two thirds or 61 of them (65%) mentioned having received a huge support from DA-RFO in terms material inputs, such as seeds and fertilizer. The DA-RFO (31%) and other agencies and other organizations (4%) only gave less material support.

Table 5. Type of Extension Support

Type of Support	Type of Support					
	LGU		DA-RFO		Other agencies	
	Freq.	%	Freq.	%	Freq.	%
Technical	63	67	13	14	29	31
Financial	14.0	15	11.0	12	61.0	65
Material	2.0	2	2.0	2	4.0	4

*multiple response

Relationship between the levels of knowledge gained to the utilization of knowledge on CSB

Participants' level of knowledge increased significantly after the TOT on CSB. Right after the training most of the participants have Medium to High level of knowledge. It can be gleaned from the table below that there is a significant relationship between the levels of knowledge inherent from the training to the utilization of knowledge on CSB.

This means that the higher the knowledge gained from the training the higher is the utilization of knowledge on CSB.

Table 6. Correlation between Level of Knowledge gained and Utilization of knowledge on CSB.

Topics	Correlation coefficient	p-value	Interpretation
Overview of CSB	0.334**	0.001	Significant
CSB Guidelines on Procurement	0.342**	0.001	Significant
CSB Guidelines on Distribution	0.443**	0.000	Significant
CSB Guidelines on Repayment	0.399**	0.000	Significant
CSB Guidelines on Storage	0.361**	0.000	Significant
Seed Quality & Variety	0.442**	0.000	Significant
Seed Certification & Standard	0.366**	0.000	Significant
Seed Health for Crop Improvement	0.317**	0.002	Significant
Procedures for Producing Quality Seeds	0.366**	0.000	Significant
Harvest & Postharvest Mgmt	0.398**	0.000	Significant
Model in CSB	0.220*	0.033	Significant

**Correlation is highly significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.01 level (1-tailed)

Relationship between selected socio-Demographic characteristics and the extension support services to the Utilization of knowledge on CSB

It was hypothesized that the selected socio demographic characteristics of the participants namely age, educational attainment, civil status, occupation, work assignment, field of expertise, number of years working as an extension worker, number of trainings attended and level of knowledge on CSB and extension support services are not associated with the utilization of knowledge gained from the TOT CSB training. Data revealed that only educational attainment is significantly associated to the utilization of knowledge on CSB among the respondents (X^2 0.003). This implies that the higher the educational level the higher the utilization of knowledge.

Table 7. Relationship between selected socio-demographic characteristics to the utilization of knowledge on CSB among the respondents

Socio-demographic variables	Level of knowledge		Level of utilization	
	X^2 statistic	p-value	X^2 statistic	p-value
Age	7.111	0.068	6.467	0.091
Educational Attainment	0.711	0.399	8.813	0.003
Occupation	1.231	0.746	7.636	0.054
Civil Status	0.459	0.795	5.467	0.065
Work Assignment	1.598	0.206	0.267	0.606
Field of Expertise	0.569	0.451	1.339	0.247
No. of years Working as Extn worker	0.279	0.964	4.020	0.259
No. of Trainings Attended	1.365	0.243	2.116	0.146

It was also hypothesized that extension support services are not associated to the utilization of knowledge gained from the TOT CSB training. Yet it can be gleaned from the Table that technical support from LGU is significantly associated with the utilization of knowledge gained from the CSB training. This implies that those with technical support from DA-LGU have significantly a higher level of utilization of the CSB technology than those without technical support from LGU. However, financial or material support from LGU has no significant bearing on the level of utilization of CSB technology.

Support from DA-RFO (technical, material, financial) is not significantly associated with level of utilization. This could imply that support from DA-RFO marginally affects utilization of CSB technology.

Hence, an important factor for successful utilization of the knowledge from CSB training is technical support from LGU. However, it is a fact that financial support is necessary in giving technical assistance.

Table 8. Correlation between level of utilization of CSB technology and type of extension support system

Type of support*		Utilization of knowledge on CSB	
		X2 statistic	p-value
LGU	Technical	7.139	0.028
	Financial	1.781	0.41
	Material	0.611	0.737
DA	Technical	1.793	0.4080o
	Financial	2.478	0.29
	Material	0.724	0.696

Problems encountered and Solutions made in the implementation of AEW's action plan

Majority of the respondents (93.06%) mentioned that Community Seed Banking was really a good program. However there were problems met during the process of implementation. Thus, this development effort needs to be strengthened for the attainment of its ultimate goals and for the sustainability of the program. The most mentioned problem which was ranked first as mentioned by 25 respondents (26.6%) was the lack of support from the DA-LGU. There was no budget allotted directly for CSB for the conduct of the training. However, The AEWs were able to impart and utilize the knowledge through joint training. Trainings conducted were not solely for CSB, due to failure to include the CSB program during the annual budget planning. In Region 8, municipalities covered by the program were given subsidy of seeds for only 30 kls per municipality. The second problem was the delay in the delivery of seeds thus, many beneficiaries were not able to enjoy the benefits of the program. The third problem was the unwillingness to repay due to insufficient production. The fourth problem was associated with drought and irrigation which were the common problems identified by most of the respondents in the municipalities covered by this program. They solely depended on a rainfed system due to no access of an irrigation system in the locality. Infestation of insect pest and diseases ranked fifth among the problems identified. Specifically, tungro is a common disease where virus was transmitted from one plant to another by green leafhoppers. Tungro infects cultivated rice, some wild rice relatives and other grassy weeds commonly found in rice paddies. This occurrence was severe in Abuyog, Leyte resulting to the poor quality of seeds which eventually lead to low germination, low plant vigor, diseased plants and low yield, for this reason, the CSB program in some areas has already stopped. Other problems identified are indicated in the Table 9.

To remedy the problem on lack of budget support from LGU, specifically on the conduct of the re-eco trainings on CSB, the AEWs facilitated to incorporate the training to other trainings conducted by DA, this is done to fastract information dissemination about the CSB program to the farmers' level. Other solutions made by the respondents were the farm and home visits and informal contacts with farmers considering the importance of the CSB program, the AEWs suggested that this must be given priority by the LGU so that budget allocation for the program will be included in their succeeding annual budget planning.

Table 9. Problems Encountered

Problems encountered*	Frequency	Rank
Lack of budget support from LGU	28	1 st
Late delivery of seeds	21	2 nd
Unwillingness to repay due to insufficient production	14	3 rd
Drought/Irrigation	7	4 th
Infestation of pests, insect and diseases	6	5.5
Poor quality seeds	6	5.5
Lack of postharvest facilities	5	7 th
Huge and many areas assigned to the AT	3	8 th
Limited seed from DA	3	9.5
Lack of logistical support by the LGU	3	9.5
Inaccessibility	2	11.5
Unsustained repayment due to the destruction of typhoon	1	13.5

Multiple response*

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

This Community Seed Banking training of trainers sponsored by ATI was a three-day activity attended by AEWs or Agricultural Extension Workers in the selected potential municipalities to conduct CSB in Region 8. The theoretical stage was very effective in providing the necessary knowledge and skills which they can apply in their respective service area. The findings revealed that in all topics related to CSB and rice production, there was significant increase from medium to high level of knowledge gained from the training by the respondents. There was no training conducted solely for CSB. However, respondents were able to utilize the knowledge through the conduct of meeting and joint training. on the other hand extension support services such as technical, financial or material were made possible by the by DA-LGU, DA-RFO or from agencies to the AEWs.

Implementation of activities in the action plan to the fullest is not possible due to the lack of priority budget to conduct training solely for CSB. However, Efforts were made by AEWs to facilitate the joint training to somehow implement the activities.

Lastly, the top ranked problem was the lack of support from the DA-LGU. No training happened solely for CSB, because of failure to include the CSB program during the annual budget planning in the Department of Agriculture.

Recommendations

Community Seed Banking was really a good program. However, the problem lies in the process of implementation and extension of service. Thus, the following were recommended. The LGU shall allocate budget to sustain the project, e.g. provision of seeds and materials, trainings/seminars at farmer level, leaflets/hand-outs & travelling expenses to extension workers who will closely monitor the program. The ATI should conduct immediate and constant evaluation and monitoring to ensure efficiency and effectiveness of the program, On the other hand the ATI shall thoroughly identify and select suitable participants in order to attain the objectives of the training as well as the program. Lastly, it is recommended that further studies must be conducted to determine the impact of community seed banking program in the community or farmer level.

CHAPTER V

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CHAPTER VI

REVIEW OF LITERATURE

Background Information on the training of trainers on Community Seed Banking

In line with the framework of sustainable agriculture Community Seed Banking is the program to attain and achieve seed genetic resource conservation at the community level. Farmer needs viable seeds for the entire household to survive. A Common way to obtain seeds by farmer since then up to today's, small-scale farmers is the saving of seed from one harvest to the next, most of them as well-saved their seeds and later on bartered it to other local farmers. This farmers' initiative has to be guided and expertly managed. Thus, Training of trainers was realized thru the effort of the Department of Agriculture, ATI, and Philrice to train trainers and to provide and disseminate information regarding the program and the technology necessary to strengthen the seed supply system, teaching the farmers to establish seed banks, seed breeding and multiplication.

The training of trainers was participated by AEWs agricultural extension workers composed of the municipal agriculturist, agricultural technicians, and farmer leaders. They were trained with specific topics namely: Overview of Community Seed Banking Program, CSB Guidelines on Procurement Phase, CSB Guidelines on Distribution Phase, CSB Guidelines on Repayment Phase, CSB Guidelines on Storage Facilities, Seed Quality and Variety Selection, Seed Certification and Standard, Seed Quality Guarantee System, Seed Health for Crop Improvement, Procedures in Producing Good Quality Seeds (from 2kgs), Harvest and Postharvest Management. Before the training was ended the training participants were able to establish action plans to be implemented in their respective municipalities right after the training. The lists of activities in their action plan includes courtesy call with the

municipal local executives, briefing of the local executive and the MAO on CSB program, courtesy call with the barangay officials, conduct of meeting with the farmers to create awareness on CSB, selection of farmer participants, selection of site, establishment of demo trial, conduct of FFS or farmers' meeting on critical stages of the crop, site selection and identification of farmers' association as proponent, identification of farmers who are members of the identified farmers' association as starter seed beneficiaries, and monitoring during seed distribution. The trained participants on CSB are considered as experts and expected to re-echo the knowledge gained from the training down to the local farmer level.

Community Seed Banking Perspective

A momentum has developed for initiatives that allow farmers access to planting materials they desire, whilst maintaining agro-biodiversity. The debate over how best to implement these initiatives has centered, to a large extent, on the issue of in situ conservation: the maintenance and recovery of viable populations and species in the natural surroundings where they developed their distinctive properties. This implies involving farmers as stewards of crop diversity, growing out varieties as a method of varietal conservation. Many NGOs have taken this further and developed community seed banks to facilitate these conservation activities and to allow farmers access to a wider range of material than is normally available.

Nevertheless, these community systems of seed supply are increasingly coming under pressure. In the first instance, factors such as droughts, crop failure, conflict, difficult storage conditions, and poverty are eroding both the quantity of seed, and number of plant varieties available to farmers. Second, as a result of agricultural modernization, farmers are increasingly purchasing more of their seed requirements (Berg, 1996a). Not only does this mean that local seed storage could become less important, but as this bought-in seed replaces

older, local varieties, these varieties become increasingly unavailable in many communities. In consequence, interventions to strengthen informal seed supply systems such as establishing seed banks and seed breeding and multiplication are gaining popularity among NGOs and public sector institutions engaged in the area of seed supply.

Department of Agriculture Secretary Proceso J. Alcala mentioned during the launch of CSB program that the genesis of on-farm conservation goes back to the convention on biological resources where more than 110 countries were signatories to the proceedings. It was realized that the gene banks under the Consultative Group Industrial Agricultural Research (CGIAR) were not sufficient to conserve the vast diversity. The germplasm stored under cold conditions amounted to several millions. Due to the practical difficulty in continuing to grow them out, many of them failed to grow under changing environmental conditions. Many civil society organizations that were involved in conserving the diversity took it as a logical level to initiate community seed banks as a way of making available the genetic resources needed by the community. Since then, there has been a growing awareness that CSB is among the major strategies for maintaining on site the genetic diversity in crop/plant species needed to ensure food security. The interested farmer groups, especially women's groups are mobilized and motivated for establishing a CSB in their locality. Partial financial assistance or structures like storage facilities for establishing CSB is required to keep the seed banks viable.

In addition, the alarming rate of biodiversity and ecological destruction has now been recognized at the level of farmers and the state. Agenda 21 During the Earth Summit (UN Conference on the Environment and Development) held in Rio de Janeiro, Brazil, in 1992 recognized the need for major adjustments in agricultural, environmental, and macro-economic policy, at both national and international levels in both developed as well as

developing countries. It also calls for both *ex situ* and *in situ* conservation and urges that national governments are to take main responsibility for conserving their biodiversity and for sustainable utilization of their biological resources.

Ex situ conservation, however, has several problems related to the flow of diversity. Classical seed banks collect biodiversity from farmers' fields (source), but have not been made available to farmers, the diversity flows from the source to gene banks and from there to the breeders, but not back to farmers, who are, therefore, deprived from playing the roles of conserver, innovator, and consumer of genetic diversity. Stocks are thus systematically eroded from the source. This would obviously lead to the non-sustainability of agriculture.

On the other hand, *in situ* conservation, or conservation in the farmer's field, has not received adequate attention. This method of conservation is essential for a variety of reasons: ecological (e.g., insurance against pests, diseases, drought, and climatic changes), economic (e.g., strengthening internal inputs supply), nutritional and political (e.g., strengthening farmers' rights).

It has thus become obvious that interventions must be made to address these problems and enable small-holder farmers' communities, especially in marginal areas, to access seeds, conserve, document, and enhance their resources and knowledge.

In 2011, the Department of Agriculture (DA) had launched a ₱192-million CSB and seed production program to enable farmers to produce their requirement of certified seeds every cropping season.

Agriculture Secretary Proceso J. Alcala said the program, which forms part of the national food staples sufficiency program, will empower organized farmers' groups and

cooperatives, including Irrigators' Associations (IAs), to produce their own certified or inbred rice seeds out of the registered rice seeds that will be distributed to them for free.

Of the total program fund, ₱42 M was allotted in that year for the procurement and distribution of registered rice seeds, and ₱150 M was programmed the next year for the establishment of CSBs in strategic rice production areas nationwide.

The rice seed propagation project and establishment of CSB is part of the DA national rice program, headed by Director Dante Delima. With the rice seed propagation scheme, Delima said that DA aims to train and empower farmers' groups and IAs to produce quality seeds for their use and sale to other farmers.

The International Rice Research Institute (IRRI) reported of the Arakan Valley community Seed Bank (CSB) as serving as a model in ensuring food security and conserving rice varietal diversity in the valley complex of North Cotabato (IRRI Bulletin, August 2010).

Accordingly, the Arakan CSB comprised a group of well-trained and committed farmers who learn by doing best management options to ensure seed purity and quality of seed produced on-farm. The CSB as a modality for technology delivery provides practices on seed health, crop diversification, introduction of improved and tolerant varieties, opportunities for market integration and In Situ conservation of traditional varieties for active use. These become opportunities for market integration and in Situ conservation of traditional varieties for active use. These options could provide farming communities with improved productivity to reduce hunger months, enhanced cropping system resilience, increased income from seed sales, and preservation of time treasured landraces.

The stability of seed supply systems are continuously threatened by the ill effects of climate change, lack of post-harvest facilities and inefficient distribution systems. The seed

banks become useful in that these are regarded as a direct provider of seeds and could empower farmers by giving them a choice over what they intend and prefer to grow. The seed banks encourage planting several rice varieties adapted to the agro physical and climatic conditions of a locality.

Facts of village-based seed production

New institutions of organized seed collection, storage, and exchange operate formally, and are made up of individually and collectively stored, locally multiplied, modern and farmer varieties of seed (Reddy, C. R. et al. 2007), ensuring that village seed committee members undertake the responsibility of producing quality seed. Seed costs can be kept low if locally produced seed stays non-processed and non-certified. The statutory standards of commercial seed are too expensive for the informal sector. Evolving a policy to certify village/community-based seed production without taxing smallholder farmers would offer greater scope for production of quality seed (Reddy, C. R. et al. 2007) Community- or village-based seed production and distribution schemes have gained popularity in recent times. The concept of village seed banks involves improved seed and technical assistance focused on 'pilot' villages which train farmers in seed production, storage, and distribution (Reddy, C. R. et al. 2007) The reality is that there is some commercial seed supply, but without hybrid technology the incentives for the private sector remain limited. Use of hybrid seed by small- and medium-scale farmers remains a dream due to lack of access, availability, timely supply and affordability. The most important aspect of hybrid technology is that the farmer has to buy seed every year. He cannot save his own seed and use it in the next season. Nongovernmental and other local organizations have begun to experiment with a wide range of seed provision innovations, but these are limited in scope. The most effective strategy will involve a combination of public, commercial, and local participation, but much work remains to be done to identify the most effective and equitable formulation. Meanwhile, farmers have

inadequate access to improved seed and are unable to take advantage of new varieties developed by national and international agricultural research. Uncertain production environments, particularly the threat of drought, add to the instability of the current seed provision. Policies that seek to diversify local agriculture systems are difficult to implement because of this inadequacy. Therefore, there is an urgent need to identify appropriate policies and strategies to expand and diversify national seed systems (Reddy, C. R. et al. 2007). Seed is retained on-farm by millions of separate farming households throughout the world. This is by far the most prevalent method of storing seed (Lewis, V. and Mulvany, P. S., 1997). The concept of 'individual farmer as seed bank' has the potential to be a successful innovation in local seed systems. By giving the support of scientific tools to a traditional system of seed exchange, this innovation can be sustainable in disseminating improved varieties and improved production technologies at the village level. (Reddy, C. R. et al. 2007)

Collective seed storage occurs when farmers, either self-organised, or assisted by outside organisations coordinate the storage of the seed they need for planting. Although this type of seed storage does have roots in indigenous culture traditions, there has been an increase of NGO-led, farmer-participatory collective seed storage projects in the last decade or so (Berg, 1996a).

Importance of training and role of Non- formal Education

The guiding philosophy of the Agricultural Training Institute is to mobilize collective efforts through human resource development and creating appropriate structures for their viability as fundamental to farm, family based agriculture development. Taking its basic premise from the idea that man is the center of all development activities the ATI believes that peoples' active involvement in every aspect of development is vital to self-realization.

Semer0s (1994) opines that the expertise and competence of extension workers can be best improved through trainings that adhere to high ethical standards and regular refresher courses to keep them abreast of new development. According to Samson (1976), as cited by Semeros (1994), extension personnel are the major resources of a successful extension service. These personnel who enter the extension service should be prepared to perform basic extension tasks. In addition, a successful extension organization makes provision to further strengthen the professional and technical competencies of its staff members once on the job. This is important because the staff must be trained and updated to provide the essential link between agricultural research and farmers in the technology transfer process. Therefore, attention should be paid both to the pre-service training of extension personnel and to the overall staff development and in service training plan.

Ingle (1974) pointed out that non-formal education focuses on the improvement of social and personal living, and of occupational capabilities. It is important because of the immediate and practical utility of the learning it produces. It is a type of learning that is not imposed by outside forces but is sought and developed by the learners themselves.

Medina (1978) stated that the basic role of training in achieving the necessary structural changes in agriculture and rural development is to provide a mechanism for defining and rationalizing the nature and extent of involvement of individuals or agencies as program implementers or target groups. As a strategy, it develops the internal capabilities of individuals or groups to transform their work and living environments into total learning communities for achieving effectively and efficiently a set of goals and objectives. The ultimate goals of the training is the education of the whole person. It seeks to serve the beneficiaries of the development effort, making themselves the rural participants of the development process. It is a process by which new technology, attitudes and skills are

transmitted from the trainer to the trainee to improve the latter's performance and effectiveness.

Significance of Training Program Evaluation

An evaluation is undertaken for the purpose of acquiring fundamental knowledge about an activity or thing, getting data or information as the basis of program planning and intervention, making a decision or judgements, and knowing the results or impact of a particular activity. Post-course or impact evaluation is very important in determining the effectiveness of training programs in bringing about change in knowledge and skills of the participants and find out areas of training that needs to be changed or improved. To fully understand the factors which contribute to the success or failure of these training programs, evaluation studies are deemed necessary. It will provide a view in finding out how these programs could be improved or maintained. According to Yuan (1977), the evaluation of training programs is very useful in knowing how far teaching/training objectives have been met and in finding out if the program efficiently employed all available resources. It also looks into determining the changes that have taken place in the knowledge, skills, and attitude of the trainees or graduates, identifying and understanding some of the factors that contribute to the success of a training program and finding out how such program may be improved.

Monitoring and Evaluation

There will be two levels of monitoring and evaluation of the conduct of TOT: one is the output which will be the concern of the ATI M & E and the Project Officer. Outputs such as training evaluation results, profile of farmers, baseline data, process documentations in the conduct of FFS, and terminal report. The facilitator will use an Evaluation Tool for AEWs

form to gather data which will be used in identifying strengths and weaknesses of the management.

The other is the outcome which will measure the efficiency of the technology in increasing farmers' wider access to seed sources.

APPENDICES

Appendix A

Letter of request to the Municipal Agriculturist

Department of Department of Agricultural Education and Extension
Visayas State University
Visca, Baybay, Leyte

September 2, 2015

Dear Ma'am/Sir; _____

I am a Master of Science student Major in Agricultural Extension cognate in Agricultural Education.

Currently I am working on a research study entitled "AEWs Evaluation of the training of trainers on community seed banking in Region VIII. The CSB training was facilitated and conducted by ATI, commenced on July 2012. In this regard, I would like to ask a permission allowing me to conduct an interview to the ATs and FA president who have participated the TOT.

The aim of this evaluation is to determine the levels of knowledge and utilization of knowledge gained from the CSB training. Furthermore, to determine if the knowledge gained by the participants from the training redound to the farmers level. Hence, generally to determine the effectiveness of the TOT on Community Seed Banking.

I am anticipating for your favorable response. Thank you very much.

Respectfully yours,

Anna Martha G. Como
MS Thesis Student

Recommending Approval:

Dr. Antonia Cecelia Y. Sandoval
Thesis Adviser

Noted:

Dr. Vilma M. Patindol
Center Director ATI
RTC8

Appendix B

EVALUATION TOOL FOR AEWs

Respondent No.

TITLE OF THE STUDY : EVALUATION OF THE TRAINING OF TRAINERS (TOT) ON COMMUNITY SEED BANKING IN REGION VIII

NAME OF RESPONDENT _____

HOME ADDRESS _____

OFFICE/AGENCY _____

OFFICE ADDRESS _____

EMAIL ADDRESS _____ CONTACT NO. _____

A. DEMOGRAPHIC CHARACTERISTICS

1. Sex: __Male __Female
2. Date of birth : _____
3. Age: _____
4. Highest educational attainment and degree(Please specify
a) BS__ b) MS__ c) PhD ____
5. Major Field: a) BS_____ b) MS _____ c) PhD_____
6. Civil status: a) Married_____ b) Single __ c) Widower _____ d) Separated ____
7. Number of barangays served _____ Average no. of farmers served/barangay: _____
8. Position: _____
9. Work Assignment: (Please check) a) Rice __ b) Corn _____ c) HVCDP__ d)
Livestock __ e) Fishery __ __ f) Others, specify __ __
10. Field of Expertise a.) Crops_____ b.) Animal____ c.) Fisheries_____ d.) Others_____
11. No. of years working as extension worker : ____
12. Employment status : a) __ Permanent b) __ contractual c) ____ Job order
13. Present salary: _____
14. No. of Training/s attended related to Rice Production: _____
15. Rice farming experience? __ yes __ no
If yes, how many years _____

B. LEVEL OF THE KNOWLEDGE GAINED REGARDING THE CSB CONCEPT, GUIDELINES AND TECHNOLOGIES INHERENT TO CSB TRAINING

Please check the level of knowledge on the following topics using the following rating scale:
3-High; 2- Medium; 1- Low; 0-None

TOPICS	Before (Scale 0 to 3)	After (Scale 0 to 3)	Remarks
Overview of Community Seed Banking Program			
CSB Guidelines on Procurement Phase			
CSB Guidelines on Distribution Phase			
CSB Guidelines on Repayment Phase			
CSB Guidelines on Storage Facilities			
Seed Quality and Variety Selection			
Seed Certification and Standard: Seed Quality Guarantee System			
Seed health for Crop Improvement			
Procedures in Producing Good Quality Seeds (from 2kgs)			
Harvest and Postharvest Management			
Model in Establishing CSB			
Others(to be supplied by the regional trainers)			

C. LEVEL OF UTILIZATION OF KNOWLEDGE/LEARNINGS ON CSB

1. Have you imparted your knowledge? ___Yes ___No
2. In what way have you imparted your knowledge? Pls. check
 meeting
 training
 farmers' classess/FFS
 technical briefing
 House and Farm Visits
 Others, please specify

Please check the topic that you have taught the farmers on CSB (Pls. rate the level of knowledge/learning transferred)

**D. ACTION PLAN IMPLEMENTATION AND OTHER EXTENSION ACTIVITIES
UNDERTAKEN BY AEW**

1. Have you implemented your action plan? ____ Yes ____ No ____ Partially

1.1. Please check the activities in your action plan that you have implemented.

Activities	Yes	No	If No. Why
Courtesy call with the Municipal Local Executives			
Briefing of the Local Executive and the MAO on CSB Program			
Courtesy call with the Barangay Officials			
Conduct of meeting with the farmers to create awareness on CSB			
Selection of farmer participants			
Selection of site			
Establishment of demo trial			
Conduct of FFS or farmers' meeting on critical stages of the crop			
Other activities(specify)			
Site Selection and identification of farmers' association as proponent			
Identification of farmers who are members of the identified farmers' association as starter seed beneficiaries			
Monitor distribution of seed			
Monitor seed distribution			

2. What types of support are provided to you in the implementation of the action plan?

Agency	Kind of support				Remarks
	Technical	Financial	Material	Others(specify)	
LGU					
DA-RFO					
Others(pls. specify)					

(You may check more than one type)

3. Other Extension Activities conducted. (Please check and specify the number.)

3.1 ___ Conduct of FFS

3.1.a.) ___ No. of FFS conducted

3.1.b.) ___ No. of farmers trained

3.2 ___ Conduct of Techno Briefings

3.2.a.) ___ No. of Techno Briefing conducted

3.2.b.) ___ No. of farmers briefed

3.3 ___ Provided Technical Assistance on CSB

3.3.a.) ___ No. of Technical Assistance on CSB provided

3.3.b.) ___ No. of farmers served

E. PROBLEMS ENCOUNTERED AND THE SOLUTIONS MADE IN THE IMPLEMENTATION OF THE AEWS' ACTION PLAN

Enumerate the problems encountered and the solutions made in the implementation of your action plan.

Problems	Solution	Remarks

Appendix C

Definition of Terms

The following terms are operationally defined to establish common meanings.

Agricultural Extension Workers (AEWs) refer to the training participants composed of Municipal Agriculturists, Agricultural technicians, Irrigators Association and Farmers' Association Presidents.

Agricultural training Institute (ATI) is the training arm of the Department of Agriculture positioned all over the country through its regional and national training centers responsible for training agricultural extension workers and their clientele; conducting multi-level training programs to promote and accelerate rural development; and ensuring that research results are communicated to the farmers through appropriate training and extension activities.

Breeder Seeds the progeny of nucleus seed. Generally breeder seed is produced in one stage. But if there is greater demand for breeder seed and there is low seed multiplication ratio then breeder seed can be produced in two stages, via Breeder stage I and II. In such cases breeder seed, stage I becomes source for breeder Stage II.

Community Seed Banking (CSB) is a mechanism to increase farmer's access to quality seeds, controlled and operated by farmers within the community to encourage seed production and exchange among farmers within and outside the community. Seed banks referred to in the study were those established by farmer groups through the CSB program of the Department of Agriculture offices.

Department of Agriculture is one of the implementing arms of the government with a mission to improve agricultural productivity and increased real income of farmers and fisherfolks towards a better quality of life.

Evaluation is a process of ascertaining or judging the effectiveness of the training to determine its strengths and weaknesses and identify areas that need improvement.

Effectiveness refers to the success achievable by the Agricultural training Institute in carrying out the activities for the attainment of the program's goal.

Extent of Action Plan Implementation refers to the progress of activities implemented parallel to the action plan developed by AEWs during the TOT training.

Foundation Seeds refer to the progeny of breeder seeds.

Seed Exchange is the transferring of seeds from the local farmer seed growers of the CSB to farmers.

Seed Security is the assurance of the availability of the sufficient quality seeds, year after year, necessary to establish crops for food and feeds.

Quality Seed refers to seed produced either from the formal or informal seed systems that passed certain quality standards.

Registered Seeds refer to the progeny of foundation seeds, which is the starter seed distributed by the CSB program to farmer groups.

Starter seeds- are seeds given to farmer groups to be planted for seed production

Training Program refers to a form of non-formal education or non-degree course designed and conducted for, or participated in, by AEWs to improve their knowledge, skills and attitudes in relation to Community Seed Banking.

Extension Support refers to any kind of support provided from agencies such as LGU, DA-RFU and INGOs which could either be technical, financial, and material.

Appendix D

Table 1. Distribution of Respondents

Province	Municipality	Numebr of Representative per Municipality				
		MA	AT	FA leaders	IA leaders	Total
Biliran	Almeria	1		2		3
	Biliran	1		6		7
	Cabucayan		2	4		6
	Caibiran		1	3		4
	Culaba		1	3		4
	Kawayan		2	2		4
	Naval	1	2	1		6
Leyte	Abuyog		1			1
	Bato		1			1
	Baybay		2			2
	Bontoc		1			1
	Calubian		1			1
	Capoocan		1			1
	Dulag	1	1			2
	Hinunangan		3			3
	Hinundayan		1			1
	Inopacan		1			1
	Javier		1			1
	Kananga		1			1
	Maasin		2			2
	Matag-ob		1			1
	Matalum		1			1
	Mayorga		1			1
	Merida		1			1
	Palo		1			1
	San isidro		1			1
	Sta. Fe	1	1			2
St. Bernard		1			1	
Tacloban		1			1	

	Balangiga	1	1	1		3
	Can-avid		1	1		2
	ESSU Borongan		2			2
Eastern	ESSU Main		2			2
Samar	Giporlos		3			3
	Hernani		1			1
	Lawaan		2			2
	Maslog		2	1		3
	Opas		2			2
	Oras		2			2
	Quinapondan		1			1
	Salcedo		1	3		4
	Sulat	1		1		2
	Basey			3	1	4
	Calbiga			1		1
Western	Calbayog				3	3
Samar	Catbalogan			2		2
	Gandara		1	1		2
	Jiabong			2		2
	Motoing		1	2		3
	OPA Cat.		8			8
	Paranas		1			1
	Pinacbado				1	1
	San jorje			1		1
	Sta. Rita			1		1
	NIA			1		1
Total		5	62	39	5	121

Appendix E

Chi-Square test was used to determine the relationship between the utilization of knowledge and the relationship between selected socio-demographic characteristics, level of knowledge and extension support to the utilization of knowledge gained.

Chi-square Test

The Chi Square is denoted by X^2 and the formula is given as:

$$X^2 = \sum \frac{(O-E)^2}{E}$$

E

Here,

O= Observed frequency

E= Expected frequency

\sum = Summation

X^2 = Chi Square value

Appendix F

INDEPENDENT VARIABLE

DEPENDENT VARIABLE

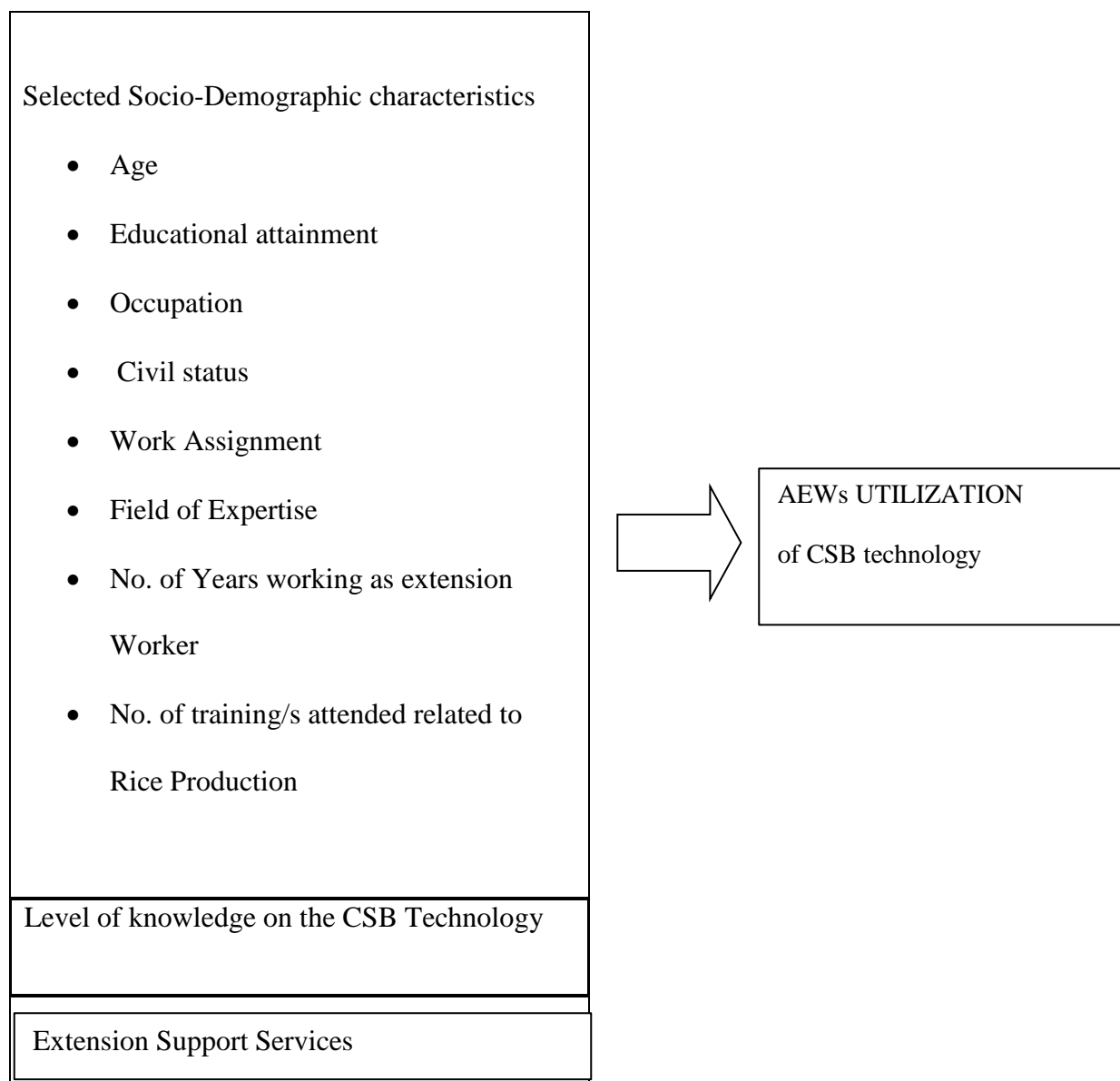


Figure 1. Schematic Diagram of the Conceptual Framework showing the Relationship of Variables

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