

Cluster Farms in Mindanao: Are Smallholder Farmers' Expectations Being Fulfilled?

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Abstract

Cluster farming means grouping farmers together to consolidate their produce to deliver in bulk, thus saving transportation and transaction costs. As this marketing strategy is an alternative to traditional vegetable marketing practices in the Philippines, there is a need to evaluate the extent to which cluster farming has fulfilled the farmers' expectations. The results demonstrate that even though farmers may not be financially better off, most of the cluster members' expectations had been met after joining the cluster.

Keywords: cluster farming; collaborative farming; farmer expectations

Abbreviations:

CRS - Catholic Relief Service

FGD - focus group discussions

Normin Veggies - Northern Mindanao Vegetable Producers Association Inc.

SFMP - Small Farms Marketing Project

USDA - United States Department of Agriculture

VICSMIn - Vegetable Industry Council of Southern Mindanao

Introduction

Agriculture in the Philippines is predominantly comprised of smallholder farms. On average, 81% of the farms cultivate less than 3 ha of land, and most farmers earn less than PhP180,000 per annum (Republic of the Philippines, 1992). Traditionally, smallholder farmers in the Philippines have joined or formed cooperatives. Some of the reasons for forming cooperatives are to facilitate access to loans and to undertake collaborative marketing of farm outputs to improve income (Digby and Gretton, 1955; Republic of the Philippines, 1992). As the majority of farms are small, acting independently, farmers are unable to comply with the desired volume and the quality demanded by the emerging institutional market. These institutional buyers include hotels, restaurants, and supermarkets. To participate in these emerging markets, smallholder farmers need to unify and to adjust to the new environment or suffer further marginalization (Boselie et al., 2003). However, fragmentation among smallholder farmers continues to present a problem as farmers are seldom committed to their cooperative.

One of the strategies employed in an attempt to integrate smallholder farmers into the institutional market is cluster farming. According to the Department of Agriculture Regional Field Unit X (n.d.), a typical farm cluster involves smallholder farmers and cooperatives within at least 400 ha of contiguous lands with a cropping intensity of 200%. This strategy was originally developed by the corn industry to access government funding (2006–2007 interviews with Aldirete; unreferenced, see “Notes”). In the vegetable industry, the cluster farming concept has been adopted by farmer groups in Southern and Northern Mindanao. It also involves smallholder farmers, but not necessarily in contiguous farms.

The main objectives of cluster farming are to plant similar crops, grade to a similar standard, consolidate harvest to obtain a higher volume, deliver in bulk to save on transportation costs, and thereby increase net income. Cluster farming has been defined as “individual growers who commit to work together for marketing” (Uy, 2005; Mendoza, 2006). It also means designating an area as a top or main producer of a commodity. It functions as a production and financial planning tool for groups of farmers in a particular area (2006–2007 interviews with Gualberto; unreferenced, see “Notes”).

Two clustering approaches have been identified in Southern and Northern Mindanao: an area-based approach, where neighboring farmers group together, and a commodity-based approach, where farmers plant the same vegetable and combine their produce to achieve a higher volume (Montiflor et al., 2009).

This paper describes the case of three selected smallholder vegetable farmer clusters—namely, the Maragusan Vegetable Farmers’ cluster, the Northern Mindanao Vegetable Producers Association Inc. (Normin Veggies), and the Vegetable Industry Council of Southern Mindanao Inc. (VICSMIn)—to

examine whether individual farmers' expectations have been fulfilled after joining the cluster.

Materials and Methods

Little research has been published on cluster farming. Hence, this study utilized a case study methodology using exploratory qualitative research and a quantitative survey. Exploratory research is used when a new topic emerges, and the main purpose of the research is to explain why certain phenomena happen (Neuman, 2006). This framework was used by Murray-Prior et al. (1997) in their study of collaborative marketing groups in Western Australia. A case study means studying only one event, process, person, organizational unit, or object (Routio, 2006). It is an empirical inquiry that investigates a contemporary phenomenon within its real-life context (Yin, 1994). Leedy (1993) mentioned that a case study is somewhere between the descriptive and experimental survey method.

Exploratory key informant interviews were done to elicit in-depth information about three cluster farms in Southern and Northern Mindanao. The Maragusan vegetable cluster encompasses 6 *barangays* (villages) within the municipality of Maragusan. It is located in the province of Compostela Valley within the Southern Mindanao Region. In January 2007, there were 174 farmers selling their vegetables through the cluster. The Maragusan project was part of the Small Farms Marketing Project (SFMP) funded by the United States Department of Agriculture (USDA) and implemented by the Catholic Relief Services (CRS) with local partner, Kasilak Development Foundation Inc. (Kasilak).

Normin Veggies is composed of individual producers, development foundations, corporate farms, farmers' associations, farmers' cooperatives, input and service providers, and institutional partners. The organization aims to be competitive in the vegetable industry, producing high-value commodities for domestic and international markets. It was formed on March 10, 1999, with 15 founding members (Department of Agriculture Regional Field Unit X, n.d.). In February 2007, Normin Veggies had 87 members.

VICSMIn is an organization of vegetable industry stakeholders, individual farmers, farmer cooperatives and associations, academic institutions, government and nongovernment organizations, supermarkets, and input suppliers in Southern Mindanao. VICSMIn, which aims to strengthen linkages among stakeholders to become highly competitive and competent entrepreneurs, was formed and registered with the Securities and Exchange Commission on July 28, 2000. In January 2008, there were 96 members.

From November 2006 to February 2007, key informant interviews were undertaken with 13 farmer leaders and key people from the support agencies using a semistructured questionnaire. There were two interview guides: one for the farmers and one for the support agencies. The questionnaire asked for the following: background information on the organization, respondents' definition of cluster farming, the assistance received (or given if the respondent came from a support agency), and key successes and challenges faced. The study found four major elements influencing the operations of cluster farming groups in Mindanao: (1) different approaches to cluster farming, (2) the need for more farmer leaders, (3) encouraging and sustaining farmer participation, and (4) the presence of strong institutional support organizations (Montiflor, 2008).

From August to September 2007, a quantitative survey and focus group discussions (FGD) were conducted. Two FGDs with the farmers were done to present and validate the initial results. The activity also gathered updates, critical comments, and suggestions from the farmers. Subsequently, a structured questionnaire was used to gather data from selected cluster members. A total of 105 farmers were interviewed using purposive sampling (Table 1).

The respondents were chosen on one criterion: experience with cluster farming. Since each case would be examined and analyzed separately, the number of respondents from each of the three cases need not be equal (Table 2).

In order to determine the extent to which the respondents' expectations had been met after joining their respective cluster, gap analysis, a technique initially developed by Parasuraman et al. (1985) was employed. Respondents were first asked to rate 24 statements on a scale of 1 to 4 where 1 was "not at all important" and 4 was "very important" as reasons for having joined the cluster. Respondents were then asked to rate the same 24 statements on a scale

Table 1. Breakdown of respondents

Membership	Frequency	% within cluster	% in total sample (n = 105)
Maragusan Vegetable Farmer's Cluster (n = 174)	34	19.5	32.4
Normin Veggies (n = 87)	58	66.7	55.2
VICSMIN (n = 96)	13	13.5	12.4
Total	105		100

Table 2. Summary of the respondents' profiles

Variables	Maragusan	Normin Veggies	VICSMIN
Majority of respondents	Equal number of male and female	83% Male	61.5% Male
Mean age	43.4 years	44.8 years	43.2 years
Highest educational attainment	Vocational (3%)	Postgraduate (22.4%)	College (7.7%)
Majority's highest educational attainment	High school level (35%)	College graduate (65.5%)	High school level (38.5%)
Average monthly income	PhP5,592.85	PhP49,570.69	PhP5,589.69
Major religion	Roman Catholic (82.4%)	Roman Catholic (86.2%)	Roman Catholic (69.2%)
Average number of male household members above 18 years	2	1	2
Average number of female household members above 18 years)	1	1	1
Average number of children 17 years and below	2	2	3
Average number of working household members	2	2	2
Majority's place of birth	Mindanao (61.8%)	Mindanao (75.9%)	Mindanao (84.6%)
Average number of years living in the area	22.44 years	26.81 years	21.7 years
Number of indigenous respondents	4	2	1

of 1 to 4 where 1 was "I strongly disagree" and 4 was "I strongly agree" in order to evaluate the extent to which their expectations had been fulfilled as a result of joining the cluster. The data was analyzed using the paired sample t-test for each cluster. The extent to which the farmers' expectations differed between the clusters was examined using analysis of variance (ANOVA) and Scheffé's test.

The 24 expectations were subdivided into 7 categories: financial, knowledge, crop production, social, marketing, communication, and resources. Financial expectations included earning a higher income, getting a

higher price for their produce, improving family income, and achieving on-going and clearly defined benefits from the cluster. Knowledge expectations included learning new ideas and knowledge and sharing them with fellow farmers. Production expectations included maximizing their farm area and getting higher yields. Social expectations included gaining more friends and spending time with them, being famous, and attaining a higher social status. Marketing expectations included selling to other markets such as the supermarkets and joining an established marketing network to achieve this goal. Communication expectations included open discussions and a smooth flow of information within the cluster. Resources included improved access to services and inputs.

Results and Discussion

For most of the 24 measures, there was no significant difference between the Maragusan and VICSMIn farmers (Table 3). Most of the Maragusan farmers rated all of the expectations as being very important. Normin Veggies, on the other hand, did not have such high expectations when they first joined their cluster.

Looking more closely at the responses from the three groups, except for three social measures—(1) to be famous, (2) to use my leadership skills, and (3) enjoyment and recreation—all the Maragusan farmers' expectations were significantly higher than the Normin Veggies farmers' responses at $p = 0.05$. As farmer's expectations are higher, potentially, this suggests that collaborative marketing groups have a greater chance of succeeding. However, their ultimate success is dependent upon their capacity to fulfill smallholder farmers' expectations.

Regrettably, for the Maragusan farmers, the financial expectations remained largely unfulfilled (Table 4). Smallholder farmers did not necessarily improve their income, nor were they always able to achieve a higher price. Furthermore, smallholder farmers did not always gain any additional farming knowledge which might otherwise enable them to improve productivity per unit area. Given that most farmers had only joined the group in 2006, the cluster had yet to establish any formal marketing network, and thus, the farmers had experienced some difficulty in meeting the supermarkets needs. Membership of the cluster, it seemed, did not improve the smallholders' access to inputs. Before joining the cluster, the farmers were earning an average income of PhP5,977 per month, but after joining the cluster, their income had dropped to PhP5,593 per month (Montiflor et al., 2009).

For the members of the Normin Veggies cluster, the results showed that all the cluster members expectations had been fulfilled (Table 5). After joining the cluster, most farmers agreed that their household income had dramatically

Table 3. Expectations of respondents

Criteria	Maragusan (n = 34)	Normin (n = 58)	VICSMIn (n = 13)
Financial			
Earn more income from cluster farming	3.94 ^a	3.37 ^b	3.53 ^{ab}
Get a higher price for my products	4.00 ^a	3.37 ^b	3.77 ^a
Continuing and clearly defined benefits	4.00 ^a	3.32 ^c	3.69 ^b
Improve my household's current livelihood	4.00 ^a	3.34 ^b	3.84 ^a
Knowledge			
Learn new farming ideas	4.00 ^a	3.32 ^b	3.92 ^a
Learn from other farmers	3.91 ^a	3.32 ^b	3.30 ^b
Share my knowledge to other farmers	3.94 ^a	3.32 ^b	3.77 ^a
Gain more farming knowledge	4.00 ^a	3.31 ^b	3.92 ^a
Production			
Maximize my farm area	3.94 ^a	3.36 ^b	3.30 ^b
More yield from the farm	4.00 ^a	3.32 ^b	3.92 ^a
Marketing			
Sell to other markets aside from the wet markets	3.91 ^a	3.34 ^b	3.85 ^a
Join a established marketing network of farmers	4.00 ^a	3.31 ^b	3.92 ^a
Sell to supermarkets	4.00 ^a	3.32 ^b	3.61 ^b
Social			
I will gain more friends	4.00 ^a	3.29 ^b	3.77 ^a
Be famous	3.71 ^a	3.24 ^a	3.23 ^a
Use my leadership skills	3.71 ^a	3.29 ^a	3.77 ^a
A high level of personal commitment	4.00 ^a	3.34 ^b	3.92 ^a
Enjoyment/recreation	3.35 ^a	3.03 ^a	3.23 ^a
Social status	3.88 ^a	3.03 ^b	3.53 ^{ab}
Communication			
Open communication between all parties (cluster head members, buyers)	4.00 ^a	3.34 ^b	3.92 ^a
Open discussion and freely available information on all important group issues	4.00 ^a	3.34 ^b	3.84 ^a
Identification, through group discussion of clear, achievable objectives for the group	4.00 ^a	3.34 ^b	3.92 ^a
Access			
Improve my access to services	3.94 ^a	3.31 ^b	3.69 ^a
Access inputs	4.00 ^a	3.24 ^b	3.84 ^a

Values in the same row with the same superscript are not significantly different at $p = 0.05$ (Scheffé's test).

Table 4. Expectations and fulfillment of expectations for Maragusan cluster members (n = 34)

Criteria	Expectation Mean (SD)	Fulfillment Mean (SD)	P value
Financial			
Earn more income from cluster farming	3.94 (0.34)	3.38 (1.01)	0.004
Get a higher price for my products	4.00 (0.00)	3.50 (0.96)	0.005
Continuing and clearly identified benefits for the members	4.00 (0.00)	3.74 (0.67)	0.027
Improve household's livelihood	4.00 (0.00)	3.58 (0.78)	0.004
Knowledge			
Learn new farming ideas	4.00 (0.00)	3.79 (0.59)	0.051
Learn from other farmers	3.91 (0.51)	3.67 (0.87)	0.199
Share my knowledge to other farmers	3.91 (0.34)	3.82 (0.72)	0.211
Gain more farming knowledge	4.00 (0.00)	3.64 (0.88)	0.026
Production			
Maximize my farm area	3.91 (0.34)	3.88 (0.54)	0.600
More yield from the farm	4.00 (0.00)	3.56 (0.78)	0.002
Social			
I will gain more friends	4.00 (0.00)	4.00 (0.00)	1.000
Be famous	3.72 (0.91)	3.85 (0.55)	0.257
Use my leadership skills	3.71 (0.97)	3.38 (1.30)	0.062
A high level of personal commitment	4.00 (0.00)	3.85 (0.44)	0.058
Enjoyment/recreation	3.35 (1.25)	3.17 (1.33)	0.083
Social status	3.88 (0.69)	3.50 (0.93)	0.003
Marketing			
Join a established marketing network of farmers	4.00 (0.00)	3.02 (1.42)	0.000
Sell to other markets aside from the wet markets	3.94 (0.38)	3.79 (0.73)	0.402

Table 4. Cont.

Variables	Expectation Mean (SD)	Fulfillment Mean (SD)	P value
Communication			
Open communication between all parties (cluster head, members, buyers)	4.00 (0.00)	3.82 (0.58)	0.083
Open discussion and freely available information on all important group issues	4.00 (0.00)	3.88 (0.48)	0.160
Clear, achievable objectives	4.00 (0.00)	3.88 (0.48)	0.160
Improve access to services	3.94 (0.34)	3.58 (0.99)	0.063
Access inputs	4.00 (0.00)	3.41 (1.10)	0.004

Notes:

Expectation (Scale of 1 to 4 where 1 = Not at All Important and 4 = Very Important.)

Fulfillment (Scale of 1 to 4 where 1 = Strongly Disagree and 4 = Agree a Lot.)

Table 5. Expectations and fulfillment of expectations for NORMIN cluster members (n = 58)

Criteria	Expectation Mean (SD)	Fulfillment Mean (SD)	P value
Financial			
Earn more income from cluster farming	3.77 (0.49)	3.34 (0.48)	0.159
Get a higher price for my products	3.37 (0.49)	3.34 (0.48)	0.159
Continuing and clearly identified benefits for the members	3.32 (0.47)	3.34 (0.48)	0.322
Improve household's livelihood	3.34 (0.48)	3.34 (0.48)	1.00
Knowledge			
Learn new farming ideas	3.32 (0.47)	3.31 (0.47)	0.322
Learn from other farmers	3.32 (0.47)	3.31 (0.47)	0.322
Share my knowledge to other farmers	3.32 (0.47)	3.31 (0.47)	0.322
Gain more farming knowledge	3.31 (0.47)	3.31 (0.47)	1.000
Production			
Maximize my farm area	3.36 (0.49)	3.31 (0.47)	0.322

Table 5. Cont.

Criteria	Expectation Mean (SD)	Fulfillment Mean (SD)	P value
More yield from the farm	3.32 (0.47)	3.32 (0.47)	1.000
Social			
I will gain more friends	3.29 (0.49)	3.31 (0.47)	0.322
Be famous	3.24 (0.60)	3.10 (0.89)	0.088
Use my leadership skills	3.29 (0.49)	3.19 (0.76)	0.243
A high level of personal commitment	3.29 (0.48)	3.34 (0.48)	1.000
Enjoyment/recreation	3.03 (1.00)	3.00 (1.05)	0.532
Social status	3.03 (1.00)	2.91 (1.11)	0.109
Marketing			
Join a established marketing network of farmers	3.34 (0.48)	3.34 (0.48)	1.000
Sell to other markets aside from the wet markets	3.31 (0.47)	3.32 (0.47)	0.322
Sell to supermarkets	3.32 (0.47)	3.32 (0.47)	1.000
Communication			
Open communication between all parties (cluster head, members, buyers)	3.34 (0.48)	3.32 (0.47)	0.322
Open discussion and freely available information on all important group issues	3.34 (0.47)	3.34 (0.47)	1.000
Clear, achievable objectives	3.34 (0.47)	3.34 (0.47)	1.000
Improve access to services	3.31 (0.47)	3.31 (0.47)	1.000
Access inputs	3.24 (0.63)	3.31 (0.47)	0.322

Notes:

Expectation (Scale of 1 to 4 where 1 = Not at All Important and 4 = Very Important.)

Fulfillment (Scale of 1 to 4 where 1 = Strongly Disagree and 4 = Agree a Lot.)

improved. With more knowledge, farmers had been able to achieve a greater yield from the farm and to improve their access to farm inputs and services. With an established network, farmers were better able to fulfill the demands of their downstream customers. There was good communication between farmers and a high level of personal commitment. After joining the cluster, the farmers' income had increased from PhP29,297 per month to PhP45,205 per month (Montiflor et al., 2009).

The VICSMIn farmers expectations were similar to Maragusan farmers, but the extent to which their expectations were met were similar to Normin Veggies (Table 6).

Like Normin Veggies, all 13 respondents' expectations had been fulfilled at $p = 0.05$. However, when their average monthly income was computed before and after joining the cluster, it had decreased from PhP6,195 to PhP5,590 (Montiflor et al., 2009).

Aside from rating their expectations and the extent to which these expectations had been fulfilled, respondents were asked if they felt they were financially better off after joining the cluster. All the members of the Normin Veggies cluster affirmed that their financial status had improved as a result of joining the cluster (Table 7). Even though their income had declined after forming a cluster, most of the Maragusan farmers (82%) and VICSMIn farmers (84%) perceived that they were financially better off after joining the cluster.

Table 6. Expectations and fulfillment of expectations for VICSMIN cluster members (n = 13)

Criteria	Expectation Mean (SD)	Fulfillment Mean (SD)	P value
Financial			
Earn more income from cluster farming	3.53 (1.12)	3.23 (1.30)	0.212
Get a higher price for my products	3.76 (0.44)	3.46 (0.88)	0.219
Continuing and clearly identified benefits for the members	3.69 (0.63)	3.38 (1.32)	0.303
Improve household's livelihood	3.84 (0.38)	3.77 (0.59)	0.673
Knowledge			
Learn new farming ideas	3.92 (0.28)	3.84 (0.37)	0.337
Learn from other farmers	3.31 (1.49)	3.84 (0.38)	0.170
Share my knowledge to other farmers	3.77 (0.59)	3.38 (1.19)	0.240
Gain more farming knowledge	3.92 (0.28)	3.84 (0.37)	0.337

Table 6. Cont.

Variables	Expectation Mean (SD)	Fulfillment Mean (SD)	P value
Production			
Maximize my farm area	3.31 (0.75)	3.00 (0.82)	0.165
More yield from the farm	3.92 (0.28)	3.54 (0.77)	0.096
Social			
I will gain more friends	3.76 (0.44)	3.08 (1.32)	0.056
Be famous	3.23 (1.23)	2.92 (0.95)	0.392
Use my leadership skills	3.77 (0.44)	3.61 (0.77)	0.165
A high level of personal commitment	3.92 (0.28)	3.53 (1.12)	0.240
Enjoyment/recreation	3.23 (0.93)	3.31 (1.25)	0.776
Social status	3.53 (1.12)	3.46 (1.19)	0.673
Marketing			
Join a established marketing network of farmers	3.84 (0.37)	3.46 (0.97)	0.175
Sell to other markets aside from the wet markets	3.92 (0.28)	3.61 (0.77)	0.165
Sell to supermarkets	3.61 (1.12)	2.92 (1.44)	0.201
Communication			
Open communication between all parties (cluster head, members, buyers)	3.92 (0.28)	3.84 (0.37)	0.337
Open discussion and freely available information on all important group issues	3.84 (0.28)	3.84 (0.38)	1.000
Clear, achievable objectives	3.92 (0.23)	3.84 (0.37)	0.337
Improve access to services	3.69 (0.85)	3.38 (1.12)	0.219
Access inputs	3.84 (0.38)	4.00 (0.00)	0.165

Notes:

Expectation (Scale of 1 to 4 where 1 = Not at All Important and 4 = Very Important.)

Fulfillment (Scale of 1 to 4 where 1 = Strongly Disagree and 4 = Agree a Lot.)

Table 7. Perceptions of cluster members about whether better off financially after joining the cluster

Response	Maragusan (n = 34)	Normin Veggies (n = 58)	VICSMIn (n = 13)
Yes	82 %	100 %	84 %
No	15 %	-	8 %
Same	3 %	-	-
No answer	-	-	8 %
Total	100%	100%	100%

Conclusion

The three cases present some similarities and some differences. The majority of the respondents were male and in their early forties. Most of them were also Roman Catholics, born in Mindanao, and had been living in the same area for more than 20 years. The number of household members working was also the same across the three cases. However, the main difference was the level of education. Normin Veggies members were the most educated among the three, while the Maragusan farmers were the least educated. Substantial differences in both farm size and income were also evident, with the Normin Veggies farmers cultivating an average of 3.9 ha, compared to 0.6 ha for the Maragusan farmers and 0.9 ha for VICSMIn. The differences in income were even more pronounced, with the Normin Veggies farmers generating a monthly household income seven times greater than that achieved by the Maragusan and VICSMIn farmers.

Given the larger size of their farms, many of the Normin Veggies farmers are sufficiently large that they can cost-effectively supply the market in their own right. However, acting independently, they cannot maintain either the continuity of supply or the range of product desired by downstream customers. The critical mass provided through clustering not only generated economies of scale but also greatly enhanced the farmers' access to a more cost-effective supply of farm inputs, knowledge, and services. Having achieved a much higher level of education, the Normin Veggies farmers had a much greater appreciation of the marketing options, and they were much better able to run their farm as a business. As a result, they generally placed less importance on the social aspects of their relationship with other cluster members.

Quite to the contrary, the farmers in both Maragusan and VICSMIn placed a high amount of importance on the personal friendships and the social status they expected to gain from being a member of the cluster. Not only was

cluster membership expected to result in an opportunity to diversify markets and to achieve a higher price but also to greatly facilitate the exchange of information within the cluster. For this to happen, a high level of personal commitment to the cluster was required from each member.

The results demonstrate that semi-subsistence clusters like Maragusan and VICSMIn tend to be area based. In an area-based cluster, members have more social connections such as being neighbors, relatives, practicing the same religion, or speaking the same language or dialect. On the other hand, medium to large farmers such as Normin Veggies tend to use a commodity-based approach where product is sourced from many different areas and brought together at one consolidation point before selling to downstream buyers.

Despite the knowledge that cluster farming had resulted in an improved household income for only one of the three cluster groups, the majority of farmers (91%) perceived that they were financially better off after joining the cluster. In much of tropical Asia, where vegetable prices are extremely volatile, depending upon the frequency and intensity of the typhoons, higher prices may not provide a good indicator of the benefits derived from cluster farming. Indeed, most of the respondents indicated that as a result of cluster farming, they had greatly improved their access to institutional markets, market information, technical and financial support, and production inputs. Cluster members had a much better understanding of the market dynamics, the role and function of market intermediaries, and what they needed to do to satisfy their buyers' demands.

However, just as the cluster sought to meet the needs of its downstream buyers, in parallel, the cluster had to meet its members' expectations. If the farmers' expectations are not met, there is every reason to suspect that numbers will decline and the cluster will experience great difficulty in recruiting new members. The success of the cluster ultimately depends upon the participation of members, and if members are not happy, dissatisfaction will eventually lead to the demise of the organization.

Notes

1. Interviews with Ms. Lorna Aldirete of Davao City Agriculturist's Office were conducted on November 2006 and August 2007.

2. Interviews with Mr. Rogelio Gualberto of the Vegetable Industry Council of Southern Mindanao were conducted on December 6, 2006, and January 26, 2007.

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