

SOCIAL DYNAMICS OF THE BUTTERFLY INDUSTRY IN MARINDUQUE, PHILIPPINES

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ABSTRACT

This paper argues that the continuing reproduction of butterfly industry in Marinduque is the creation of a multitude of actors who combine or rearrange social relations, material artifacts, natural resources and other living things to constitute or sustain the industry. Using focused group discussions, personal interviews, survey and personal observations in Marinduque, Philippines where the butterfly industry is flourishing, the study found out that the living actors made use of their human, social, natural, financial and physical capital to carry out their various roles within the industry. They innovated and adapted the captive breeding technology for butterfly not only to protect and manage their natural resources but to ensure the sustainability of their butterfly products. They did these through the domestication of butterflies and planting of host plants. They arranged and re-arranged inter- and intrahousehold relations to enable them to combine their capabilities, skills and knowledge in raising, nurturing and trading butterfly products. They put order to this newly created social activity by developing norms founded on social ties and obligations. As a consequence, the industry developed the rules of the game which guided its participants on how to compete and cooperate with each other.

Key words: cooperation, competition, conflict

INTRODUCTION

Economic and environmental crises are among the challenges that the world faces today. People around the world face the complex issues of global warming, climate change, biodiversity loss, poverty, and economic and political downfalls. Thus, everyone is in search of long-term, ecologically- and economically-sound livelihoods and technology-based enterprises to address these challenges. In his article, "Small is Beautiful", Schumacher argues that an appropriate technology is one that is readily understood by the people who are using it, is environmentally non-destructive, incorporates locally-available raw materials, is economically and environmentally-sustainable, and is not dehumanizing or degrading to the people who use it (<http://www.butterflyfarm.co.cr/en/why-butterfly-farming.html>).

A number of people-oriented and environmentally-sound livelihood enterprises have already proliferated, among which include the butterfly farming industry. Based on reports, (<http://www.butterflyfarm.co.cr/en/why-butterfly-farming.html>), butterfly farming, when properly

undertaken, could be an alternative and progressive endeavor with respect to impact on the immediate surroundings to which people and other living organisms depend. In contrast to traditional farming methods in tropical countries which require the clear cutting of natural habitats, butterfly farming is dependent upon the native vegetation.

In Papua New Guinea, butterfly farming is proving a business to which villagers quickly adapt. Butterflies do not require the equipment or financing of a conventional farm. Insect farming allows people to participate in the cash economy without causing disruptive changes in traditional village life. The villagers can work long and hard if they wish or they can put it only enough time to produce a little cash for necessities, leaving plenty for raising crops and other village activities (<http://www.agripinoy.et/butterfly-farming-1.html>).

Butterfly farming has also begun to proliferate in the Philippines, particularly in the province of Marinduque. Marinduque, one of the island provinces in the Mindoro, Marinduque, Romblon and Palawan (MIMAROPA) regions, is an agricultural province. Generally, the people are engaged in coconut and rice production, fishing, handicrafts making, and butterfly farming. Marinduque is in fact named as the Butterfly Capital of the Philippines, contributing 85% of the country's butterfly and pupa exports. More than three-fourths of the butterfly breeders in the Philippines are based in this province (<http://www.inquirer.net/specialfeatures/theenvironmentreport>).

The butterfly industry in Marinduque started in the 1960s. At that time, butterflies were collected from the wild and traded as deadstock. Later, when the people learned the technology of captive breeding, they began raising butterflies in their backyards and traded them as livestock and deadstock. Since then, the lives of people engaged in this industry had significantly changed. It became a major source of income of households in the towns of Boac, Buenavista and Gasan and a major revenue contributor to the municipality and provincial governments. Its benefits did not end there.

The industry helped develop a consciousness among people about the significance of protecting and conserving their environment to sustain the supply of wild butterflies and host plants. The butterfly industry has also supported the local and international tourism industry through exports of live butterflies

The beginning of the butterfly industry in Marinduque

Based on personal accounts of the respondents/informants, the idea of building an industry out of butterflies was introduced by Dr. Claro Santiago to the people of Marinduque in the 1960s, in particular Castro Mirafuente and Romeo Lumawig. Lumawig, the only one who entered the business, started exporting deadstock butterflies which were collected live from the wild, then killed and packed inside triangular papers. The demand was high, which made Lumawig employ butterfly catchers. Among these catchers were the Layrons of Barangay Cawit, Boac who entered all forested and interior portions of the province.

In the 1970s, a group of scientists and butterfly enthusiasts led by a Japanese entomologist, Yasuzuki Nishiyama, visited Marinduque and hired Edgar Borja of Boac and Venuz Francisco of Buenavista to collect butterflies for them. Their collection sorties extended far beyond Marinduque into the provinces of Palawan, Mindoro and Quezon. Nishiyama introduced the captive breeding technology to Borja during their stay in Palawan. This technology consisted of putting egg-laying butterflies in small circular hanging cages. The cages were brought to butterfly highways, which are places visited frequently by butterflies. Other butterflies, especially the male ones, were attracted to the cages and were then caught by people who patiently waited for them.

The spread of captive breeding technology

When Borja returned to Marinduque, he started teaching others how to catch as many butterflies as possible. He first introduced the technology in Barangay Bagtingon, Buenavista and in Barangay Cawit, Boac. On the other hand, the Layrons made some innovations as they found the technology too laborious. They observed and followed the flying butterflies to the sites of egg-laying. Then they began constructing big cages made up of used mosquito nets where they deposited the collected eggs and caught butterflies. Leaves of host plants and sugar solutions were put inside the cages. The Layrons let the butterflies fly around and lay eggs without being disturbed. The Layrons started also collecting host plants from the forest and planted them near their houses.

They became successful with the captive breeding technology, enabling them to produce and market pupae. They were the first group of people able to breed and supply the province's exporter, Nelson Maiquez, the son-in-law of Romeo Lumawig. They exported pupae and papered butterflies to the United Kingdom and later became known in other countries with tropical houses. The demand for pupae for export increased and led the Layrons to teach the technology to their relatives and friends so as to cope with export needs.

The spread of technology, access to local and international markets, and emergence of support from LGUs, GOs, NGOs and private sector.

The people within the area started observing and imitating the captive breeding technique and put up their own breeding cages. The technology became popular not only in Cawit but also in neighboring barangays and towns. Concomitant to this development was the growing interest of other groups in the butterfly industry. The Department of Science and Technology (DOST) assisted some individuals who went into encapsulation and electroplating of butterflies. The media's attention was also captured. Television and radio reporters wrote about the industry. Some butterfly farms were featured on national television and even used as locations of selected shows. Private individuals visited butterfly farmers' residences. Some Manila universities sent their students to Marinduque to conduct research about the butterfly industry. The Philippine Society of Butterfly Enthusiast (PSBE) was also created.

METHODOLOGY

The social dynamics and interactions in butterfly farming in Marinduque were gathered using the case study method. The study involved 36 respondents who were classified as pure breeders, breeder-collectors and breeder-traders. Three forms of social interactions, namely: cooperation, conflict and competition that exist in the butterfly industry in Marinduque were gauged in this study.

RESULTS AND DISCUSSION

Socioeconomic information about the respondents

As shown in Tables 1 and 2, the industry consists of three groups of people who have organized their respective households to raise, process and trade butterfly products for local and international markets. These are the pure-breeders, breeder-collectors and breeder-traders. The respondents were mostly in their late 40s and with educational attainment ranging from elementary to collegiate levels. They have been involved in the industry for more than 16 years. While they have other sources of income, most respondents derived bulk of their income from the butterfly industry.

Table 1. Demographic characteristics of the respondents and their households.

CHARACTERISTICS	PURE BREEDERS ¹		BREEDER-COLLECTORS		BREEDER-TRADERS	
	Freq	%	Freq	%	Freq	%
MAIN RESPONDENTS						
<i>Age</i>						
• Mean		48.5		50.4		50.15
• Range		35-57		36-55		38-65
<i>Educational attainment</i>						
• Elementary	8	40	1	17	1	10
• High school	9	45	3	50	4	40
• Vocational course	1	5			1	10
• College undergraduate	1	5	1	17	1	10
• College graduate	1	5	1	17	3	30
TOTAL	20	100	6	100	10	100
<i>Years of involvement</i>						
• Mean		17.15		13		16.6
• Range		8-30		9-21		8-30
SPOUSES						
<i>Age</i>						
• Mean		46.2		44.5		49
• Range		35-65		35-55		36-62
<i>Educational attainment</i>						
• Elementary	7	39	3	50	1	11
• High school	9	50	1	17	2	22
• Vocational course	1	5.5			1	11
• College undergraduate	1	5.5	2	33		
• College graduate					5	56
TOTAL	18	100	6	100	9	100
HOUSEHOLD SIZE						
• Mean		7		8		4
• Range		3-12		3-8		3-7

¹ The number of spouses of pure-breeders does not equal 20 because two respondents were widowed, while one from the breeder-trader group is single.

Table 2. Sources of and approximate income of raisers from butterfly-associated activities and other sources.

VARIABLE	Pure Breeders		Breeder-Collectors		Breeder -Traders	
	Freq of mention (n=20)	%	Freq of mention (n=6)	%	Freq of mention (n=10)	%
Approximate monthly income derived from butterfly farming (in peso)						
16,000-19,999						
10,000-15,999	4	20	4	67	2	20
5,000-9,999	14	70	2	33	5	50
Below 5,000	2	10			3	30
Total	20	100	6	100	10	100
Mean income	8324.50		11,166.17		12,349.5	
Range	4,500-15,000		5,000-12,000		5,000-17,000	
Other sources of income						
Coconut	15	75	4	67	1	10
Animal raising	15	75	6	100	-	-
Rice farming	6	30	1	17	2	20
Petty trading	6	30	2	33	5	50
Handicraft	3	15	2	33	-	-
Fishing	1	5	-	-	-	-
Driving	1	5	-	-	1	10
Construction	-		1	17	-	-
Approximate monthly income derived from other sources (in peso)						
10,000-15,999	-	-	-		5	50
5,000-9,999	5	25	4	67	2	20
Below 5000	15	75	2	33	3	30
Total	20	100	6	100	10	100
Mean income	5437		6583		9424	
Range	4,500-7,000		4,500-7,000		4,500-10,000	

SOCIAL DYNAMICS WITHIN HOUSEHOLDS OF PURE-BREEDERS, BREEDER COLLECTORS AND BREEDER-TRADERS

The butterfly industry is a household-based activity that involves planting host plants, constructing cages, catching butterflies from the wild, mixing and feeding sugar solutions, picking butterfly eggs, collecting and changing larval food plants, cleaning cabinet cages, collecting pupae inside the cages, controlling pupae quality, hanging pupae to hatch, marketing pupae and live butterflies and processing dead butterflies (Table 3). A single member of the household could actually perform all the tasks, but this was not done as household members viewed it as a family enterprise, and each member has a role to play. They had to help one another not only to sustain the industry but to lighten the burden of every co-owner. These perceptions were consistent with the

ideology associated with family enterprise as eloquently put up by the respondents “*We need to help one another to sustain our business. Things get done easily if we help other*”.

As to role distribution within households, the study found out that roles requiring manual expenditure of energy were generally allocated to male members. Examples were planting of host plants, construction of cages, catching of butterflies, and collection of larval host plants from the wild. This was observed for all categories of participants in the industry. As one husband/father respondent said, “*Together with my son, I usually perform the difficult tasks of planting host plants, constructing butterfly cages, catching butterflies from the wild, and collecting larval food plants from the forest*”.

Women, on the other hand, were mainly responsible in nurturing and controlling the quality of butterflies, pupae and larvae. They cleaned the cages, collected eggs and pupae, and mixed and fed sugar solutions to the butterflies. They also marketed their products either as livestock or as deadstock.

As expected, the children, depending on their age, assisted their parents in whatever possible way. This expectation was rationalized along the idiom of “I am a co-owner of the enterprise”. Hence, whatever benefits their households would get from the business would eventually redound to them. They caught butterflies from the wild, and collected and planted host plants. One of the children stated, “*We help our parents, especially if there is a high demand for the products. We have realized, that after all, we are the one who would benefit from all of these initiatives.*” These expectations from children, however, were relaxed especially during school days. As shown in Table 3, children’s participation in butterfly raising was not as high as those of the other household members. As one respondent narrated, “*We do not oblige our children to help in the activities, especially if they have school assignments. But if they don’t have classes, they volunteer to work*”.

While there seems to be a general rule as to who should perform a particular task in the enterprise, a deeper analysis of household task allocation revealed that it was something that household members negotiated on a daily basis. For example, when male members of the households were not available, other members were asked to take over. This was significant in households where men had to leave the house to attend to other jobs to augment their income particularly during periods of low demand for butterfly products. There were those involved in coconut farming, vegetable raising, as well as raising animals, while some were engaged in commercial activities like sari-sari stores, construction, and others requiring them to relinquish their major activities to other household members (Table 3). In such circumstances, other members readily took over. This was highlighted by one male respondent who said that: “*I usually delegate the tasks to my children. I have to be engaged in other jobs especially when the demand for butterflies is low*”.

While the unitary character of households in role allocation and task performance was apparent, there were some instances when this norm was violated, thereby exposing the instability of a butterfly household-based enterprise. Concrete examples of this were: (1) when children failed to do their assigned tasks, and (2) when a member of the household misallocated the proceeds of the enterprise, thus affecting the reproducibility of the business. In such situations, (1) irritations occurred among household members to the point that parents got angry with their children; (2) husband and wife fought with each other and (3) the enterprise failed to expand. Some respondents said “*Sometimes it is really frustrating especially when the children lie. When we forget to feed the larvae, for example, we will already incur losses, but the children do not understand this*”. Another respondent said, “*It’s really maddening because, instead of using the money for household necessities, it is just lost in gambling*”. Finally, one respondent claimed, “*I confront my husband if he gambles especially if he loses. I won’t mind it too much if he wins. There are times when the butterfly business is really on its downfall*”.

Table 3. Division of labor among household members of pure-breeders, breeder-collectors and breeder-traders.

ACTIVITIES	PURE-BREEDERS			BREEDER-COLLECTORS			BREEDER-TRADERS		
	Men % (n=19)	Women % (n=19)	Children % (n=46)	Men % (n=6)	Women % (n=6)	Children % (n=10)	Men % (n=10)	Women % (n=9)	Children % (n=13)
Planting of host plants	100	62	61	100	67	52	90	56	38
Construction of cages	100	32	32	100	22	25	90	22	44
Catching of wild butterflies	100	40	65	100	22	56	30	0	38
Mixing and feeding of sugar solutions	32	95	28	11	100	33	50	80	23
Picking of butterfly eggs	26	95	43	50	100	35	40	100	38
Collection of larval food plants	100	74	54	100	76	42	90	56	54
Cleaning the cabinet cages and replacing larval food plants	89	100	33	83	100	25	50	100	38
Collecting pupae from the cages	26	100	38	67	100	21	50	100	31
Quality control of pupae	42	89	13	83	100	17	60	100	23
Marketing of pupae	36	95	33	50	100	29	30	100	23
Hanging pupae to hatch	53	79	22	100	83	31	20	44	46
Marketing of live butterflies	26	95	17	67	100	35	10	100	46
Processing of deadstocks	26	42	9	33	83	13	30	78	38
Marketing of deadstocks	21	53	9	33	83	13	30	89	23

SOCIAL DYNAMICS AMONG HOUSEHOLDS WITHIN RESPONDENT-CATEGORIES

Pure-breeders The pure-breeder households were connected to one another in several ways. They both cooperated and competed with one another when carrying out their respective roles within the industry. Depending on their contexts, they shared their host plants with other pure-breeders, taught others how to improve further their captive breeding techniques or helped each other in marketing their products. On the other hand, they also competed by trying to outdo one another in production as well as in marketing their products. In many instances, they made use of their social capital to assure themselves of market outlets.

Sharing of host and food plants. Interestingly, sharing of host and food plants occurred only during the so-called “lean months” or when the demand for butterfly products was low. During that period, some pure-breeders cut down or withdraw from production automatically. Those who had unused supply of host and food plants readily shared them with other pure-breeder households who remained in production. They rationalized that this mode of behavior was helping not only those who remained in production but the industry as well.

Sharing of captive breeding technology. Captive breeding technology was shared by the pure-breeders especially to those who just entered the business. They did this for no reason at all except for the happiness derived from the act.

Marketing assistance. Some who had difficulty marketing their butterflies were assisted by other pure-breeders. This was especially true when there was an oversupply of butterflies or when there were new entrants to the industry. Assistance came in the form of or a combination of the following: (1) providing the list/names of possible buyers; (2) personal introduction to prospective buyers or (3) direct marketing of their products. Reasons for assisting one another were for others to earn and to ensure the industry’s sustainability. A pure-breeder said, “*When there is an oversupply of butterflies, it becomes very hard for us to sell them. There are breeders who know other buyers so they assist us in marketing our products. They even sell our products themselves*”. Another respondent added, “*We need to help other breeders because they also need money, which is why they raise butterflies in the first place. Besides, if we do it alone, there is a possibility of losing our costumers if we provide only a partial of their requirements*”.

Competition in selling butterfly products. All pure-breeders wanted to dispose of their stocks and earn income from it. However, some found difficulty in disposing their products. They perceived that other pure-breeders were talking ill of their products.

Competition in marketing. Buyers and other suppliers were considered as limited resources that pure-breeders were trying to get hold of. Because pure-breeders were increasing in number, buyers could choose among the suppliers. Hence, the pure-breeders employed several strategies to attract buyers. These included reducing the prices of their stocks, producing healthy butterflies, and maintaining good relationships with buyers. Selling of stocks at a lower price usually happened when there was an oversupply of pupae. A respondent narrated: “*There are times when there is oversupply of pupae. Buyers naturally flock towards the pure-breeders offering the lowest price. Sometimes, pure-breeders are really compelled to sell at low prices*”.

Pure-breeders also maintain good quality of their products. The larvae are given extra care and attention to produce healthy and higher value pupae. Some breeders make sure that the packaging is good to be able to protect the pupae from damages. “*Buyers prefer big and live pupae because they are aware that these characteristics would mean good quality pupae, which commands higher prices. If we know that our products are not competiitve enough, we do not show them to the buyers because*

these will just be rejected anyway. If there are buyers who still buy these products, we usually sell them at lower prices”, as claimed by some respondents.

Maintenance of good relationships with buyers. One way of competing with other pure-breeders was by maintaining good relationships with the buyers. Pure-breeders considered good human relation as an asset to survive and thrive in the industry. They would do everything to ensure that breeder-collectors and breeder-traders buy from them. Providing special service to the breeder-collectors and breeder-traders was a necessity. This is validated by a respondent who said that *“You need to develop good rapport with the buyers. You have to impress upon them that you are honest and trustworthy. To be able to please the buyers, there are instances that I deliver the pupae myself”*.

Competition for scarce resources (host plants). Host plants were a very important resource among butterfly pure-breeders. But because of the increasing number of pure-breeders, host plants had become scarce. This was not a problem to pure-breeders who had their own plantations; but only to those who collected host plants from the wild. According to the latter they had to exert extra effort to locate the source. *“You should be resourceful in locating host plants where they abound. There are times when you think you are ahead of the others, only to find out that they have also discovered your sources and have helped themselves to find the plants there”*. A respondent said *“Here in our place, a number of breeders engaged in butterfly breeding, especially during the peak season of breeding it is the right time to breed the butterflies, many are into it. But the scarcity of food plants in their surroundings. This is because breeders just get their food plants from the mountains. So, if they all start the breeding at the same time, competition for host plants from the mountains become stiff”*.

Those who did not own plantations needed to guard their sources in the mountains against trespassers. One respondent added that *“scarcity of host plants compelled some breeders to steal the host plants of other breeders. Therefore, the farmers need to guard and look after their plants. Others, however, have resorted to cultivating their own host plants”*.

Conflict due to loss of and damage to resources. Conflict can bring some ordinarily isolated individuals into an active role. Attempt of some pure-breeders to protect their property and resources from possible offenders make them to be more vigilant and cautious in other words, pure-breeders become extra protective of their source of livelihood. Host plants are very important to butterfly farmers. They serve as breeding places and food for the larvae. Thus, butterfly farmers protect them from being encroached upon by unauthorized people. However, trespassing on breeding areas still happens. As such, pure-breeders develop resentment toward the offenders. *“Who would want to see your farm being unfairly taken advantage by others?”*, said one breeder, and to which an offender answered, *“Sometimes we cannot help getting food plants from the others especially if we do not have enough larvae.”*

Sometimes, encroachers are not satisfied by just getting what they need. They actually get more than what is needed. *“I confronted the offender and even thought of bringing the matter to the village council. I could not imagine that what I have worked for so hard, would just be destroyed by the others who are, in fact, benefitting from it”*, said by the pure-breeder.

One farmer related: *“It is because of envy, especially if they see that you are earning a lot. What they do is to destroy and/or steal what you have”*.

Not only the host plants are stolen, but also nets of the cages and the contents. *“Usually, the children steal the pupae. They sell the pupae, and used the money to cover their school expenses. Unfortunately, these children sometimes destroy the cages also”*.

Breeder-collectors

Cooperation among breeder-collectors was typically observed in marketing. It was the common practice for breeder-traders to assign supply quota to breeder-collectors. Some breeder-collectors met the quotas at once, but others found it difficult to do so for lack of pure-breeders to supply their needs. Breeder-collectors who met their targets helped other breeder-collectors by providing the latter with the names of pure-breeders who could fill in the shortage. This is being done when the demand for butterfly products is high, but the supply is very limited.

On the other hand, when there is too much supply of butterfly products and the demand is low, the breeder-collectors cooperated with one another by letting only a few of them to do the collection. In addition, some breeder-collectors sold their products to the other breeder-collectors using the same selling price for pure-breeders .

Offering high prices to pure-breeders. Breeder-collectors usually competed with each other for pure-breeders who could supply the stock, and for buyers to whom the stocks were sold. They offered pure-breeders higher prices than what others normally paid.

“Competition among breeder-collectors is stiff. They ask pure-breeders how much other breeder-collectors pay for their products. If they can, they offer a higher price just so the pure-breeders will sell to them. Pure-breeders, consequently sell their products to the highest bidders, leaving only a little or none at all to the other collectors.”

Giving cash advances to pure-breeders. Breeder-collectors provided pure-breeders with advance payment in return for their products to be collected later. Unfortunately, some breeder-collectors enticed pure-breeders to renege on previous commitments by offering money higher than the cash advances.

Maintaining good relationships with pure-breeders and breeder-traders. Breeder-collectors also competed with each other in developing and maintaining links with the breeder-traders in the locality, to ensure that, the breeder-traders would buy from them whenever they had available stocks. As one breeder-collector narrated: *“You need to have contacts with many traders, because in times of oversupply, you need not depend on one trader only”*

Breeder-trader Households

Cooperation among breeder-traders was usually expressed in marketing and providing butterfly products.

Marketing and providing butterfly products. Foreign and local buyers were the usual clients of breeder-traders. Sourcing the clients depended on how resourceful the breeder-traders were. They usually sought clients by attending festivals and trade fairs, and through internet surfing. Breeder-traders expressed support for one other by providing stocks to those who needed them most. One breeder-trader shared that *“When my supply is not enough, I would call my colleagues. If they have stocks and do not need them immediately, they would willingly share their stock. When my turn comes, I also do the same.”*

Conflict among breeder-traders in marketing. Conflict among breeder-traders usually happened if one breeder-trader continued buying and selling butterfly products without complying with government regulations. As one respondent mentioned: *“What will happen to us who operate the business with permits if we compete with those who operate illegally?”*

Competition between and among breeder-traders was observed in maintaining the suppliers (pure-breeders and breeder-traders). Breeder-traders had their own strategy to maintain their relationship with pure-breeders and breeder-collectors. They offered good prices for the latter's products or supplied them with needed inputs.

SOCIAL DYNAMICS ACROSS CATEGORIES

Between pure-breeder and breeder-collector households

Pure-breeders and breeder-collectors usually cooperated with each other in marketing and in providing technical and financial assistance, and other resources like ready-to-lay butterflies and pupae.

Marketing. Pure-breeders and breeder-collectors who had established good relationships with each other were expected to support one another. The former sold butterfly products to the latter and the latter was expected to buy the former's products. This expectation, however, put the pure-breeders at a disadvantage vis-à-vis the latter especially in cases when the price given was lower than what other breeder-collectors offered. However, because of the ideology of "sense of gratitude", pure-breeders were obliged to remain in relationship with breeder-collectors. This was put explicitly by one respondent: "*It is ungrateful to sell your products to the other breeder-collectors even if they offer a much higher price. Sometimes, I just ask my breeder-collector to increase the price. Who knows, we may need their help in the future. If you do not earn their trust, they might not help you anymore.*"

Breeder-collectors, on the other hand, were expected to perform their share of the negotiation (once a transaction with the pure-breeders is done). One respondent mentioned that "*Once you have already contracted them to buy their products, you must keep your word, otherwise they may not accommodate you in the future.*"

Whenever possible, breeder-collectors personally visited the pure-breeders to collect their harvest. Such kind of arrangement was advantageous for the pure-breeders, ensuring their products were disposed. Similarly, it was favorable to the breeder-collectors because they were assured of regular supply.

"It is already an assured market when breeder-collectors would come and pick up our products. Although we do not get paid immediately in cash, at least we have something to look forward to. What is important is we have disposed our products."

Providing financial assistance. One form of support that the breeder-collectors provided to pure-breeders was through advance payment. However, pure-breeders were obliged to commit their products to the breeder-collectors in return for the advanced money. One of the pure-breeder narrated,

"If they see that you have lots of larvae, they would offer cash, actually credit disguised as advanced payment, with an agreement that they would collect the larvae when these are ready. Of course, I would always want to grab this opportunity, especially if I do not have enough financial resources to spend for the immediate needs of my family".

Breeder-collectors and pure-breeders also found time to discuss problems concerning the business. This enabled them to come up with recommendations to address the problems. The above findings imply that cooperation will not only improve the relationship with one another, but help them both solve whatever problems will occur in attaining their goals.

Making other resources available. Pure-breeders who raised only common species of butterflies were provided by breeder-collectors with alternative species which could command higher prices in the market. In accepting the species, pure-breeders were again committed to their breeder-collectors.

“As a collector, I prefer those which command higher prices in the market. When breeders raise common butterflies which are cheaper, I voluntarily provide them with the pupae or ready-to-lay butterflies with much better market price”

Pure-breeders and breeder-collectors competed with each other in marketing their products. Once the pure-breeders learned to sell their products to the breeder-traders, they closed the breeder-collectors' opportunity to source products directly from them. Pure-breeders directly sold their products to the breeder-traders, and at low prices to ensure that the latter would buy them. They also made sure that their products were of good quality, thus earning the breeder-traders' trust.

Between breeder-collector and breeder-trader households

Cooperation between and among breeder-collectors and breeder-traders was frequently observed during marketing of butterfly products.

Marketing and financial assistance. For breeder-collectors to get stocks from pure-breeders, the breeder-traders advanced money to the breeder-collectors. This was favorable to the latter because they could immediately purchase stocks, deliver these to the breeder-traders, then collect the payment. Breeder-collectors were also informed as how much the breeder-traders would pay for the stocks. In this way, they could determine how much stock to procure from the pure-breeders.

“Traders would give us money to purchase the stocks. They tell us in advance what kind of pupae they prefer to buy”

Breeder-traders were free to choose their breeder-collectors. Because of this, breeder-collectors would try to convince the former to keep a relationship with them by selling their stocks at lower prices. As one breeder trader said: *“The breeder-collectors sell their stocks at a lower price especially when there is an oversupply of stocks. Certainly, I buy from them, especially when their products are of good quality”*

A breeder-collector confirmed this:

“Because of many breeder-collectors trying to sell their stocks, we need to devise a strategy to persuade the breeder-collectors to buy from us. One strategy is reducing the price of our goods”

Between pure-breeder and breeder-trader households

Cooperation between and among pure-breeders and breeder-traders was usually observed in marketing and in making available other resources like ready-to-lay butterflies or pupae to be used as mother stock.

Marketing. While the breeder-traders could harvest from their own farms, they still needed additional stocks to fill the quota requirement of their local and foreign clients. They sourced from their pure-breeder partners. Likewise, breeder-traders were able to help the pure-breeders by buying the latter's stocks at prices higher than what the breeder-collectors offered. Such relationships benefited the pure-breeders and their families.

“Sometimes there were traders who buy directly from us especially when they urgently need stocks. Products which breeder-collectors have not bought are eventually purchased by the breeder-traders. They are of big help to us. If they were not around, it would be very difficult for us to dispose our products”

“It is to our advantage when breeder-traders buy directly from us because they buy our products at the same price that they pay to the collectors”

Making available other resources (ready-to-lay butterflies or pupae to be used as mother stock). Like the breeder-collectors, breeder-traders also provided the pure-breeders with alternative butterfly species. In return, pure-breeders committed their stocks to the breeder-traders. If the arrangement between the pure-breeders and the breeder-collectors was followed, the former were supposed to supply the latter with their produce, while the latter had to buy the products of the former.

Conflict in marketing. Despite the understanding between the two key players of the butterfly industry, some arrangements were not always followed. Sometimes, pure-breeders sold their stocks to other breeder-collectors or directly to traders particularly when the offer was higher. On the other hand, breeder-collectors failed to purchase stocks from pure-breeders. As one pure-breeder narrated:

“Sometimes breeder-collectors give us money in advance, with the agreement that we would give our produce to them. But sometimes if we urgently need money and the breeder-collector is not ready to claim our produce, we are compelled to sell these to other breeder-collectors who sometimes pay more. Of course, the breeder-collectors to whom we have previous arrangement get angry, but there is nothing they can do about it.”

Such form of betrayal caused disappointment to the key players, resulting in the breakdown of good relationships.

Competition between and among breeder-collectors and breeder-traders

Competition between and among breeder-collectors and breeder-traders generally occurred during marketing. There were cases when breeder-traders did not have breeder-collectors in certain areas. As such, the breeder-traders dealt directly with the pure-breeders and thus, offered better prices for the products compared with the breeder-collectors. As one pure-breeder exposed: *“There are breeder-traders who buy from us directly. This is to our advantage because they pay us higher unlike the breeder-collectors”*.

CONCLUSION

The social dynamics of the butterfly industry were investigated in Marinduque, Philippines. This paper concludes that the butterfly industry is dynamic, wherein the key players negotiate between and among themselves on a daily basis. Competition, conflict and cooperation are the social relations observed in among the pure-breeders, breeder-collectors and breeder-traders. They arrange and re-arrange these social relations and material artifacts according to the rules of the game.

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