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Migration Effects to the Marine Ecosystem of Barangay Concepcion

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Abstract: Concepcion is one of the small island barangay in the municipality of Agutaya. It has a total landmass of 132.297 hectares. It is located within Quinluban group of islands. This place has the variety of natural resources like seaweeds, turtles, fish and other seafood. The prominent product in this island is "agar-agar" also known as Tambalang (local name) and other marine resources. This study determined the effects of migration to the marine ecosystem of the place. Survey method and interview schedule were used during the data gathering. Results show that most migrants came to plant seaweeds or agar-agar. Poverty motivated them to migrate in the area. The abundance of marine resources also is one of the factors for migration for these people. They experienced poverty and economic crisis in their previous place which motivated them to explore and migrate to support their basic needs.

Key words: Environment, human migration, descriptive survey method, Cuyo, Palawan, Philippines.

1. Introduction

The world's great migrations out of rural areas are accelerating, making internal and international migration potentially one of the most significant development and policy issues of the 21st Century [1]. The internal migration redistributes populations and workforces from rural places to urban areas. The abundance of resources to the place attracts the migrants to stay for good. Human movement is common all over the world, although people migrate for varied reasons.

In the Philippines, people migrate from rural to urban, particularly in Manila. They believed that cities can provide them employment and more income. It is sad to note that effects of migration are extremely opposite of what is expected. Rare you can find migrants transferring from rural to the country for greener pasture.

Barangay Concepcion is one of the small islands Barangay in the Municipality of Agutaya, P. Palawan. It has a total landmass of 132.297 hectares and found in the Quinluban group of Islands. Pump boats could reach it for three hours (3 hrs) travel to the Municipality of Agutaya, and from Concepcion to Cuyo Island travel time is five and a half hours (5&1/2 hrs) depending upon the weather condition. The only available transportation is through the motorized banca or locally known as pump boat. The island is blessed with the variety of marine resources like Agar-Agar also known as "Tambalang" (local name), different types of fish, turtle, seashells and sea cucumber. These marine resources are very useful for the residents to earn income.

These natural resources attracted migrants to move to this place. They earned income in seaweeds farming, fishing, small business operations, and employment or laborers. Human migration became rapid in the year 2006 due to Agar-agar farming and sea cucumber. They invited their relatives and friends to visit the place and finally settled there.

The population of the municipality of Agutaya was 11,906 based on the 2000 census. Concepcion is second to the highest population in the municipality of Agutaya. The Poblacion has only 423 perple. In the year 2000, Concepcion had only 300 households, in 2006 there were 536 households. In 2007, the population was 2,716 and in 2010 the population was 3,210 [2].

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Several problems occurred due to a rapid influx of people. This issue includes overcrowding, limited marine resources, limited seaweeds farm for each family, waste management, water system and education. One of its advantages was an increase in small-scale business and increase in Barangay income. This situation is quite alarming and needs to be addressed soon to preserve the natural resources and minimize poverty in the place.

2. Objectives

(1) Identify the profile of human migrants.

(2) Determine the causes and effects of human migration on the marine ecosystem of the barangay.

3. Research Methodology

The study used descriptive survey method using the key informant interview, focus group discussion, survey and library works as approaches to determine the profile, cause and effects of human migration and mitigation. Respondents were selected through purposive sampling because of their capability to share the needed information for the study. The informants were informed about the purpose of the study and oriented about their rights as respondents. They were given leeway to refuse to be one of the informants. They were assured that their information will be treated confidentially and only serve as the source of inputs for the study.

Photo documentation was used in identifying the variety of seaweeds found in the locality. These are their source of income and motivated migrants to stay in the place.

4. Conceptual Framework

Migration is inevitable to people who wanted to search for greener pastures. Interactions between migration and poverty both at migrant origins and destinations are among the least researched and understood topics in economics. This is surprising, because the vast majority of the world's migrations originate in rural areas, where most of the world's poverty is also concentrated. The possible impacts of migration on poverty are bracketed by two extremes, which we might call the "optimistic" and "pessimistic" scenarios.

The optimistic scenario is that migration reduces poverty in source areas by shifting population from the low-income rural sector to the relatively high-income urban (or foreign) economy Remittances, Inequality, and Poverty [3]. If income in the migrant-source economy does not fall (or falls only slightly) in migration's wake, e.g. if the marginal product of migrants' labor prior to migration and the capital migrants takes with them are small, the loss of population to migration raises the average incomes of those left behind. At migrant destinations, the arrival of immigrants may increase local economic activity and create or preserve good jobs for residents, possibly including poor natives, by creating economies of scale and multiplier effects. In order for migration to raise per-capita incomes in migrant-source economies, it is necessary for income not to [1] fall or else to fall only slightly-when migrants leave. Pessimistic studies argue that this is not the case; migration reduces income in migrant-sending areas because the marginal product of the migrant's labour is large prior to migration and migrants take productive capital (including human capital) with them when they go. At migrant destinations, immigrants may compete with at least some workers in local labour markets, and native workers may respond to the arrival of immigrants by moving to less immigrant-impacted labour markets [1]. Typically, although individuals migrate, they do not sever ties with their source households. Source households may pay migration costs and support migrants until they become established at their destinations. Family members who remain behind (often, parents and siblings) may reorganize both their consumption and production activities in response to the migrant's departure, and migrants (often, children) typically share part of their earnings with their

household of origin, through remittances. Continuing interactions between migrants and rural households suggest that a household model would be more appropriate than an individual-level model of migration decisions. Indeed, in the individual-level migration models discussed above, there is no rationale for migrants to share their earnings with the place of origin [1].

5. Results and Discussion

5.1 Profile of the Migrants

Most of the migrants were males aging 51-60 years old and Elementary graduates. They came from Region VII from the province of Cebu and Bohol. According to Ref. [3], there are several factors that trigger migration. The first element is the food shortage in the outlying regions. The second factor is the unemployment problem that is characterized by the absence of job vacancies in the provinces. The third factor is the condition of weak and domestic markets; in the provinces there are few buyers of poultry and livestock products. The fourth factor is the unpredictable family income. The fifth factor is the minimal educational facilities for the children. The sixth factor is the inflationary pressures in the province.

Their primary source of income in the island is seaweeds planting and fishing. During rough seas and typhoon, they devote their time in planting seaweeds. This helped much in earning a lot of income. The planters can already send their children to college and earn a degree. The cost of seaweeds (agar-agar) ranges from P30-100, which is enough for them to live sufficiently. Due to rapid population growth, some of the residents established their small scale business and engaged in buying and selling of seaweeds.

5.2 Causes and Effects of Human Migration

Causes	Effects
Poverty in the place of origin	Increase of income
Permanently lived in the place	Increase in population, overcrowding, scarcity of water
Additional source of Income	Limited marine resources, limited seaweeds farm
Insurgency problem	Peace and order, health and sanitation
Invitation of the relatives	Permanent residence

The cause of migration is to live permanently in the place, earn additional income, scarcity of marine resources in their place and economic crisis. Effects of migration were: overpopulation, overcrowding, scarcity of water resources and problem in health and sanitation.

The 60% of farmers are married aging 42 years old and have an average of five children. The 99% of them depend on planting tambalang as their primary source of income. The 63% of them are elementary graduates, 27% high school graduates and 10% of them are the college graduates. The 36% of the residents earned an average of P5,000.00-P30,000.00 per month depending upon the size of their seaweeds farm and harvest. This income can already suffice the needs of the family considering the simplest way of living on the island. According to the respondents if the farmers are hardworking, patient and diligent they can earn a lot of money through farming seaweeds.

According to the farmers, climate change was the cause of their poverty, their way of living and consumption. The weather is unpredictable that leads to the warming and cooling of the water. If the water is warm, the seaweeds will have ice-ice or seaweeds melting. Typhoon causes too windy weather cause for washed out seaweeds while the fair weather will have the molds or “kabung-kabung”. Agar-agar/Tambalang farming becomes a permanent source of income and occupation for the residents of Concepcion. In other places, the tambalang will also tribe but the people lack initiative and focus instead they consider this a secondary occupation.

The presence of migrants in the area was due to seaweeds farming. They migrated to the area for greener pasture. The place is overcrowded, and the natural resources become limited. More planters of tambalang in the area contributed to lower income of

the farmers. Instead small-scale business is established in the area.

One famous observation is that the flow of money is easy in the area only if the residents are industrious; the children can support their studies through tying and planting of seaweeds. The family becomes closer because they work and harvest together. The children become lazy in going to school because they prefer to work and have money. Climatic condition affects the seaweeds condition according to the respondents; it causes poverty.

Thus, seaweed farms of whatever species have at least two beneficial impacts: they can increase local fish populations by providing shelter and food for herbivorous fishes [5] especially siganids, and they act as "nutrients sinks" that take up inorganic nutrients (ammonia, nitrate, phosphate) from the water column [5]. The presence of tambalang farming in the area will prevent the practice of illegal fishing activities because it can affect their production and may cause diseases and loss among the seaweeds or tambalang.

Mitigation is done by monitoring the population influx, conducting health and sanitation information campaign, the introduction of livelihood programs, protection and conservation of marine resources.

5.3 Seaweeds Variety That Contributed Much to Their Subsistence

Farming seaweeds is presently one of the most productive and environmentally friendly forms of livelihood for coastal populations. More than 80,000 people have been estimated to culture some 10,000 half of the coastal area. For example, production of farmed Kappaphycus/Eucheuma reached 58,324 dry metric tons in 1995 and was valued at US 44 million dollars. Production areas are concentrated in the southern Philippines. Today, seaweeds and their products are the third most important fishery export. Tambalang is a kind of brown, red and green seaweeds which grows in the sea with current that could help in its growth [6].

The farmers adopted the culture method of seaweed (agar-agar) farming and focused on planting sakul. They also tried to plant kutonay, espinusom, and kinsi-kinsi. The 81% of them plant sakul. This sakul is a kind of green algae with low quality but has faster growth compared to cotonaii. They prefer this variety to have faster harvest and income. This activity leads to family bonding, outing and enjoyment while earning. Sakul costs an average of P67.00/kilo if dried and P7.00/kilo for fresh. They plant agar-agar year around. The harvest time starts from three weeks to six weeks depending on the area planted. If collected within six weeks it is heavier and produces more yield.

Red seaweeds are sources of agar and carrageenan. The Irish moss (Chondrus crispus) was the source of carrageenan and until the late 1960s expansion of the industry was limited by the availability of the wild sources of this alga that grows best in cold waters such as the coasts of Ireland and Nova Scotia. Cultivation of Chondrus in tanks has been found to be too expensive but since the 1970s other warm water species, Kappaphycus alvarezii (also called "cottonii") and Eucheuma denticulatum ("spinosum") have been very successfully cultivated so that they are now the principal raw materials used for carrageenan production [7].

Cultivation of the latter two species started in the Philippines but spread to other warm water countries with low labor costs including Indonesia and United Republic of Tanzania.

6. Conclusion

The barangay population does not proportionate with the land area. Regulation of marine resources minimally should be given importance.

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