Rice Farming Practices Of Mamalu Descendants In The Selected Provinces Of Mindanao

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Abstract
The study aimed to identify and document the rice farming practices of Mamalu descendants in the selected provinces of Mindanao and relate these practices to their demographic profiles. There were four (4) municipalities selected for the study: Columbio in Sultan Kudarat Province, Lake Sebu in South Cotabato, South Upi and Upi in the province of Maguindanao. There were thirty (30) farmer-respondents from each municipality.
Survey results show that the farmer-respondents from the municipalities of Columbio, Lake Sebu, South Upi and Upi were adopting a combination of modern and traditional rice farming practices in their respective farm fields. Some of them had availed themselves of the support and technical assistance from the concerned agencies of the government, particularly the Department of Agriculture. Those who received support and assistance exhibited adaptive modern techniques, while those who did not remained resistant to adopting modern rice farming technologies.
Moreover, municipalities dominated by warring and rebel groups especially those with camps were often encountering unstability, making the tribe vulnerable to peace and order problems that largely affecting their socio-economic life.

Keywords: Mamalu descendants, teduray tribes, rice farming practices, peace and order, Mindanao

Introduction

In the Philippines, women have always assumed to have major role in rice farming cultivations. In tradition agriculture like in rice-based farming practice in the country, women play important roles in cropping production, seed management, post-harvest marketing and disposal of crop (Paris 1988). The roles of women are now recognized when family production is insufficient for subsistence. Women's farming system was further explored as their contributions to social additional income development have been set aside. Rural development women's resources and society would be benefited for increasing additional income due to sacrifice.
During the past three to four decades, an increasing number of rural development studies attempted to identify the factors associated with women's participation in farming system and development-oriented projects. The researchers focus rarely on the farming sector of the population which constitutes about 50 percent of the total labor force. The total female population in the country about 73 percent is actually engage in rice and corn farming (Castillo, 1985). Mamalu descended from Putri Paramisuli, as stated in the history and shown in the following genealogy.
In the Philippines indigenous knowledge system still exist in the upland areas despite advances made, particularly in agricultural system, the reason why the Philippine government has given agriculture the highest priority in its present development program. In Ifugao areas, the recognition of the mutual connections between forests and rice terraces as a traditional belief is deeply ingrained in the heart and mind of Ifugaos (Catherine, et. al, 2021). This tradition promotes sustainable forest management as expressed in their respect to customary laws pertaining to land rights, adoption of upland cultivation practices following soil and water conservation principles, stand management to promote ample supply of wood and fuel wood, and biodiversity protection. The development strategy strongly advocates a macro policy environment that removes the bias against agriculture in order that growth and productivity can prevail in the sector. Agricultural growth and productivity increases are expected to boost employment and household incomes in the rural sector. In turn, rapid growth in rural incomes can have high multiplier effects due rural expenditures which are heavily oriented to food and industrial consumer goods.
Indigenous peoples' role is recognized for the best farming practices worldwide as well as in the trend of indigenous technological development. In the Philippine countryside, it is evident in some areas that highlanders or mountain people are not given equal chance of practices in agricultural work.
In a study conducted by researchers, extensionist and practitioners from UPLB, BSU, HARRDEC, ICRAF, DENR-CAR, DA-CHARM, and NCIP they concluded that Indigenous strategies have been practiced in the Philippine uplands and they have maintained the sustainability of upland farming systems for generations. According to Cairns (2015), shifting cultivation is one of the oldest form of subsistence agriculture and is practice by millions of poor people in the tropics. Typically, involves clearing lands, often forest, for the growing of crops for a few years and then moving on to the new sites, leaving the earlier ground fallow to regain its fertility.
In answer to the Philippine's rice self-sufficiency goal, the expansion of production areas for upland rice and the propagation of traditional upland rice (TUR)varieties for local household food security are recommended.

However, the encouragement and promotion given to upland rice production would pose ecological hazards to the upland agro-ecosystem and forest resources (Araceli, et. al., 2012).
Historically, upland people in Maguindanao evolved from Mamalu, the brother of Tabunaway who was converted to Islam by Shariff Kabungsuwan. The two brothers named Mamalu and Tabunaway lived peacefully in the Cotabato Valley on Mindanao and then Shariff Mohammed Kabungsuwan of Johor in what is now modern-day Malaysia, preached Islam in the area in the 16th century, Tabunaway converted, while Mamalu decided to hold fast to their ancestral animist beliefs. The brothers parted ways, with Tabunaway heading to the lowlands and Mamalu to the mountains, but they vowed to honor their kinship, and thus an unwritten pact of peace between Muslims and the indigenous peoples was forged through the two brothers ("Cotabato tells its own stories". 10 May 2018.)
In Maguindanao province, Mamalu descendants are mainly Teduray who resides in the municipalities of Upi, South Upi, Datu Blah Sinsuat, Ampatuan, Talayan, Datu Odin Sinsuat and Datu Hoffer. Teduray tribes loves to stay and resides in the uplands and cultivates root crops, cereal crops and some livestock species. Rice and corn farming is mainly the activities of the Teduray tribes. Their wives and children are working together tilling and cultivating their piece of lands. Traditionally, they practiced “KAINGIN” system of land preparation, cutting and burning all small shrubs and getting the big trees for firewood in their homes.
It was just recently in the late 20th century when Teduray and other upland peoples learnt to accept modern technology in a transitional manner. Recent development in rice technology and marketing can have significant influence on farming system practices of upland communities. Also, women or farmers’ children are already participating in the farming activities because this becomes a major income source. Besides, they can play a pivotal role in improving productivity, profitability, and sustainability of rice farming system (Dowling, 1998).
This study has 3 fold objectives such as determination of the socio-economics of the mamalu decendants, rice farming practices and peace and order in the area.

Significance of the Study
Rice is one of the world’s main staple crops, with nearly 2.5 billion people depending on it as their main food. Hundreds of millions of people spend more than half their incomes on rice to feed their families. At the same time, rice farming is a major source of employment, especially for the poor, and about four-fifths of the world’s rice production is grown by small-scale farmers in low income, developing countries. All over the world, rural women have traditionally played, and continue to play, an important role in both rice production and rice post-harvest activities. In many areas, tasks related to rice planting, weeding, harvesting and processing are the domain of women.
Men and women farmers have different responsibilities in agricultural production systems, including rice farming. These differences in gender roles are not always obvious, but they must be recognized if rice production is to be increased, especially among small-scale farmers. Effective, sustainable rice production that provides food security to all people depends on gender roles being fully understood and considered in policy, planning, research and extension. Gender analysis is therefore an important tool in the development of rice farming. It identifies gender roles and responsibilities, indicates how much time different household members devote to different tasks (and why) and shows how these tasks change according to the season and the time of day.
Gender roles are partly the result of local ecosystems and farming practices, and can change over time. For example, in Eastern India, while women from the middle and lower castes work not only in their own rice fields but also as wage laborers on other people’s farms, upper caste women do not usually work in rice farming. However, recent male outmigration for non-farm employment is forcing some women from poorer, upper-caste families to work in their own fields, thus breaking longstanding social norms.
Recognition of gender roles and the specific needs of both men and women are the key to effective and productive rice farming. Men’s and women’s roles in rice farming vary considerably from region to region. In general, however, activities related to planting, weeding, harvesting, processing, management and the preservation of seeds are usually the domain of women.
Women’s access to agricultural resources, technical knowledge and support services (credit, extension services and training) is more limited than that of men, and this issue needs to be resolved if rice production is to be increased sustainably.
An understanding of gender roles makes it possible to design and adapt new farming technologies that will benefit both men and women in rice producing areas (FAO 2004).

Methodology
Research Design
This study will employ the mixed research method wherein qualitative and quantitative data or information will be taken from the respondents. Furthermore, a descriptive correlational method in determining the relationship between the independent variables (Demographic and Other Factors) and the dependent variables (rice farming practices).

Locale of the Study
This study will be conducted in the three (3) provinces of Southern Mindanao namely: South Cotabato, Sultan Kudarat and Maguindanao, specifically in the municipalities of Columbio, Lake Sebu, Upi and South Upi (Figures 1, 2, and 3 respectively).

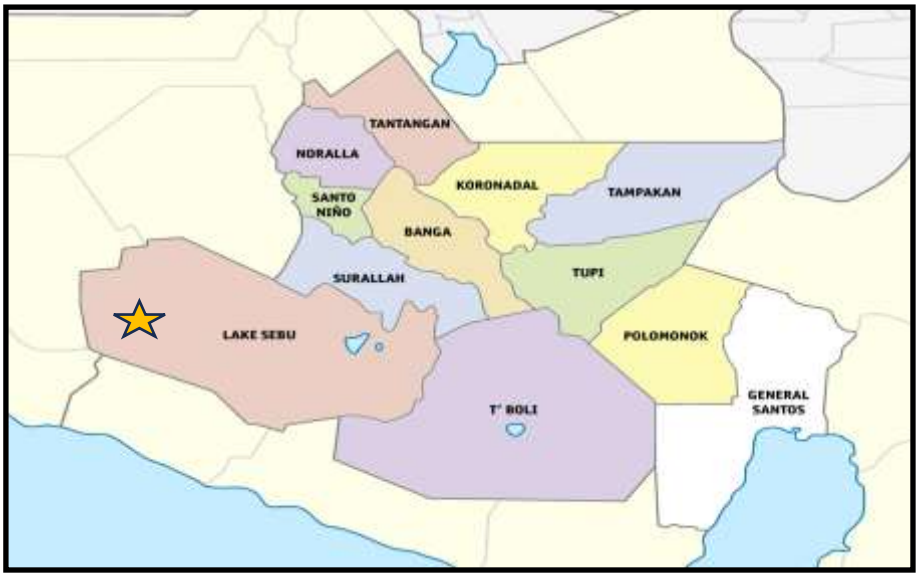

Figure 1. Map of South Cotabato province showing the study site.

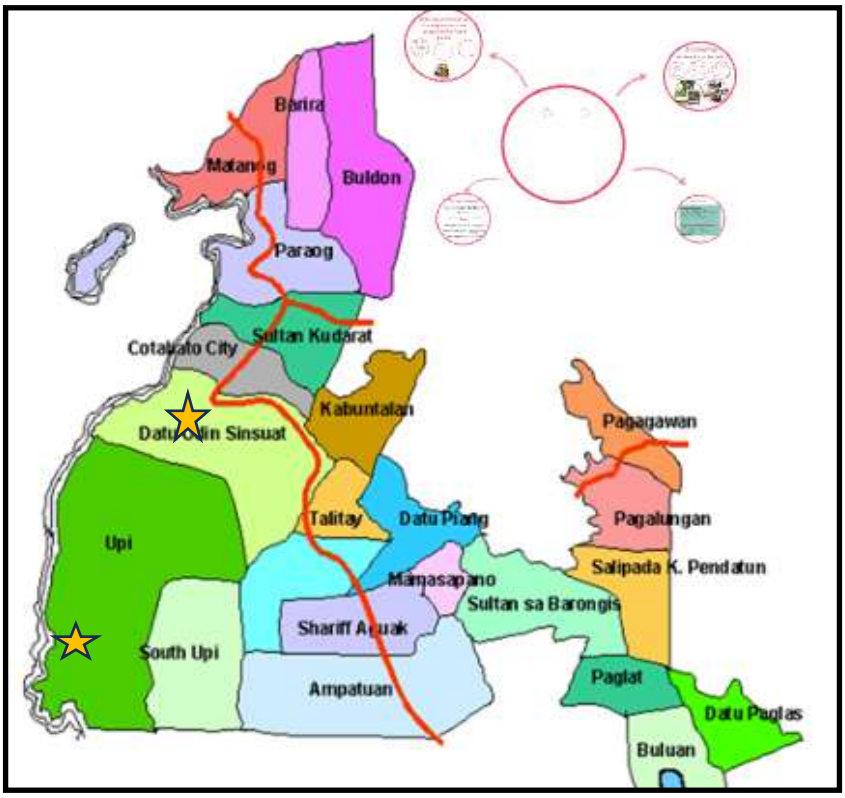

Figure 2. Map of Maguindanao province showing study sites

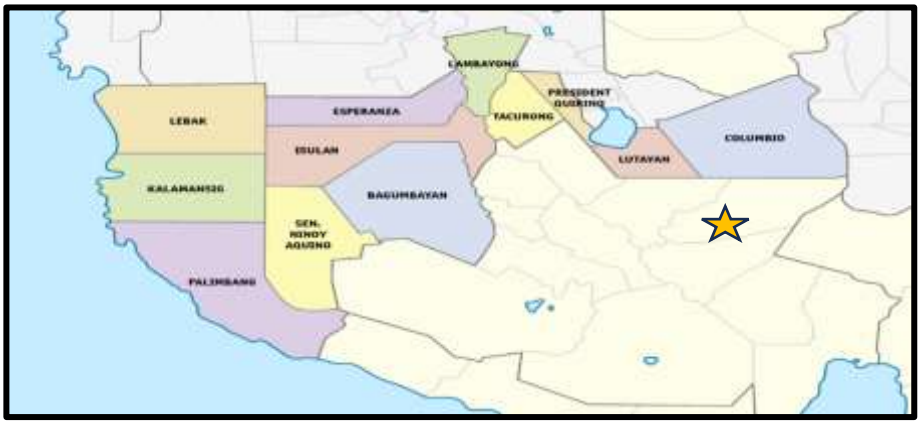

Figure 3. Map of Sultan Kudarat province showing the study sites

Statistical Analysis
Descriptive statistics such as percentile, mean and standard deviation were used to determine the upland rice farming practices of Mamalu descendants.

Data Gathering Procedures.
Semi-structured questionnaires were used in gathering basic information such as socio-economic profiles of the respondents. It was reviewed and pre-tested before administering to the respondents. Personal interview and diad were employed also to enhance the credibility of the supplied information. There were four (4) enumerators to hired; one per province. They were selected based on community organizing exposures, tribal affiliation and residency. Enumerators were deployed in each province for 1 month or until the questionnaires were completely answered and collected.

Respondents of the Study
The number of respondents were selected based on the criteria set by the Department of Agriculture in the RSBSA wherein each municipality had 30 farmer-beneficiary. Hence, the 30 farmer-respondents per municipality were taken as samples thru complete enumeration method of sampling.

Results And Discussion

Socio-Economic Profiles

Highest Educational Attainment.
Interestingly, the researcher found out in Fig. 4, that upland rice farmers included in the respondents were mostly elementary level (37%) in Columbio and 50% in South Upi. In Lake Sebu and North Upi, it was found out that most of the farmers were uneducated (43% and 50% respectively). This indicates that educated people in the municipalities who graduated college degree opted to seek white collared jobs.

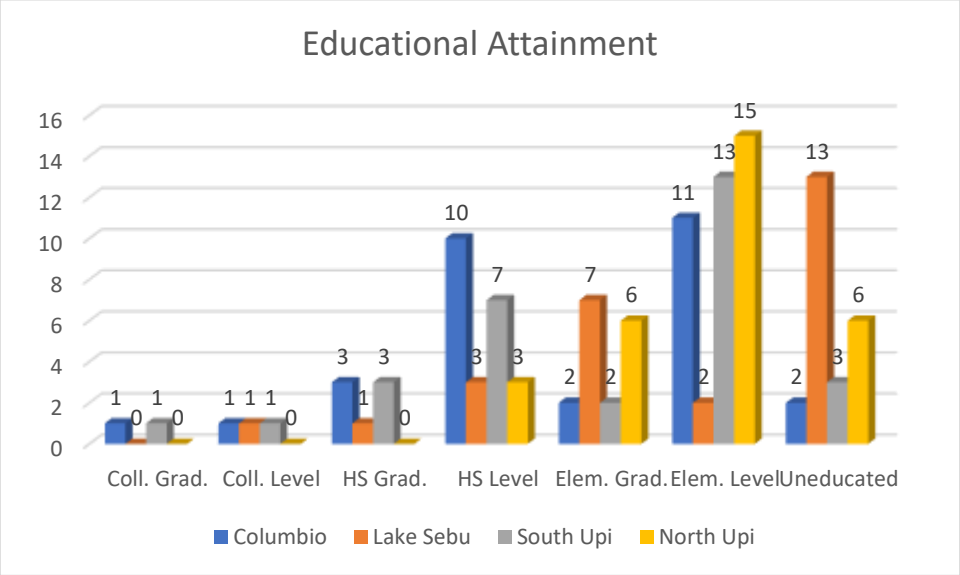

Fig. 4. Educational Attainment of the Respondents

Primary Source of Income.
Fig. 5 shows that 93% of the farmer-respondents in the municipality of Columbio were engaged in rice farming with only 7% whose income source were overseas employment, transport services and other income-earning activities.
In Lake Sebu, 87% engaged in rice farming, others engage in livestock raising (7%) and other sources of income. In South Upi, rice farming is still the primary source of livelihood for the marginal households other than livestock raising and firewood collection. Farmers in the municipality inherited vast track of agricultural lands from their ancestors, which today, they are treated as ancestral lands.
Interestingly, in North Upi, about 20 out of 30 farmer-respondents revealed that rice farming is their major source of livelihood other than livestock and poultry raising and other economic activities where they can derive income to feed their family members.

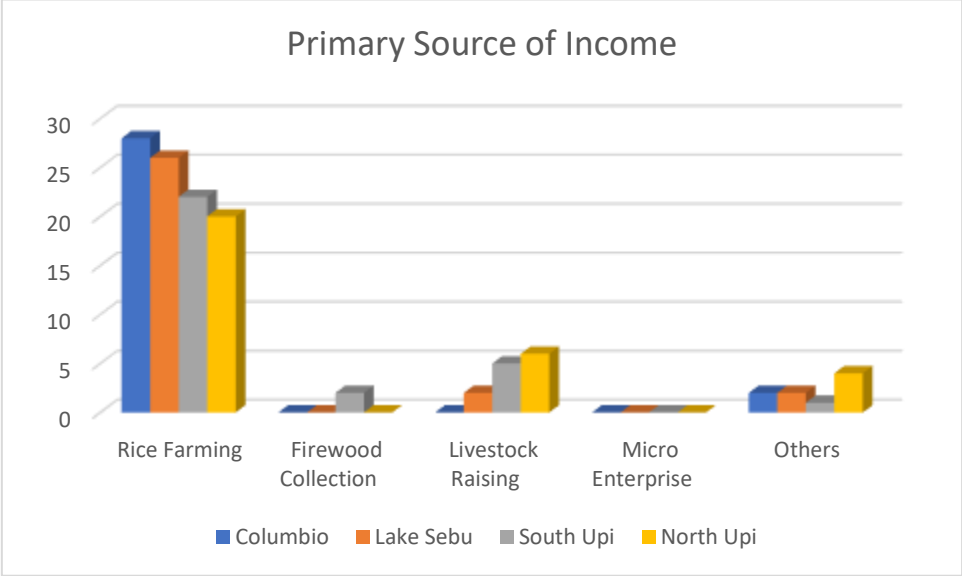

Fig. 5. Primary Source of Income of Respondents

Estimated Monthly Income before and after Receiving Support.

The 25% of the farmer-respondents interviewed, Fig. 6 revealed that they were earning from P5,000 to P10,000 pesos every month prior to the provisions of agricultural support from the Department of Agriculture office. This revelation is true because farmers in this municipality used the traditional farming techniques prior to the advent of mechanized rice farming. But, after the provisions of basic agricultural inputs majority of them (23%), Table 7 claimed that their averaged monthly income rose up from P20,000 to P30,000 pesos per month. This is so because their rice farming techniques were enhanced and facilitated by the farming machineries and inputs provided by the DA.

Those who were engaged in rice farming, they revealed that before the coming in of support and assistance from the DA, their monthly income was ranging from P5,000-P10,000 pesos, Table 8. But after receiving support their income gradually increased from P20,000 to P30,000 pesos per month. The primary reason is the support and assistance from the DA.

The respondent farmers revealed that their income before the provisions of support from the DA was from P5,000 to P10,000 pesos every month. However, after receiving the support and assistance from the concerned government agency, their monthly income from farming gradually increased from P20,000 to P30,000 pesos per month. Farmers who received technical assistance and support enhanced their farming activity thereby increased their productivity.

And when they were asked about their monthly income, they revealed that prior to receiving support and assistance from the DA and other government agencies, majority (81%) was earning only from P5,000 to P10,000 pesos per month. In fact, in traditional farming that these Tribe used to adopt, the productivity and yield is very low because there were ni farm machineries that helped them facilitate rice farming activities.

But after receiving support and assistance such as seeds, fertilizers, chemicals and farm machineries their yield per hectare increased and so their productivity also increased. These farm inputs and implements helped them enhanced farming activities. In fact, 41% of the respondents claimed that their monthly income from rice farming gradually increased from P20,000 to P30,000 pesos.

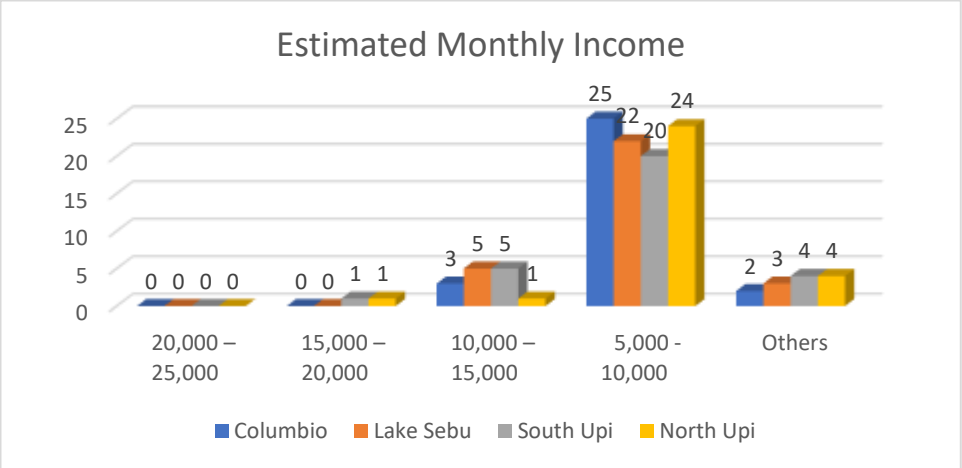

Fig. 6. Estimated Monthly Income of Respondents before and after receiving support from the Department of Agriculture

Length of Rice Farming Experiences.
The researcher also found out that out of 30 respondents interviewed there were eleven (11) of them with five (5) years of farming experience. The other respondents revealed that they were into rice farming activities for 10 and 15 years, respectively (Fig. 7).
The average length of farming experience of most farmers in South Upi were 20 years. Other farmers said they were already tilling their lands for 10 to 15 years since they started farming activities.
The rice farmers in Lake Sebu had an average farming experience of 15 years. The rest were 10 and 20 years. This finding was due to social status wherein most of them were not able to earn higher education but with land holding that are potential for agriculture production. Hence, they spent most of their time in faming activities.

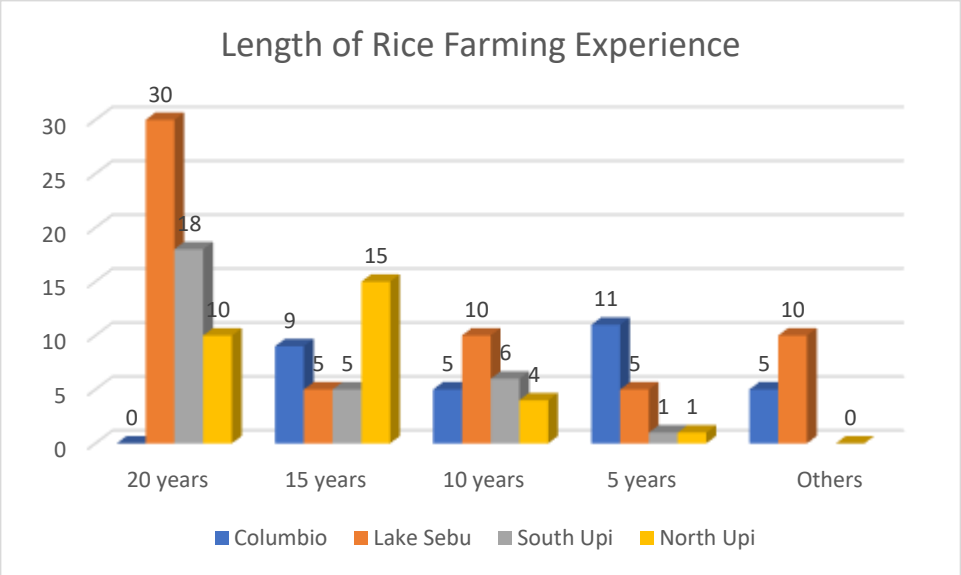

Fig. 7. Length of Rice Farming Experiences of the Respondents

Farm Size and Landholdings.
The average landholding of Lake Sebu rice farmers, particularly those interviewed was 1.5 hectares Fig. 8. Other farmer owned 1.0 and 2.0 hectares, respectively. Furthermore, it was also revealed in Table 10 that each of the 19 respondents owned 1.5 hectares intended for rice production. The rest owned 2.0 hectares and 2.5 hectares, respectively.
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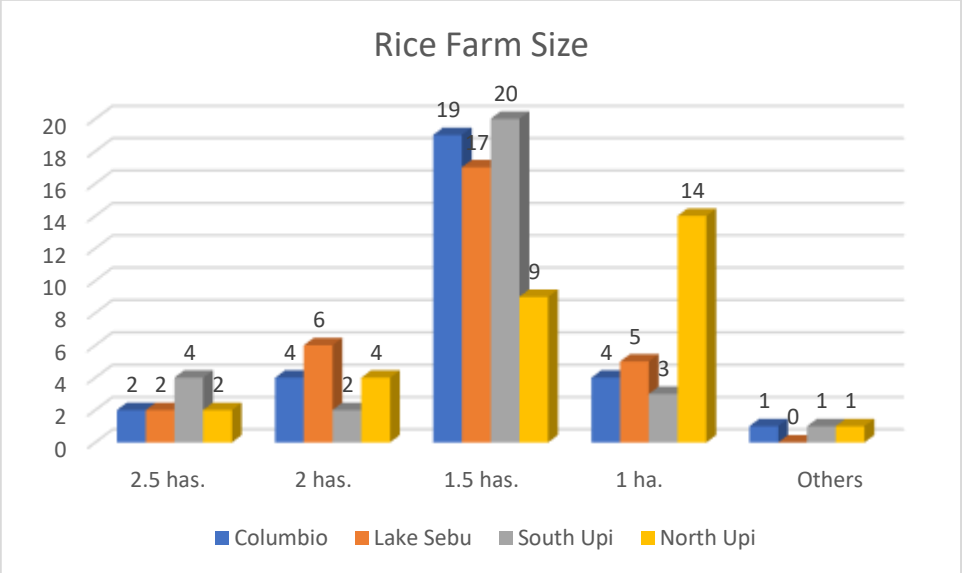

Fig. 8. Farm Size/Landholdings of the Respondents

Other Sources of Income.
The main source of income of some farmer-respondents were Transport services (77%), Table 11 such as tricycle and single motorcycle. These types of transportation are more affordable and convenient to the farmers given the inner road conditions in the remote barangays.
Aside from farming farmer-respondents were earning money from paid labor and other activities (33%) and (33%), respectively, Fig. 9.

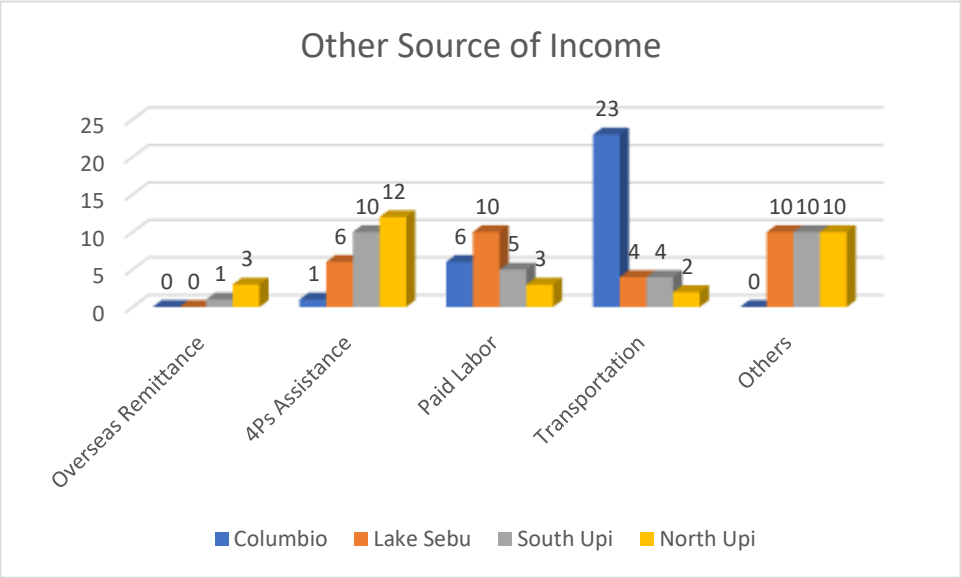

Fig. 9. Other Sources of Income of the Respondents

Estimated Monthly Expenses.
For those farmers earning much bigger, they revealed that they were spending around P20,000 to P25,000 pesos a month. The rest spend lower than P5,000 per month, especially those earning a little, Fig. 10.
Those farmers engaged in rice farming were also spending around P20,000 to P25,000 per month. Expenses went to clothing, food and other household uses.
Farmer-respondents earned income from 4Ps and paid labor. The rest are into a transport service such as Skylab, motorcycle and multicab.
Furthermore, the 16 respondents revealed that their monthly expenses ranged from P5,000 to P10,000 in a monthly basis. These are the farmers who earned better income.

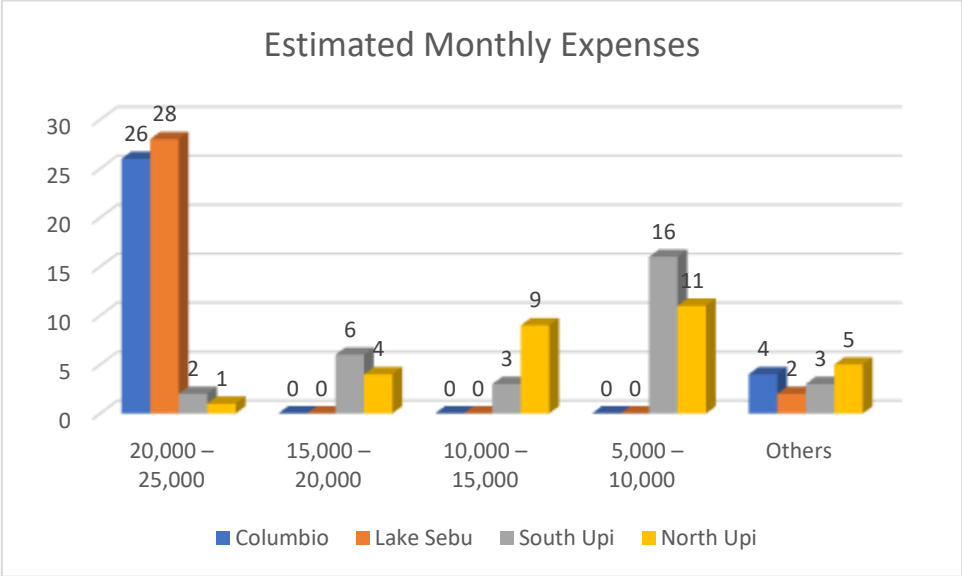

Fig. 10. Estimated Monthly Expenses of the Respondents

Farming Support Received.
When the researcher asked them about the type of support, they received and they revealed in Fig. 11 that the DA provided them with rice seeds, fertilizers and chemicals alone. Very few were given the required agricultural machineries. The Department of Agriculture usually provides assistance to those duly organized and accredited associations and cooperatives in the form of farm machineries and other needed inputs.
The support provided by the DA were seeds, fertilizers and chemicals. These are the basic needs of farmers for their rice farming. However, there were few farmers who received farm machineries particularly those members of the organization.
There were also support and assistance received by most farmers in South Upi. They were seeds, fertilizers, chemicals and some farm machineries. However, farm machineries were given only to organized farmers duly accredited by the DA. These support and assistance help the farmers in enhancing and improving their farm productivity.
In the survey conducted the thirty respondents were divided in their claim saying that they received rice seeds, fertilizers, chemicals, machineries and other farm inputs, Table 13. Most of these farm inputs and farm implements

were provided by the Department of Agriculture to the farmers who were active members of cooperatives or farmers association duly registered and accredited by the agency.

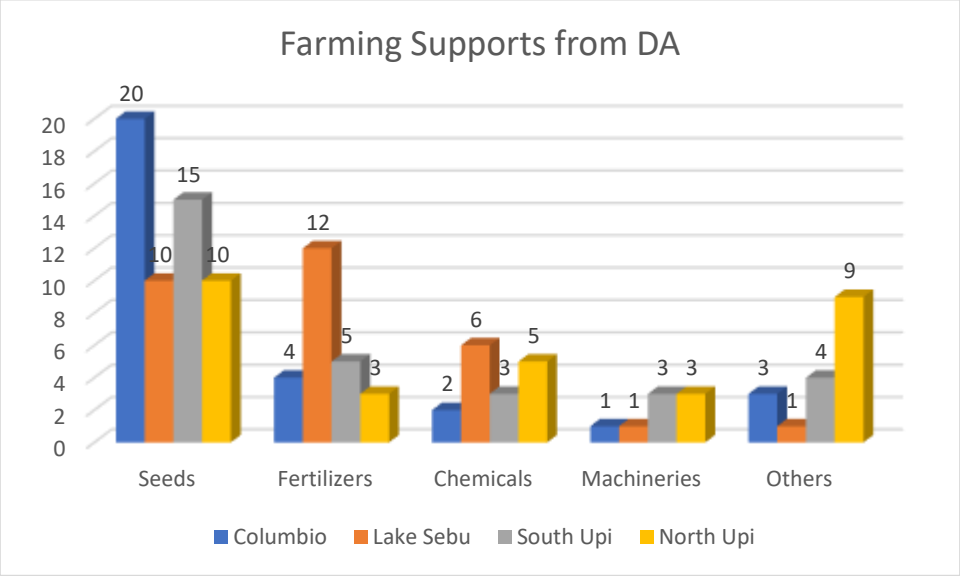

Fig. 11. Farming Supports Received by the Respondents from Department of Agriculture

Peace and Order Conditions.

As usual, municipalities dominated by warring and rebel groups especially those with camps were often encountering unstability. Columbio is adjacent to the municipality of Paglas and Buluan who were previously experiencing chaos due to localized conflicts between two opposing clans. This was the revelation of 22 respondents in Fig. 12.

In terms of peace and security, Lake Sebu has limited number of rebel groups operating in the premises of the municipality. However, there were RIDO existing in the municipality as revealed by 14 respondents. Arm conflict is a normal phenomenon in the neighboring areas of Maguindanao province such as Lake Sebu.

Despite productivity of South Upi, there were also presence of rebel group in the area. Occasional gun fighting was heard in the vicinity of South Upi in the recent years.

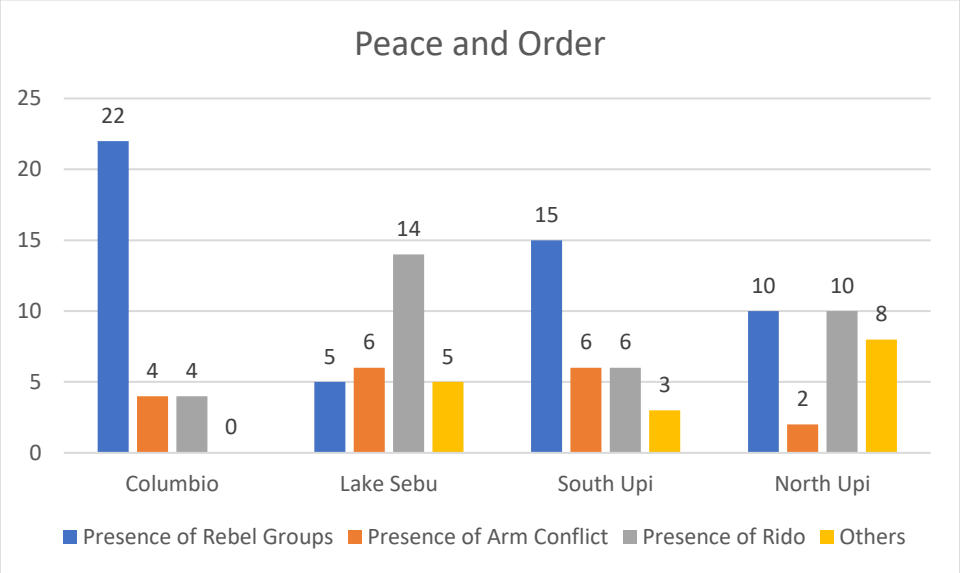

Fig. 12. Peace and Order in the Study Sites

Rice Farming Practices and Methods Adopted.

It was a fact that traditional rice farming is still prevailing in the municipality of Columbio due to lack of enough support from the concerned government agencies. Input support and technical assistance from the Local DA office were not enough to upgrade the rice farming activities of the farmers in the municipality. This was the revelation of the 20 respondents in Fig. 13. However, there were also farmers practicing modern farming techniques, particularly those who received assistance from the DA. In fact in Fig. 14, 12 and 10 of the 30 respondents claimed that they were practicing modern and combination of traditional and modern farming techniques in columbio, 15 and 10 in Lake Sebu, 10 and 16 in South Upi, and 8 and 16 in North Upi..

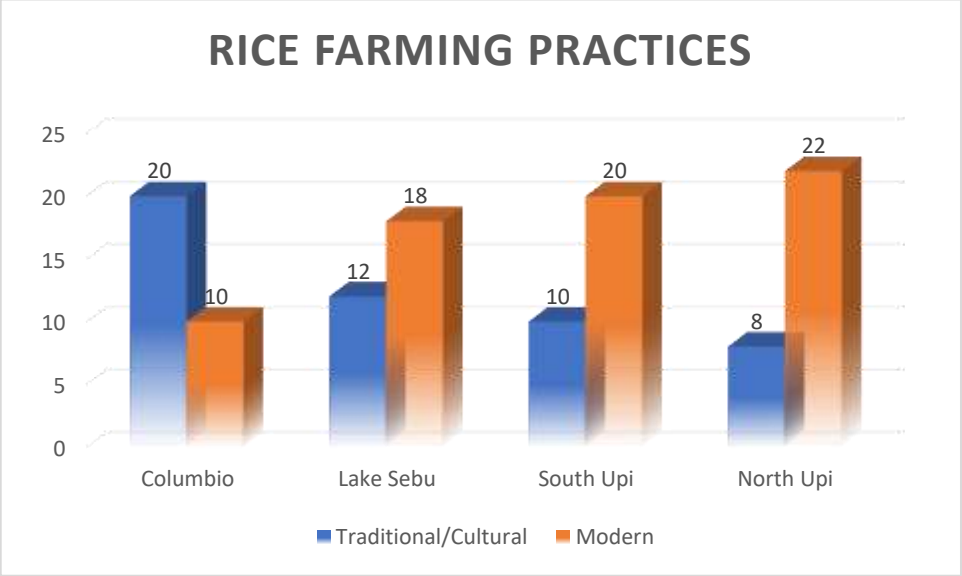

Fig. 13. Rice Farming Practices Adopted by the Respondents

North Upi like South Upi in the province of Maguindanao still practiced and adopted mix of modern and traditional rice farming systems. They used to grow traditional upland rice varieties such as the popular Dinorado or "Bulaw', the aromatic and glutinous rice varieties.
However, there were also few farmers gradually adopting modern rice farming technology, particularly those who received support and technical assistance from the Department of Agriculture and other government agency.

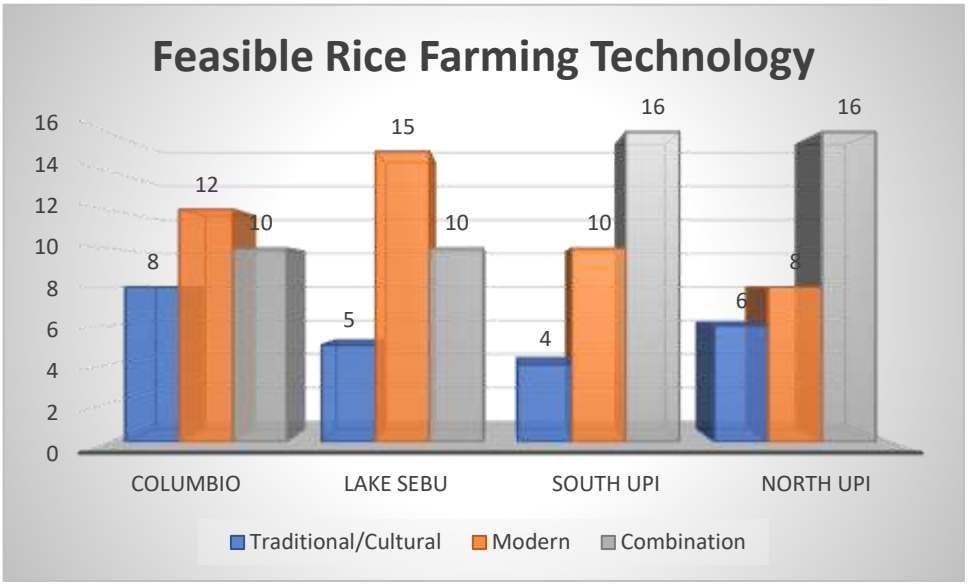

Fig. 14. Feasible Rice Farming Technology

From Fig 15, it was obvious that all farmers in the four (4) municipalities still adopted the basic method of rice farming from Plowing up to Grain storage. They only vary in land preparation because some farmers still used carabao while others used farm tractors such as Kuliglig and Bao-Bao (Floating Tiller).
Farmers in the municipality of Columbio were divided in their land clearing method for rice production. Half of the respondents revealed that they were practicing slash and burn and use of bolo in land clearing.
On the other hand, plowing using carabao and plow is still the option of most farmers in the municipality of Columbio. Others are more advance because they used floating tiller and Kuliglig. They are farmers who received support from the DA.
Wooden harrow is still the feasible mode of harrowing adopted by most farmers in Columbio. Mechanical harrow is rarely used because very few farmers were given the farm machineries.
Rice farmers still practiced soil levelling after harrowing by using wooden leveler (Pakalas), but there were also farmers who did not do soil leveling.
In the upland areas of Columbio most of the rice farmers adopted Direct Seeding method of planting. Others were practicing transplanting and broadcast method, especially those in the irrigated areas.
After planting those farmers in the non-irrigated areas are dependent on rainfall to irrigate their rice field. The case is different in the irrigated areas wherein farmers depend on irrigation water to supply water in their newly planted rice fields.
Despite adopting the semi-traditional methods of rice farming in the municipality of Columbio, there are farmers still using commercial fertilizers to boost their harvest and increased farm productivity.

Moreover, the use of commercial insecticides, pesticides and herbicides were rampant in the municipality of Columbio. Farmer claimed that natural method of pest management cannot control the infestation in the rice field but using commercial pest management could control infestation.
Harvesting the rice using Bayanihan was still the practice of many farmers in this municipality other than Partida or combined harvester. Bayanihan method invites neighbors to join the activity.
Foot threshing is still a popular threshing method in some areas of the municipality. But economically abled farmers prefer to use mechanical thresher or combined harvester because it is more efficient. The only disadvantage is that it deprives the neighbors particularly those marginal famers to join the threshing.
Solar drying is the most efficient drying method adopted by most of the farmer respondents in the municipality of Columbio. Most of the barangays in the municipality have solar dryer provided by many government agencies.
Farmers preferred to store their dried Palay at home or within their small bodega/warehouse. Storage will not mean hoarding but to reserve as household consumption for the next harvest season.

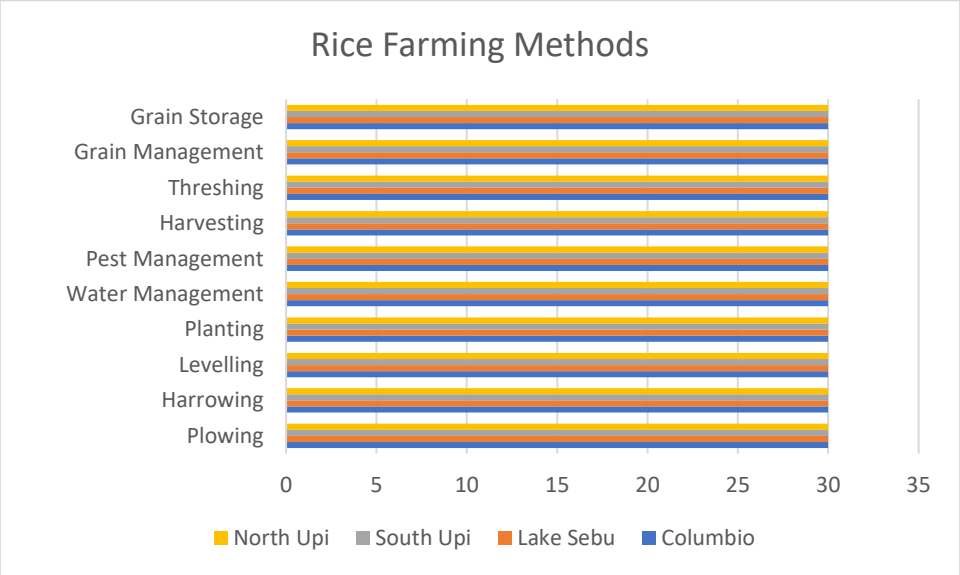

Fig 15. Rice Farming Method Adopted by the Respondents

Problems and issues encountered by farmer-respondents in the municipalities of columbio, lake sebu, south upi and north upi
When they were asked about the problems encountered relative to rice farming, they enumerated these four core problems, as follows:

Problems/Issues:
- No enough support from the LGU and Line Agencies
- Low selling price of rice in the local market outlets
- High cost of farm/rice inputs
- Poor technical assistance from the concern line agencies

Likewise, they also provided some recommendations to improve rice farming productivity in their barangays and in the municipality of Columbio, they were as follows;

Recommendations:
- LGU and government agencies must provide logistics and technical support to the organized farmer groups.
- DA and LGU to provide marketing assistance to organized farmers for their products

Conclusions
Upland rice farming communities are unique and gradually transforming from traditional to modern, though there were still few groups who preferred to combine the two systems.
Government interventions has great impact in transforming the rice farming system of the upland farmers, particularly those tribal groups who believed to be descendants of Mamalu. Adoption of modern technology lies much on the extension delivery system. Diffusion of innovation can be more effective if the receiver could have high level of awareness prior to extending a particular technology.

Recommendations
The researcher would like to recommend the following, to wit;
1. Inclusion of priorities the provision of more support and technical assistance to our upland rice farmers vis-à-vis the tribal groups;
2. Design more appropriate extension delivery system that can help motivate traditional farmers to adopt modern rice farming technology, and;

3. Design more appropriate programs/projects/activities that can increase the level of awareness of the traditior upland farmers relative to rice farming technology.

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