

The Shrinking Paddy Farms and the Bidayuh Women Rice Farmers: What Has/Have Changed?

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ABSTRACT

This article critically evaluates factor(s) contributing to the declining rice farms, cultivation, and production among the Bidayuh communities. This is especially with women's roles in rice production or cultivation within this unique ethnic group of Sarawak. The qualitative methods were the key approach for this research. As it is understandable that qualitative methods are effective at capturing issues that are sometimes immeasurable, and factual in determining the aims and objectives of a specific study. This is possible as qualitative methods are very elaborate and in-depth. The core findings of this research are the understanding that feminization of agriculture especially with rice production has become an impediment to the cultivation of rice in these areas. This is understandable as more women acquired formal education, they migrate to urban areas hundred folds in search of work leaving behind farms and farming especially the production of rice in their region.

Keywords: *Bidayuh, farmers, feminization of agriculture, paddy farm, women*

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INTRODUCTION

“Rural women and girls as vulnerable victims of their circumstances, and obscure the nature and the magnitude of their potential” (FAO, 2021).

This paper examines factors that enhance the decline in rice farms, farming and production among the Bidayuh of Serian, Sarawak, and the contribution of women to rice cultivation in the region. Women play a very significant role in every society, essentially in food production and security. They are the backbone of the rural economy, especially in developing countries. According to research by the Food and Agriculture Organization of the United Nations (FAO), on average, about 43% of the agricultural labour force in developing countries are women. What is more, about 79% of these women largely depend on agriculture as their primary source of income (FAO,

2009). In essence, women are of vital importance to rural economies. Rearing poultry and small livestock and growing food crops and vegetables, they are responsible for some 60% to 80% of food production in developing societies and countries. According to FAO (2009), in many farming communities, women are the main custodians of knowledge on crop varieties and the selection and preservation of seeds. For example, in some regions of Sub-Sahara Africa, women may cultivate as many as 120 different plants alongside the cash crops managed by men. In developing countries in Africa, Asia, and the Pacific, women typically work 12 to 13 hours per week more than men; yet women's contributions are often 'invisible' and unpaid (FAO, 2009).

Women's involvement in food production and security is not a new phenomenon. This is because, from the onset of human civilization, women have participated in farming activities. Often, employing traditional knowledge or new technologies, and world view to sustain their livelihoods, protect the community's food bank, and, at the same time, preserve the biodiversity of their respective areas. Likewise, over the centuries, Bidayuh women have continued cultivating the land. Hence, the success stories of the past Bidayuh rice harvest will never be completed without the roles and activities of their womenfolk. However, today, a journey along many Bidayuh villages and farms have shown that rice farms are either being replaced with cash crops or increasingly shrinking in size and production level¹.

Yet, a step back in time reveals a completely different scenario of rice production among the Bidayuh communities. For example, according to a member of the community, in the 1970s and 1980s, rice cultivation or paddy farms in these communities were in 100 folds or plots of land. One of the elders described it as *rantau*, meaning rice farms that stretched as long as eyes can see and were owned by many families. The harvest was bountiful then. The locals described it as *kurit*. According to the elder, this is because the people will go home joyfully with many *guni* bags as possible. Unfortunately, today this level of production or harvest is no longer attainable. Nowadays these farms are outgrown by heavy bushes, rubber, oil palm plantations, and sometimes, patches of pepper farms. Indeed, rice farm production is dwindling at an alarming rate. Ironically, the state and federal governments are strongly advocating for an increase in agricultural production and input. It is these inexplicable differences in rice cultivation and production that provoked the following research questions: what are the social factor(s) affecting rice production among Bidayuh communities? How vital is the role of Bidayuh women in rice production in their community?

BACKGROUND

Sarawak is diverse in nature, ethnicity, and religion. Although this region has witnessed varying outside migrations, the majority of those inhabiting this unique land are its indigenous people. Their uniqueness is depicted in their customs, arts, foods, and lifestyle. The Minority Rights Groups International (2017) states that Sarawak has a population of almost 2.5 million, made up of some 26 different ethnic groups. The non-Muslim indigenous groups are collectively called Dayaks. One of the prominent ethnic groups of Sarawak is the Bidayuh.

¹ Ironically, rice cultivation in other parts of Sarawak or Malaysia is not much different. According to the Malaysian Star online of 15 March 2016, Malaysia is still heavily reliant on imports to feed her population, despite efforts to be more self-sustainable. According to the Agriculture and Agro-Based Industry Minister, Datuk Seri Ahmad Shabery Cheek, "Malaysia's food import bill was RM45.39bil last year" (Carvalho, 2016). The article continues, "In the same year, our food export was only RM27bil, so the efforts to reduce the RM18bil deficit are a huge responsibility for the Government". Unfortunately, a holistic discourse on the state of rice cultivation in Malaysia as a whole is outside the scope of this article.

Although classified as one ethnic group in Sarawak, there are various sub-groups among the Bidayuh. Two noticeable differences among these sub-groups are languages and locations, but the sub-groups trace their lineages to the same ancestry. By and large, the various dialects spoken by the Bidayus can be classified as follows: Bukar Bidayuh, Singai Bidayuh, Biatah Bidayuh, Semban Bidayuh, Bau-Jagoi Bidayuh, and Tebakang Bidayuh (TheBorneoPost, 2010). Given this cultural variation, this study will only focus on rice cultivation among women in Bukar-Sadung Bidayuh who are mainly located in Serian District.

The Bidayuh are mostly agrarian but with the introduction of formal education, and their approximate to the cities, many have taken up jobs in either the public or private sectors. Yet, many still maintain their farms in their traditional homestead. With agriculture, the Bidayuh are synonymous with rice and pepper productions, with fruits and vegetables planted on the periphery of their farms and family gardens. But latterly, many Bidayuh families have embraced oil palm plantation. The Bidayuh community can be described as a gendered society, with some forms of gender roles being practiced. For example, pepper farming is often associated with male-driven activity, while rice is synonymous with female labour. There are two types of rice farms in our study areas, Kampung Prangkan and Kampung Bugu, which are hill paddy (HP) and lowland paddy (LLP) or wet paddy. The main method of rice farming in the study area is slash-and-burn and shifting cultivation.

The hill paddy as the name implies is rice farm on the hill or mountain slopes. This type of farming has been practiced for hundreds of years but has gradually reduced in size and practice. Because of the tedious nature of hill paddy, this practice among the Bidayuh in the past involved many members of the community. The hill paddy (or known as *nahuk* among the Bidayus of the Serian region) cultivation begins with the clearing of grasses and cutting down of tall trees. According to one elder, this is easier compared to the lowland or wet paddy. The elder stated this is because the hill paddy involves more men labour than the lowland paddy. The men have to cut down the trees, an act known as *birabak*, which is a gender role designated for the male members of their community. The trees are left to rot (between 3-5 weeks) and then burnt. This is a typical slash-and-burn farming practiced in the study areas. The next stage involves clearing the burnt trees, and finally, planting (*ngirakan*) of rice seedlings. The planting is usually carried out by the farm owners with their immediate family members, that is the husband, wife, children, and/or in-laws. Then, during the planting, men are needed make the holes on the soil with dibbles, while the women follow behind them to fill the holes with paddy grains or seedlings. During this planting activity, most of the men in the village will suspend their activities in the pepper farms to participate in the planting because the planting is expected to be completed in one day, and also for security purposes². This is known as *nuruk*. After the planting, the weeding of the rice paddy follows. This task is mainly performed by women, usually the owner of the paddy farm. Harvesting, on the other hand, involves both males and females. Nonetheless, it was observed during the fieldwork, women perform about 87% of the tasks of weeding. It is followed by winnowing (*nayap*). However, there are some differences between hill and lowland paddy cultivation in relation to male or female labour participation. In LLP farmlands the males' core duties are clearing the tall and thick grasses and cutting down trees. These grasses and trees are often left to dry before they are burnt and be part of the farm fertilizer. Often, this is where the task of the men stops, and women ensure that other important tasks such as weeding, ensuring waterways are not blocked, preventive measures to keep insects and birds away from the rice pod in rice/paddy farming continue to the end. So, while the men are involved in the planting, the women will do the weeding, processing, cooking and selling the rice grains. Men are only partly involved in the harvesting and winnowing.

² To guide against wildlife attacks or mischievous males from other kampungs.

Unlike the hill paddy, the lowland paddy also requires communal cooperation (or *pingirih*, or *gotong royong* in the Malay language). But usually, there are more female participants compared to male participants during *pingirih*. Even so, only the male host with an additional one or two men would participate. These could be the host's children and in-laws. These male participants' tasks are usually to sharpen the tools, and sometimes cut down thick grasses (*nahuk*) and during the weeding season. Additionally, the men work during the weeding to create an irrigation system for the rice field.

Unfortunately, the hill paddy cultivation is fast being forgotten or abandoned by rice farmers in the area. This is because the work is tedious, and the *pingirih* is hardly practiced by the community members.

LITERATURE REVIEW

Subsistence rice farmers all over the world have continued to witness a great decline in subsistence rice cultivation. Different writers (see Shelley, Takahashi-Nosaka, Kano-Nakata, Haque and Inukai, 2016; Cultural and Educational Interchange [CULCON], 2003) have attributed this reduction to various factors, particularly the changes in their demographic profile. For example, in the late 1950s and early 1960s, about half of Japan's population lived in rural areas and half of all households farmed rice. Thus, in 1950, there were over six million farm households in Japan.

According to an online article by CULCON:

As Japan's economy recovered in the 1950s and entered a period of high growth, young adults left their farm homes to take jobs in the cities. Many never returned, leaving no one to take over the family farm. The population increased in the cities, and nearby villages turned into suburbs as houses and apartments sprang up in farmers' fields. Expanding cities and faster train transportation made it possible for more farmers to work at urban jobs (2003).

Shiji (2016), based on his study of Kerala rice production, stated that the area under rice cultivation and rice production has more or less shown a consistent decline. Shiji (2016) argues that farmers convert their arable land to cultivate cash crops, despite rice being the staple food in the state. The author noted the major factors that cause depletion of rice cultivation are related to the socio-cultural and economic changes in the state. A similar trend is becoming a common phenomenon in most rural areas of Sarawak.

Furthermore, many have argued, with the improvement of women's education, introduction of export processing zones (EPZs) in places like Malaysia and Singapore, most female graduates are now following the footsteps of their male counterparts by migrating to the urban areas in search of paid jobs (see Heng, 1994; Khoo and Pirie, 1984; Kusago, 1998). This changes the popular notion of feminization of agriculture in these countries. Feminization of agriculture refers to the rising share of farm work undertaken by women. This raises questions about the changing character of rural agriculture, particularly with regards to women's social and economic roles. The feminization of farm labour has meant that women are contributing labour resources to food production and therefore directly contributing to food security (Asadullah and Kambhampati, 2021). Kelkar (2007) observed that feminization of agriculture is the trend towards the increased number of women and agricultural production appears to be linked with a variety of factors, such

as male rural out-migration, the growing number of households headed by women, and the development labour-intensive cash crops.

Joliya et al. (2017) described the feminization of agriculture in India:

Agriculture, the single largest production endeavour in India, contributing 25 percent of GDP, is increasingly becoming a female activity. The agriculture sector employs 4/5th of all economically active women in the country, 48% of India's self-employed farmers are women. There are 75 million women engaged in dairying against 15 million men, and 20 women million in animal husbandry as compared to 1.5 million men.

Critics like Sujaya (2006, p.5), argued that feminization of agriculture is caused by increased “casualization” of work, unprofitable crop production, and distress migration of men “for higher casual work in agriculture and non-agriculture sectors”, leaving women to take up low paid casual work in agriculture. Thus, Sujaya (2006) maintained, women’s livestock activities have been conventionally viewed as an extension of domestic work around the house, sometimes if it fits their work, no economic incentives are given for economic development.

The above illustrations are empirically factual. However, it is obvious that in many countries, the baby-girl educational drive has changed the demography of the university population. Essentially, as pointed out earlier, most female graduates would rather seek employment in the urban areas than work in the rice farm in agricultural sector for that matter. Indeed, the feminization of agriculture or rice farm, to some extent contributed to the shrinking rice farms among the Bidayuh communities. This understanding will be substantiated with data from our study areas.

METHODOLOGY

Qualitative methods are effective at capturing issues that are sometimes immeasurable but factual in determining the aims and objectives of the specific study. It is a method that researchers use to understand how research participants make sense or meaning of their social realities in their environments. Although sometimes several trials, lengthy follow-up, and probing are needed, these processes enhance the quality of the data and ensure that questions are adequately answered. Thus, getting candid information often requires time, trust, rapport, triangulation, and observation. This is where qualitative research become a vital and encompassing approach. According to Metso & Le Feuvre (2006), from an epistemological point of view, qualitative research is often thought to value subjective and personal meanings and is said to be conducive to giving a voice to the most marginalised groups in society. Yet, Metso & Le Feuvre (2006, p.6) said that feminists claim it is impossible to conduct research that is free from subjective bias. This is because they doubt the possibility of discovering scientific ‘truth’ that could exist totally outside the context of the knower. The use of qualitative methods for this study enhances both the quality and quantity of data gathered from the field. More importantly, the research instruments that are used in qualitative research provide avenues for in-depth interviews and empirical observation. These instruments are designed to ensure face-to-face interactions and empirical observations. Accordingly, the fieldwork questions were designed using unstructured and open-ended questions aimed at gathering quality data.

This study’s target group is predominantly women in the study areas. Some male respondents were interviewed. This was to avoid bias and one-sided data, and to enhance the validity of the data. Target groups (male and female) were chosen from those between 45 and 73 years old. The target pool is to ensure historical and contemporary details and facts were accurately presented.

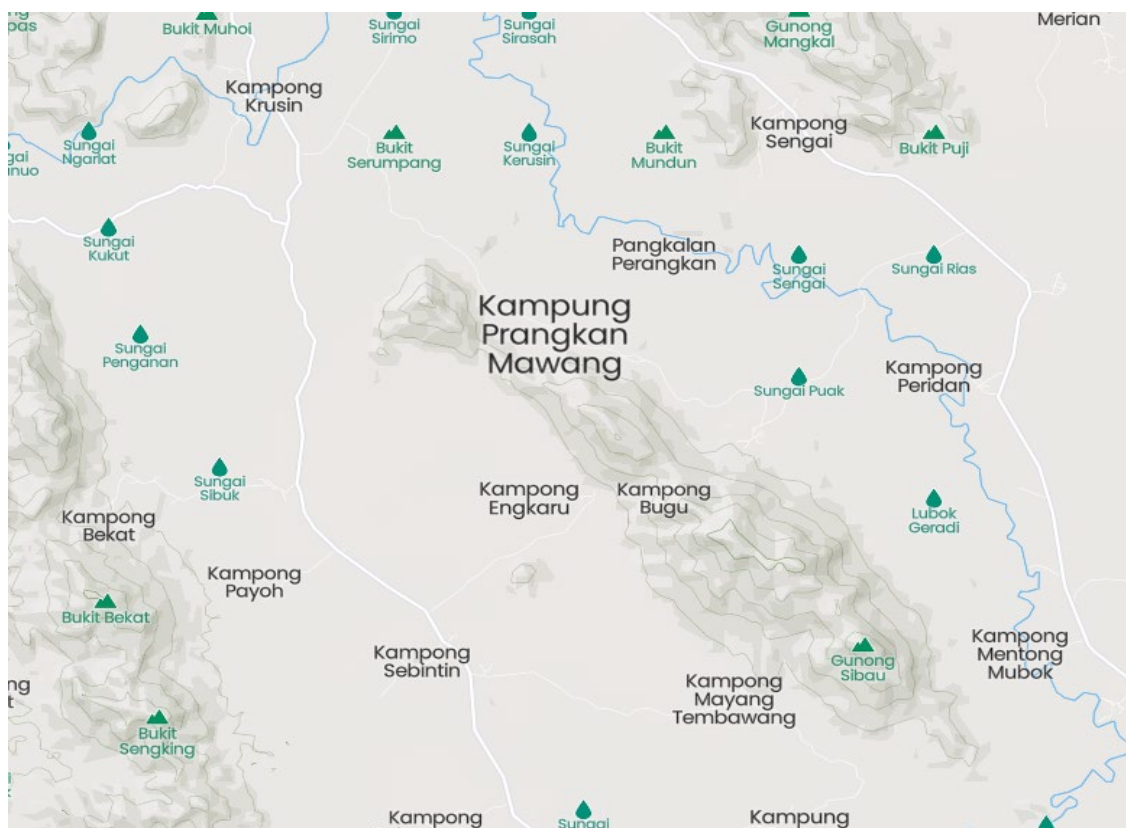
This also ensures that respondents' knowledge of their community's paddy farms, and rice production is recalled with limited subjectivity. The historical content helped to shed concrete light on what has gone wrong or changed in the past 20 years or more with the Bidayuh and paddy farms. Other details of the target group include years of farming experience, knowledgeability of Bidayuh rice culture and communal setting, and the member is a resident of the studied villages but could be living in Kuching or Serian, or other nearby towns. Having farmland and currently cultivating paddy is an added asset in the study.

SAMPLING

We applied a non-probability sampling (purposive sampling) in our study. At the end of data collection, 31 women and four men were interviewed and observed. The interviews took place in their rice farms. Three out of the four men were the spouses of three women respondents. The fourth male respondent was clearing the farm in preparation for rice planting. The youngest respondent was 41 years old while the oldest 67 years old at the time of the interview.

LOCATION OF RESEARCH

This study was carried out in three different villages, namely Kampung Prangkan, Kampung Bugu and Kampung Prangkan-Merung. Serian town is the administrative centre of the Serian Division. It is located about 40 miles (64 km) from Kuching. This Division is mainly populated by the Bidayuh ethnic group. The Serian district is well connected to the rich hinterland, and it is the political and socio-economic hub of the division. The study areas are located about 26-40 kilometres from Serian town. In the 2010 census, the Serian district population was 90,763. About 65% of the population is Bidayuh. The other main ethnic groups are Iban, Chinese, and Malay (Department of Statistics Malaysia, 2010).



FINDINGS AND DISCUSSIONS

Human survival and continuity strongly hinge on 'work'. The notion of 'work' is to carry out a task through personal physical or mental ability. This work aims at actualizing a goal(s) either by force or necessity. Work is having meaning(s) that relates to a social framework, and it goes beyond organizational boundaries (see Roberts & Zietsma, 2018).

Hence, the gender theorists categorized work into Work Inside and Work Outside the home. Even though the latter is always associated with income, earnings are often assumed paramount. Yet, no society can survive or sustain growth without any of the two. Unlike many other rubrics by which you can establish which is more important, there is not much evidence of a cohort in both. Similarly, subsistence and mechanized farming could be viewed in a similar connotation. The former hardly contribute any financial benefit, while the latter ensures economic benefit. Nonetheless, subsistence or mechanized farming safeguards human survival and sustainability³. Rice cultivation could be associated with both (subsistence and mechanized farming) depending on researchers' area of study. It is work 'inside', when it is purely viewed as subsistence farming (food crop), and for family consumption. It is a work 'outside' the home when it is predominantly cultivated for income. However, this dual positioning of rice cultivation has influenced how the issue of paddy farming is perceived.

Rice is one of the most important grains on earth today. Thus, communities or countries that perceived it as income-generating source invest heavily in it, while communities or countries that perceived it as subsistence crop gradually reduce their commitments and investment in the cultivation and production of the grain. Farmers in our study areas cultivate the traditional rice varieties and fertilizers are never used. Farmers plant a single crop of rice per season, and from planting to harvest last between 3-4 months. It is on this understanding that data from the field examine factors undermining rice cultivation and growth in Kampung Prangkan, Kampung Bugu and Kampung Merung. Indeed, all the respondents in the study acknowledged the importance of rice as a staple food, source of delight, and essential to their customs, folklore, and celebration. One of the respondents put it this way, and bluntly too: "If we don't have rice, we cannot live!". Most of the respondents affirmed the statement by saying; "We cannot go a day without rice – I must eat rice every day". Such statements explicitly resonated with the essence of the place of rice to the people and culture of the Bidayuh communities.

Yet, it is a conundrum. Rice is the centre of their food culture, yet the number of people farming it and the cultivated lands are shrinking drastically. This is a puzzle that got most of the female respondents laughing and shaking their heads. Seven of the respondents simply raise their hands and say: "The new generation is not interested in this type of work anymore – they work in the cities". One of the male respondents simply answered: "We're living in a changing world". However, five respondents pointed out the fact that among the Bidayuh communities, rice has never been cultivated as a cash crop, and the new generation does not view it as a cash crop. This fuels their desire to seek employment in the cities for wages. They argued, "It's the new trend, we don't want them to be left behind". Another respondent went further to stress: "There is no work in the village, rice cultivation is only for the family consumption...no one in these villages plants rice to get rich, we just plant and harvest for our family consumption". Still, that does not explain why more women partake in rice cultivation than men. The 'we' which implies male and

³ The level or magnitude is outside the scope of this paper.

female rice farmers, overshadows the understanding that 87%⁴ of rice cultivation in the study areas are performed by women. Besides, they failed to make the connection that the more female members of these communities migrate to the urban areas, the likeliness the rice farm will continue to shrink in size.

In relations to the fact that more women are working in the rice farm than males, one respondent said: “My husband, like other husbands, preferred to work in the pepper farm during the rice harvest. However, they assist during the preparation and planting of the seedlings... which is why there are many women on the farm”. The reference that most husbands work in the pepper farms echoes the economic power of pepper as a cash crop, and rice is for family consumption (food crop). Pepper is cultivated in the study areas, purely for monetary purposes (cash crops), it is hardly consumed in the homes. This is because the cash crop (pepper) is often seen as contributing to the standard of living of their families because of its cash value. Hence, its purchasing power is a significant component in contrast to rice. Consequently, given that rice hardly generates revenue in the study area, it is viewed as a subsistence crop in this paper.

Nonetheless, most male farmers working in the pepper farms did not answer the question (as women also participate in other farming activities including pepper farming): Why more women work on the rice farm? The answer lies in the cultural dimension of the Bidayuh people. Both males and females cultivate rice, however, women spend more time on the crop. In contrast, most male farmers participate in rice cultivation at the initial stage. Women are at the beginning and the end of the rice life cycle (vegetative growth stage, reproductive stage, and ripening). This commitment has indirectly resonated with the notion of feminization of agriculture. The case against the feminization of agriculture is by now a familiar reading and discourse.

Unfortunately, the same factor has impacted negatively on rice cultivation in the study areas. Hence, with education and marriage, most young women who would have replaced their ageing mothers and aunts in the rice farm have left for the cities for jobs or married out of their homestead. In fact, ten respondents claimed that their daughters currently work in the cities and have no interest in rice cultivation. One respondent addressed the issue as follows: “Two of my daughters now live Kuching. They work with the government department. How to ask them to work on the farm? They have good jobs...on weekends they simply eat, rest and sleep, ... it’s a better life than living in the village”. This respondent laughed and added: “They already had a good job, why would they bother themselves with rice planting... that would be *palui!!!*”

Another respondent added, “it is not easy to convince young women or men to work in the rice farm these days. They work in the cities, and they are earning wages. They can easily buy rice in stores”. One of the male respondents noted: “Many young people think it is a waste of time planting rice when you can buy 5kg for as little as RM10 (less than USD 2.5)”. We challenged this perception by posing the following question to the respondents: What will become of rice farms and cultivation when their generation has moved on? The question produced different reactions from the respondents. Some simply shrug it off with a smile or laugh. Some showed real concern about the situation. In fact, the face and body language simply indicated a sign of hopelessness. Among these group phrases like “what to do? how to convince the young people to return to farm? Maybe when they reach our age, they return to the farm, I truly don’t know!!” were very common and expressed with a shrug.

In addition to feminization of rice farming in the study areas, other factors also contribute to the shrinking rice farms which include the tools and technique of farming. Our observations in the

⁴ This percentage is based on data from our fieldwork.

field show local rice production or cultivation is still carried out with traditional tools and methods. The process has not changed a bit, except for the rice milling. To remove or separate the husk (dehusking) and bran, the respondents relied on modern machines to obtain the edible portion of the rice.

In comparison to rice production in Bario in Sarawak or Ubon Ratchathani Province in Thailand, the farming technique has changed from traditional to mechanization process. For instance, the East-West Center Research Projects (2020) witnessed a 1.4 percent increase in rice production in Thailand as a result of “concise rice production systems”. By rice production systems, “we mean the host of socioeconomic (labour availability, mean age of farmers, gender composition), physiographic (water availability, temperature), infrastructural (roads, dams, ponds), and technological (on-farm mechanization) conditions that affect rice production (East-West Center Research Projects 2020)”. They maintained:

With improved awareness of the relevant land-use processes and related socioeconomic patterns, we can develop more locally tailored strategies for sustained intensification of rice production, better investments in rice research and technology delivery, and more effective policy reforms that address livelihood and food security concerns of the most vulnerable populations in the region. Such findings may also have implications globally.

Conversely, even if there is an efficient rice production system in the study areas, it would yield a less favourable result. This is because of the over-reliance on female labour (or the feminization) of rice farming in the study areas. Hence, if there is a shortage of female rice farmers, the outcome will be most likely less production and utilization of land for rice farming. This understanding is clearly explained by the following respondents. According to Mdm.Rose:

I grow up hearing that ‘knowledge, skills, and experience’ are transferred from mothers to their daughters. This is very real from my experience. I learnt how to cook, cultivate rice, and perform other housework through what my mother taught me over the years. And by observing her on daily basis. To me, many things are swapped between mother and daughter. Some of this knowledge you can learn in schools.

Another respondent pointed out that: “We were prepared from an early age to work on the farm. Most young people learn by watching their parents or other family members, especially during the *pingri*. During the *pingri* women (and even now) women number more than the men (Bikoduh)”. Confirming the status of women in agriculture, and other respondents—Bitatis, explains:

During my early days, a woman may not marry at the right time or by a man from our village or nearby villages, if they knew she’s lazy or work on the farm. So, our mothers and grandmothers were constantly reminding us to join them on the farm. I think that’s why women work hard on the farm and at home.

Indeed, Abun, another respondent, states:

It is very hard to bring young people to the farm these days. How to force them? Early in the morning, they’re off to school.... And when they finish school, they want to work in the cities. But I don’t blame them, we as people

have changed and we relied on cash to buy everything. Our rice cultivation is mainly for family consumption. Even then, you need to buy other family essentials. So, the young ones have different ideas and aspirations.

The situation of rice cultivation in the study areas is described vividly by this respondent. He noted that:

Our girls these days, are not like us when we were growing up. Our desire then is simple than the girls today. And every rice farm needs a female touch. So, if the girls are working in the cities or married to people with no interest in farming, of course, there will be no rice farming (Bikabu).

CONCLUSION

As discussed earlier, most farmers in the study areas are subsistence farmers, cultivating crops for family consumption. Almost all farm operations are done manually. Also, most rice farmers in this region practice traditional farming methods. A major hindrance to increasing crop harvests is the preponderance of small farms and farmers. Their average yield is generally much lower than that of medium or large farms. Besides, the low production level in rice cultivation in this region greatly relied on women's contributions. This is not a coincidence as women's advancement has come a long way since the inception of the feminist's first wave. Laws have been passed to ensure equality and equity, yet the fight for an egalitarian world remains a distant call. Nonetheless, many young women with a good education have left farming work behind and sought employment in the cities and towns.

Indeed, the feminization of agriculture has been the cornerstone of rice cultivation in the study areas as well as in many similar societies. The drawback of the feminization of agriculture in most societies have never been fully comprehended. However, current social realities have started to reveal their downsides. Certainly, the major discovery in this study is the disadvantage of feminization of rice cultivation among the Bidayuh of Sarawak. As pointed out above, most rice farmers in the study areas were predominantly women. Those that have male partners working with them are usually their spouses or sons-in-law. It was obvious that gender role is at play even though it remains unclear on the surface. An overwhelming data from the field indicated that about 85%⁵ of rice farmers in the study areas are women in their late 40s and above. Also, the data pointed out that most women between the age of 18 and 25 years, prefer to move to the city for employment or to get married as soon as they find a husband rather than stay or live in their villages. This means that when women take up residence in the city, the chances of continuing the tradition of rice cultivation will disappear. Thus, the productive tasks performed by women in rice farming gradually slows down the process of women sustaining it. In addition, women from the study areas leave the village or move to cities in search of different work and lifestyles. This is partly a result of the acquisition of formal education and easy accessibility to the surrounding cities and towns and jobs.

It is interesting to note the impact of the construction of rural roads and how little attention has been observed in development research. In the beginning, it was merely a development process, but it was not understood beyond the need to build infrastructure. The economic and social development impacts of rural roads as we know them today are farfetched from their initial impacts to many rural areas of the world in general, and the study areas in particular. Its significance extends beyond the issues of rural and agricultural development. The construction of

⁵ This percentage is based on data from our fieldwork.

feeder roads encouraged the mobility of individuals, thereby, providing the push to rural-urban migration. Data from the field showed that lots of youths start to lose interest in farming as soon as the feeder roads were constructed, creating easy access to nearby Serian town and later, Kuching. Most of the early migrants simply left farming behind.

It is necessary to establish that the issue of shrinking rice farms and production is multifaceted. Even though each factor is independent, yet they are co-dependent, working together to ensure the history of rice cultivation in the study areas is a thing of the past. Conversely, we can develop local strategies to revive rice cultivation and production in the study areas with improved awareness of the relevant land-use processes and related socioeconomic patterns. Such strategies will enhance production for sustained intensification of rice production, better investments in rice research and technology delivery, and more effective policy reforms that address livelihood and food security concerns of the most vulnerable populations in the region. Such findings may also have implications globally.

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