

Rural Livelihood and Agricultural Reform In Chiba Village, Shwebo Township, Sagaing Region, Myanmar

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Introduction

Rural community is one of the strengths in country building. In a nation-state administrative policy changes are followed by economic policy changes, then by changes in livelihood strategies. To members of rural society mostly existing on agriculture livelihood strategies go different based on accessibility of assets. To become a modern, developed nation mainly means brisk economic development, in which increased rural production plays an important part. About (70) percent of Myanmar population are rural and farmers by the livelihood. Agriculture sector is the main prop to Myanmar's economic structure. Rice is the staple food of Myanmar people and paddy cultivation is the livelihood of majority of cultivators in the country. The Union Government is working for betterment of agriculture sector as well as farmers' life. In implementing with increased momentum rural development program aimed at enhancement of rural people's socio-economic development, it is necessary to know of their present status, needs and desires.

Objective of the study

- To describe the livelihood of rural cultivators.
- To analyze the effect of development program for poverty alleviation on rural people.

Research Method

A community based cross sectional, case study design was conducted in this study. Qualitative data collection methods applied: Informal Group Interview, Key Informant Interview, In Depth Interview, Focus Group Discussion and visual technique like social mapping and seasonality analysis.

Background of Study Area

The study area was Sagaing Region and it is the largest of seven regions and the second largest of States and Regions of Myanmar. Shwebo Township is Upper Granary of Myanmar as well as producer of Shwebo Baygya rice (species of rice) commanding the biggest market in paddies. Out of a total (152360) acres of agricultural land in Shwebo Township the paddy land accounts for (114875) acres, farm land for crops other than paddy (37208) acres, silty land (253) acres and garden land (24) acres.

Chiba village is most acreage of paddy field in the Shwebo Township. Chiba village lies about three miles to the west of Shwebo Township. Most households at Chiba (North) and Chiba (South) villages

have farming as their livelihoods which are mainly based on agriculture. Farmland indicates their social and economic status and it enhance their position in the society. Major commercial crop is paddy, with the strains of Shwebo-Baygyar (*a&Tbdkab;Mum;*), IR 747 (*tdkiftm-747*) and Shwe Thwe Yin (*a&ToG,f&if*).

Table (1) Demographic Characteristics of Study Area

No	Village	House	Household	Above 18 Male	Above 18 Female	Under 18 Male	Under 18 Female	Total Population
1	Chiba (North)	424	406	703	784	147	193	1827
2	Chiba (South)	338	448	783	949	185	203	2120

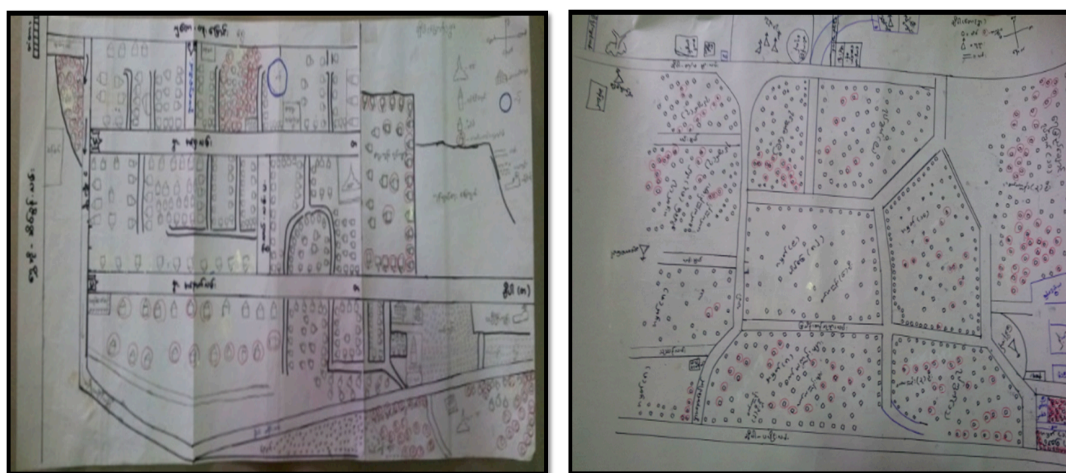


Figure 1(a&b) Diagram Drawn by Chiba (North) & Chiba (South) Villages Map

According to social mapping of Chiba (North) and Chiba (South) villages are three social classes. In the upper class are those with good economic activities working above 10 acres of paddy land. The middle class is those owning less than 10 acres of paddy land, and loom operators. The lower class comprises odd-job takers. At Chiba (North) and Chiba (South) the middle class has the most numerous members.

The livelihood of local people of Chiba (North) and Chiba (South) villages is agriculture based. Growing paddy does not make for year-round income and all members of social classes have alternative livelihoods on-farm and off-farm activities. In so doing, the upper and middle classes choose, based on affordability of financial investment, rice milling, mechanical or hand weaving on the loom, paddy marketing, collecting and selling of sand, shop keeping, or commerce. In rice-farming recess, the lower class goes for fishing, setting traps for eels, mouse trapping, and vendoring, weaving on the loom, gathering of water convolvulus in the wild, gathering of firewood, pottery, taking any available job, or working as migrant elsewhere.

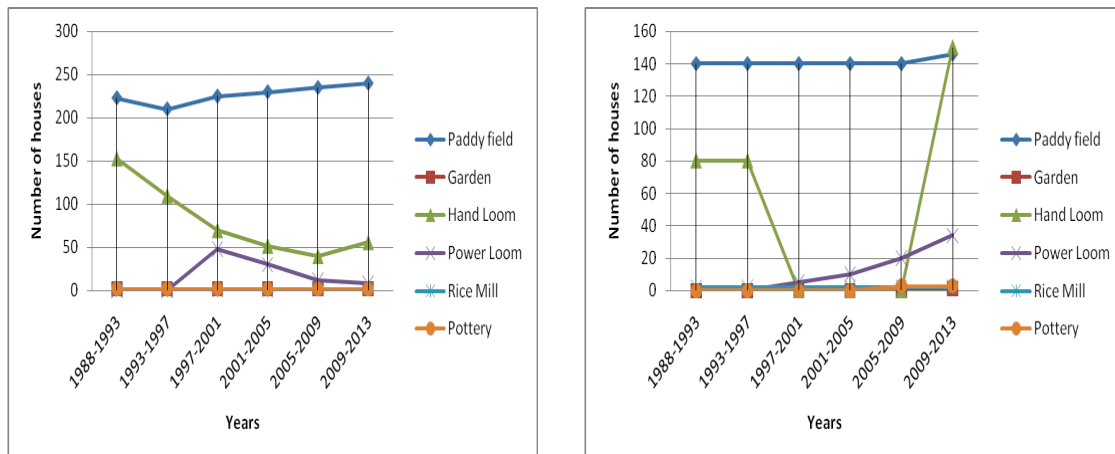


Figure 2(a&b) Livelihoods of household in Chiba(North) and Chiba (South) Villages

*Source- Village Administration

Natural Capital

In the study area, being dependent on agriculture for their livelihoods, mainly uses land, climate, water, soil, flora and fauna out of the natural resources. Dependent on accessibility to natural resources livelihood patterns and livelihood strategies branch out differently. Year on year families of upper and middle classes take up for livelihood rice farming as they already have such cultivable plots of land. The families in the lower class access such natural resources as edible wild plants, fish, eels, paddy-field mouse and fuel wood for their own use and livelihood.

For water resource all social classes have access to Mu Canal. The rain fall is not enough for agriculture so they have to mainly depend on irrigated water for that purpose. Families in the upper and middle classes irrigate Mu Canal water for their paddy fields. Meanwhile the families of lower class labor for farmland owners for daily wage. The soil having been used continually for years has become degraded that soil needs to be remedied. Consequences of use of chemical fertilizer and electric devices to fish have become fish species are depleting year by year. The locals' farming used to include breeding of cattle and milk cows as there were pastures on the sides of feeder canals but it has discontinued since 2000 when the pastures were changed into farmland. Moreover the paddy land over years have used up the soil and oxen are unable to struggle in the changed fields, so cheaper buffaloes are bred as they can negotiate the changed fields.

Physical Capital

Kabo Dam built 2000 in Shwebo District is able to irrigate 530000 acres of paddy field. Via Thaphanseik reservoir water flows into Kabo Dam, then pass along branch Mu Canal to irrigate farmland around Chiba (North) and Chiba (South) villages. The use of Mu Canal water, physical capital, the farmland owners are able to grow double crop, summer paddy and monsoon paddy in a year. Meanwhile the lower class members are enabled to enjoy job opportunities dependent on farmland owners. In study area the town with its year-round motor roads in use besides bus services makes for job opportunities in household income-earning activities. The upper and middle classes

can go to town for direct trade and have easy access to livelihood related information. For good communications members of lower class can go off to sell fish in town, or become migrant workers in paddy plantation or loom weaving elsewhere. Moreover locals may sell paddy, eels or pottery to visiting outside people, some of whom also may take up seasonal rice plantation work in the locality.

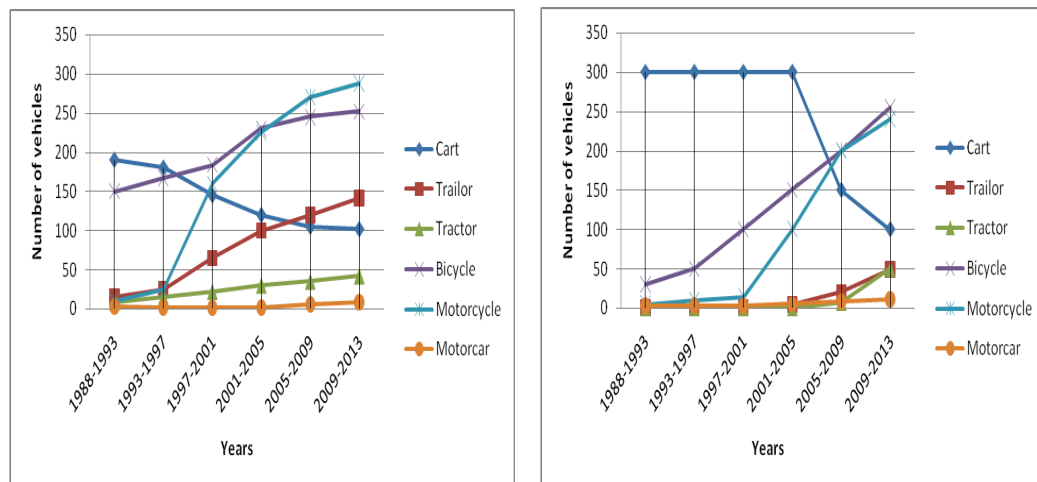


Figure 3(a&b) Access of Vehicles in Chiba (North) and Chiba (South) Village

*Source- Village Administration

In pestilence year by year invading bacteria and insects were found to be different, so the farmers cooperatively dealt with the problem through peer-to-peer consultation. Their efforts did not achieve enough for lack of insecticide spraying machines and a shortfall of needed chemicals.

For the locality's physical capital such as key infrastructure and services, that is roads, electricity, water, communications, public transport, and healthcare facilities the upper and middle classes in study area are being satisfied to a considerable extent. But no agricultural markets exist, so paddy price remains volatile due to the activities of brokers. Paddy farmers are always in need of capital for the following season. Every year two crops of paddy (summer and monsoon) grown, and most paddy produced as sold to brokers. They cannot store up the commodity, but are forced to sell at whatever price is current. Some villagers go to town to sell it and keep it in storage to await better prices. The time is harvest time, making for less paddy prices. Thus, the locals' livelihood does not improve as well as it should. Landless villagers are highly dependent on agricultural works by doing as a physical labor (transplanting, harvesting, ploughing, and weeding) is paid kyats 2000-3500 per day. For these factors physical capital can claim to be contributing to improve the livelihood of local people.

Financial Capital

Starting in 1974, the state offered agricultural loans at 25 kyats per acre, and 35 kyats in 1992. By 2001 it was kyats 10,000 per acre at an interest of 0.75 percent. During 2011-2012 that loan stood at kyats 50,000 per acre at an interest of 0.71 percent. The latest statistics say Agricultural Bank issued in 2013 loans at kyats 100,000 per acre, up to a total of 10 acres, at an interest of 0.71 percent for a period of 6 months. When agricultural bank is ready to lend money the information is given to village bank committee members who in turn announce it through amplifiers in the village. When data has

been collected of would be borrowers the documents are sent on to agricultural bank. When the time comes the loans are permitted through collective responsibility (*Wainggyichoke*) system whereby a group of 10 debtors have to pay back the loans in full at the same time. If a debtor defaulted the rest would have to pay back his loan.

The loan is not enough for conducting their livelihood and the loan's term is short. They face financial difficulties when confronted with stress, shocks, trends, and seasonality. Agriculture is not year-round livelihood to wage-earning farmlands who own no farmland. When suddenly faced with living and health-care needs they are forced to take outside loans at high interest. Moreover the traditional weaving on the loan, a small-scale industry, does not receive State loans. As capital required is unaffordable and the products have to be sold through brokers this livelihood do not grow as much as it should. In case of the upper and middle classes strategies to cope with sudden cash needs include borrowing money from friends and relatives, selling the stored paddy, or selling one's farmland or jewellery. But such strategies on the part of the lower class are advance drawing of labor charges or taking a loan of money at high interest. Financial service organizations for local people are both formal and informal services.

Human and Social Capital

Family members at Chiba (North) and Chiba (South) villages are mostly engaged in a struggle for living with division of labor among themselves. The whole system of livelihoods are dynamically associated with their socio-cultural practises and social institutions such as family, kinship, social behavior, beliefs and other life cycle. Chiba (North) and Chiba (South) villages farming as major livelihood is based on the labor of family members.

In the study area, all social classes do not depend on one sort of income only for livelihood. Their livelihood is basically agricultural so the upper and middle classes, owning paddy land, enjoy an income only in harvest time. The rest of the year their livelihood for more income constitutes running rice mills, shop, trade and weaving on the mechanical and hand looms. Generally, the upper class's livelihoods are for uplifting the family's living standard. The middle class seeks more income to deal with human health shock and children's school fees. The lower class which is landless has an income only in paddy-growing time and harvest time. The rest of the year their occupation includes fishing, setting mousetraps, vendoring, working the loom, and migrant work elsewhere the lower social class struggles on for extra income just to meet their living needs. Farming becomes less profitable and more risky as a result of crop and market failures, farm debts, income fluctuations, climatic change, policy, shock and health, and they are pushed into off-farm activities. Households are rather pulled into off-farm activities leading risk reduction, daily income.

Local people's abilities based on human resources such as individual skills, knowledge, labor and health are found to make for their livelihoods. For the upper and middle classes of local people in study area the household head needs to have agricultural skills such as knowledge of seasonal seed paddy, chemical fertilizers, raising seedlings, picking them, irrigation, transplanting, weeding, harvesting, pest control, hiring farmhands, paddy marketing, and agricultural loans. In some matters they employ personal skills and management skills in others. Moreover they share knowledge

among themselves in regard of the household livelihood and its education, economic, health and social matters. Children of school going age go to school, and if they drop out, they have to help out in parents' livelihood. In the lower class all prospective wage-earners have to work.

Dependent on the livelihood, inputs into children's education could go different. Children of the upper and middle classes mostly have the secondary education, and then they help out in parents' livelihood and household duties. Children of the lower class can hardly complete the primary education, and in accord with age, they cooperate for easier living of the family. Lower class families cannot afford children's education so they do not go to school are distance and the need to assist in work.

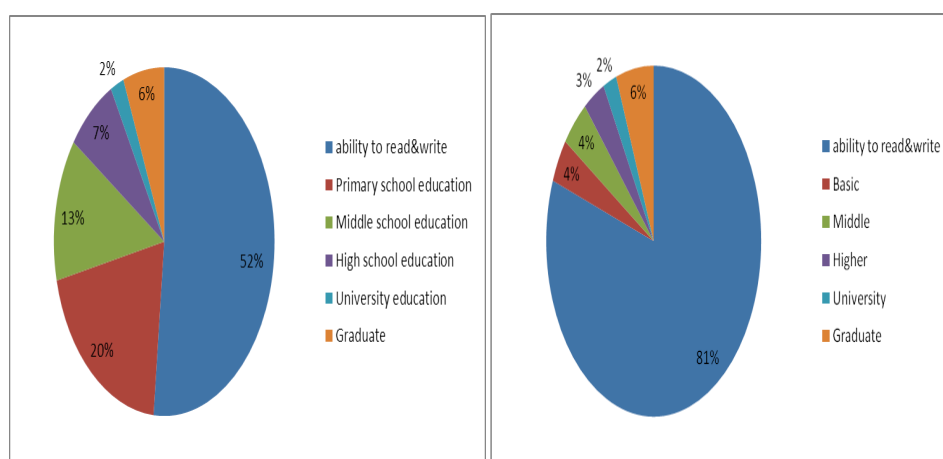


Figure 4(a&b) Literacy Levels in Chiba (North) and Chiba (South) Village

Local people conduct livelihood based on social resources. A vital role is seen in family and kinship networks, interrelations between farmers and labor, and villagers' cooperation. In study area, local people's gender role activities go different depending on different social classes. In the upper class, father usually is head of household as well as decision maker in regard of livelihood and household matters in consultation with mother. The mother closely attends to household duties and health care of children. Generally the father takes care of livelihood matters and social affairs, while the mother often goes off to neighbors and relatives for advice-seeking talk. Children go to school for the school-going age. Sometimes males help the farm work, and females help the mother at home. In harmony and cooperation family members resolve domestic problems under the leadership of parents.

In the middle class father mostly are household head and conduct family livelihood in cooperation with the mother. The mother closely attends to children's affairs, visiting neighboring relatives in her free time for a conversation. Livelihood matters and social affairs mostly are attended to by the father. Children go to school for the school-going age. When the schooling is finished or they drop out, they have to help out in the parents' livelihood or take a job for an income. In harmony and cooperation the family member help resolve family problems as much as they can.

In the lower class the father only is household head. Both father and mother struggle for their living. Household duties mostly are taken up by the mother while other family members take what

responsibility they can. In mutual help and cooperation family members work to solve the major problem of their living.

The social networks of the upper and middle classes have better relations than the lower class do. The upper and middle classes, with ownership of farmland, obtain agricultural loans based on group responsibility. Thus individual benefits are both financial and psychological in that there are an increased sense of empowerment, achievement, self-confidence and social status. Social networks among the lower class families are weak ties in that they have to struggle on focusing on living needs only, and there is lack of relations due to no support from any social organization.

Division of Labor by Age among Lower Class

The division of labor by age at Chiba (North) and Chiba (South) villages are found to follow different patterns. Most often local males with parents of monetary means go to school. If they drop out, they go for farm work to lead it. Males from families with no farmland of its own would help out in homemaking since childhood, and become farm workers from age 13 onwards. In good health, they would continue as such till age 40. Beyond, they are not strong enough to do farm work, and become daily-wage workers or takers of any available job. In families with financial means their female children have formal education. When they discontinue schooling; they would help parents in housekeeping or join government service. But in families without financial means female children take up age-compatible work as follows in Table 2.

Table (2) Division of Labor by Age among Female in Lower Class

No	Age 5-12	Age 13-20	Age 21-28	Age 29-36	Above 37
1	Housekeeping	Transplanting	Transplanting	Transplanting	Weeding
2	Babysitting	Uproot seedlings	Uproot seedlings	Uproot seedlings	Weaving
3	Gathering wild plants, Gathering firewood	Weeding	Weeding	Weeding	Gathering firewood
4	Fetch-water, washing, cleaning, cooking	Odd Job	Carrying sand	Carrying sand	Carrying sand
5		Housekeeping	Weaving on the loom	Weaving on the loom	Odd Job
6			Odd Job	Odd Job	Vendoring
7			Vendoring	Vendoring	Housekeeping
8			Housekeeping	Housekeeping	Babysitting

*Source: Focus Group Discussion in 2014

The above Table (2) shows division of labor by age among female has a changing pattern. Among land-owning families most females enjoy schooling according to age or help out in housekeeping,

weaving and farm work. In families without ownership of land the females have many different types of activities: productive work (contributes towards an income) and reproductive work (fuel and water collection, caring for children and elderly, cooking, cleaning, food processing, gardening).

In such a struggle for survival among families without ownership of land their daughters aged 5-12 very rarely gets to receive school education. Female of such ages are required to do housekeeping, babysit, gather wild-growing water convolvulus, gather firewood, fetch water, wash clothing, clean the surroundings and cook food so that their parents may pursue their livelihoods in peace of mind.

Female in age groups 21-28 and 29-36 have many jobs to choose from, but they are less favored than age group 13-20. The minority of paddy farms grow early maturing strains. Their owners usually hire better performing youths in paddy transplanting and harvesting. Jobs are plentiful only when the paddy farms need transplanting or harvesting at the same time. Thus, outside of seasonal farm work the female in age groups 21-28 and 29-36 opt for weeding, weaving on the loom, and peddling, collecting sand out of the Mu canal, any available job, or housework. A livelihood especially of paddy transplanting and harvesting for a female aged above 37 is very hard to come by. They may choose weeding, weaving on the loom, gathering firewood, collecting sand, any available job, peddling, babysitting, or housework for livelihood. These jobs pay money but do not exist on a regular daily basis.

Table (3) Division of Labor by Age among Male in Lower Class

No	Age 5-12	Age 13-20	Age 21-28	Age 29-36	Above 37
1	Housekeeping	Transplanting	Ploughing	Ploughing	Ploughing
2	Babysitting	Ploughing, Harvesting	Harvesting	Harvesting	Harvesting
3	Gather firewood	broadcasting of top fertile soil	broadcasting of top fertile soil	broadcasting of top fertile soil	broadcasting of top fertile soil
4	Fetch-water,	Cleaning of paddy dykes	Cleaning of paddy dykes	Cleaning of paddy dykes	Cleaning of paddy dykes
5		Fishing	Fishing	Fishing	Fishing
6		Carrying sand	Carrying sand	Carrying sand	Carrying sand
7		Odd jobs	Odd jobs	Odd jobs	Odd jobs

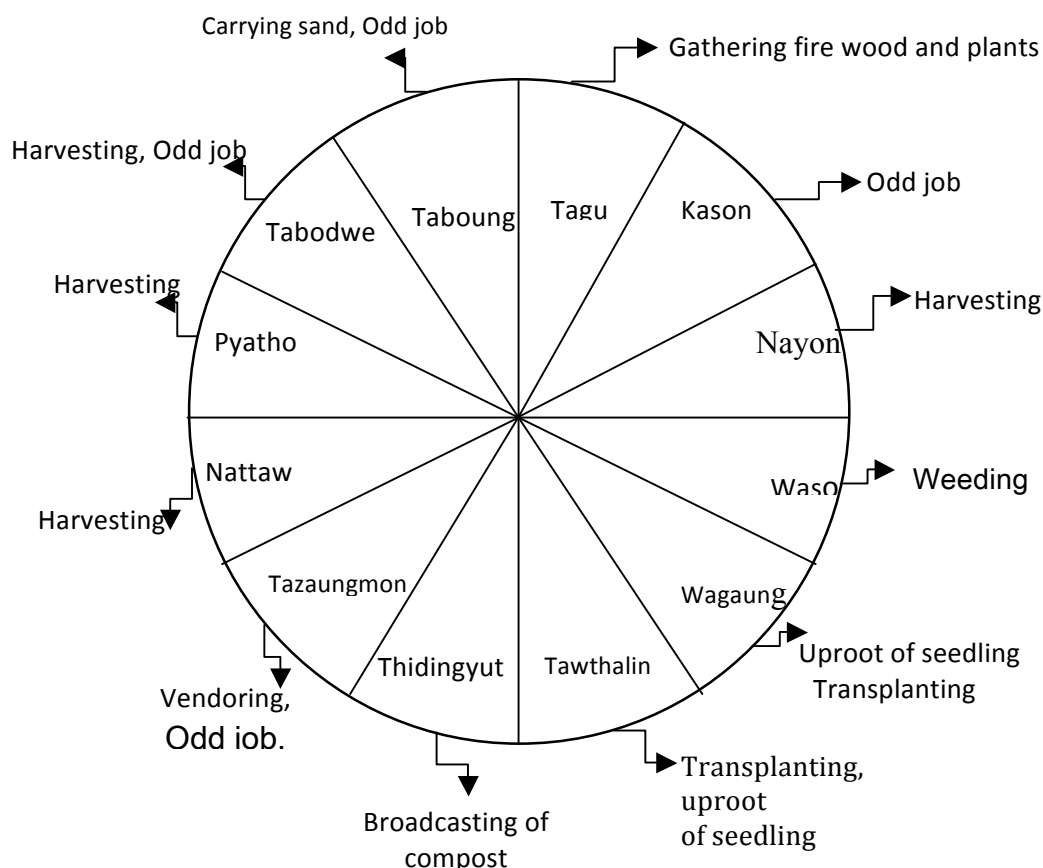
*Source: Focus Group Discussion in 2014

The above Table (3) gives division of labor according to age, of lower class males. Generally they dropped out after primary education for a lack of financial resources. Being an agricultural area as regards livelihood, it holds few job opportunities for male much less than female.

Division of Labor in Seasonal Cycle

Locals of Chiba (North) and Chiba (South) villages with farming as livelihood do not enjoy year round job opportunity. Upper class and Middle class have opportunities to invest and conduct other

occupations for income, but lower class members are compelled to take up any available job for daily income and living. In pursuit of livelihood its pattern goes different for lower class males and females, month wise, as follows.



Tagu = March-April, Kason = April-May, Nayon = May-June, Waso = June-July,
 Wagaung = July-August, Tawthalin = August-September, Thidingyut= September-October,
 Tazaungmon= October-November, Nattaw= November-December,
 Pyatho= December-January, Tabodwe= January –February, Taboung= February-March

Figure 5. Seasonal Cycle of Female in Lower Class

* Source-Focus group discussion in 2014

The above mentioned seasonal cycle shows that jobs are scarce for female in Tagu, apart from weeding, gathering of firewood, or picking convolvulus. Then follow harvesting of summer paddy in Nayon, weeding in Waso and uprooting of seedlings and transplanting of monsoon paddy in Wagaung and Tawthalin. Weeding is available in Thadingyut. Tazaungmon and Nattaw have least job opportunities, excepting gathering of firewood or water convolvulus. Then harvesting of paddy and sunning of paddy jobs are available in Pyatho and Tabodwe respectively. Jobs are scarce in Tabodwe and Tabaung, but carrying sand out of Mu canal can be taken.

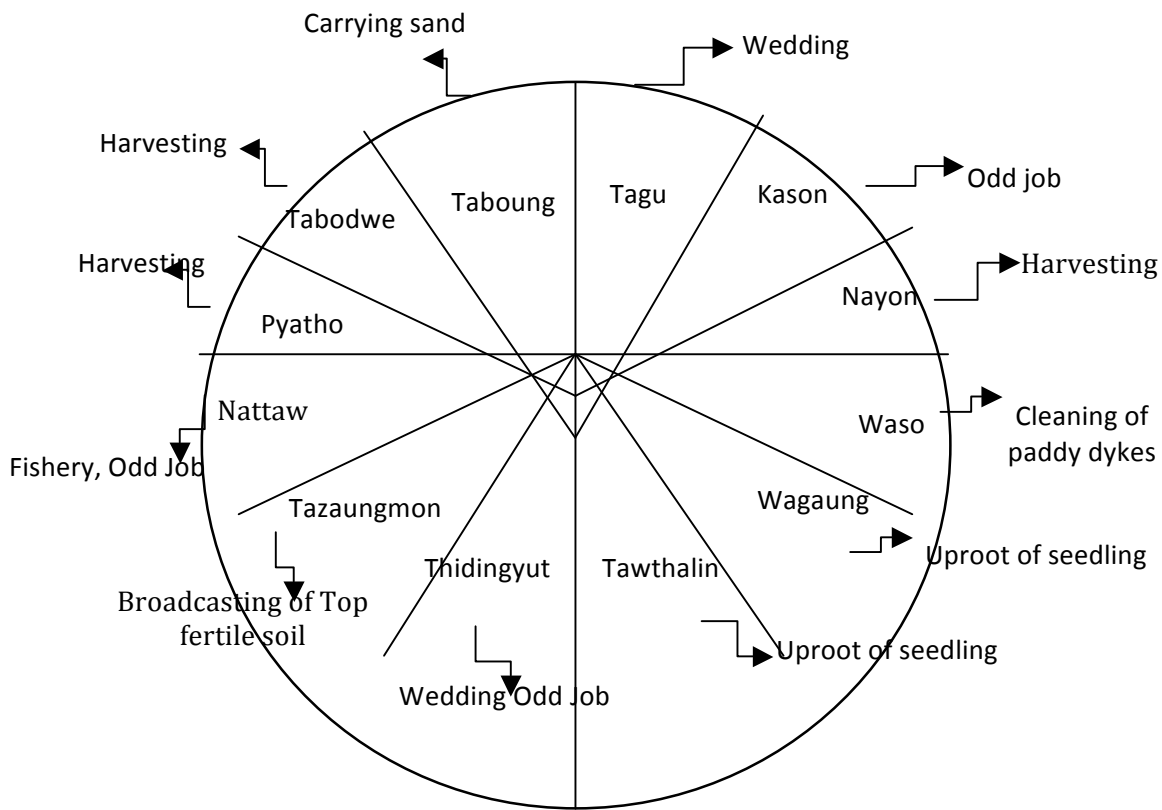


Figure 6. Seasonal Cycle of Male in Lower Class

* Source-Focus group discussion in 2014

According to above mentioned seasonal cycle male have least job opportunity during Tagu, Kason of the year. Weeding job, from 6:00 a.m. to 11:00 a.m. brings one kyats 1000. This work needs little labor, and farmers usually hire strong males younger than 30 years. When weeding is not necessary farmers would ask hired workers to dig ground or do earthworks or other hard labor. But the job has no regular, daily basis. In Nayon harvesting job of summer paddy is available at labor rate of kyats 2500-3000 per day. That hard work takes almost all day long, to be carried out by the harvester with his body bent at the waist. So most men over 40 cannot take that job but go for other jobs (like firewood gathering, any available job). Available jobs in Waso, Wagaung are uprooting of seedlings and clearing of paddy dykes. It is weeding out in Tawthalin, followed in Thidingyut, Tazaungmon and Nattaw by broadcasting of compost, or catching fish and frogs in the ditches that brings an income of kyats 1000-10000 for the day. It is harvesting work in Pyatho. Jobs are scarce in Tabodwe and Taboung, but carrying sand out of Mu canal can be taken.

For the above mentioned factors lower class members' livelihoods are subject to seasonal cycle to satisfy their families living. Family members seek what jobs they could for family's living, but job opportunities go different according to age. Their jobs do not bring regular daily income to make ends meet, so they have to borrow money often, to be repaid with labor. They need regular daily income because their debts incurred to deal with family's living and health matters carry high interest.

Vulnerability Context and Livelihood

Vulnerability context provides an insight into the kinds of factors that have the potential to negatively impact on local people's livelihood. In study area shows vulnerability context varies according to social classes as well as community and individual. Five key factors being relevant in shaping the vulnerability context were identified as stress, shock, policies, health and education.

The upper and middle classes often suffer stress for being compelled to cultivate summer paddy. The paddy-field owner, after cultivating summer paddy, tries to hire female harvesters for timely harvest. But all paddy-field owners are in need of them at the same time so that those workers become scarce. So the farmer hires harvester machine. For the uneven fields and narrow plots of them the machine crushes many paddy plants and renders them useless but some paddy plants remain in place because the machine cannot access them. Such use of a harvester cost twice as much as a group of human harvesters. From crushed paddy plants grow paddy seedling at the cultivation time of monsoon paddy to serve as weeds. These weeds are to be eliminated with weed killers, let alone some labor needed for that activity. When the grass contaminated with weed killers is eaten by animals, they die.

When enough irrigation is not available for all paddy fields in need Department of Irrigation issues a notice one month beforehand via Village Administrators saying supply of irrigation water will be suspended. Most farmers forgo any farming during the time when irrigation water is suspended. At that time a minority of farmers, suspended. At that time a minority of farmers, suppressing their wish to grow crops, forgo farming for fear of a loss due to field mice. When all agricultural land is being grown the destruction caused by rats is shared by all farmers and the extent of destruction for each becomes tolerable. When growing of crops is being suspended the farmers do Laepyin (mending their cropland whereby small plots are combined into a large field through repair of dykes, rat holes and plugged and plants which might shelter rats are cut down to be turned into firewood). For this suspension of crop land use the erosion of top soil is alleviated. The lower class, instead of serving as farm hands, is hired to dig up the ground or carry loose earth.

Female from lower class, enjoying a daily income in rice transplanting and harvesting season, weave on the loom also. For the rest of the year they go elsewhere as migrant workers in rice transplanting, harvesting, and weaving on the loom. Moreover, as farmers are willing to hire energetic under 30 years female those above 30 years have stress in trying to obtain a job. And male suffer stress in hoping for a regular daily job because as their main livelihood is agriculture, job opportunities are much less to them than female. When family member of lower class want to borrow money, those with job prospects only are able to do so.

Most upper and middle classes have had shocks for various reasons. One of them: when their summer paddy falls victim to plant disease it is sprinkled with pesticides. If the bacteria do not die easily stronger chemicals are used at more cost. The stronger pesticides kill off all life good or bad in the fields. Sometimes most fields are to be sprinkled with pesticides and the foul smell there from pervades the villages. The insecticide containers are usually accompanied by preventive gear for the user but, when the farmers buy them that gear is missing. Another trouble to farmers is the need to

suppress the pest of field mouse. Educative talks on agriculture were held sometimes, but misunderstanding ensued between talk-givers and farmers as the latter had no time to attend the event and theoretical knowledge often proved hard to understand to farmers.

Small-scale paddy farmers who own 1-3 acres of land only are often faced with sudden damages caused by pests or family members who are taken ill. It is a hard problem to them. This locality falling in the rain-scarce zone is mainly dependent on irrigation. When this service comes late the farmers have to work the land faster requiring, more farmlands for planting. Then the latter become scarce because of more demand for them. Whatever the shock, it can mainly be alleviated by money, which is borrowed at high interest. That goes for kyats 2000 per kyats 10000 borrowed. Small scale paddy farmers are in debt every year because once they have borrowed money they can hardly pay back. Most of them become daily-wage farmhands for farm-owning employers. Some small scale farmers assert that they are even thinking to take up money-lending with a capital to be got after selling their farms. Almost always burdened with debt, they find it difficult to store rice for their own consumption. They often have to consume broken and damaged rice left behind after milling their paddy. Some small scale farmers have to sell off their farmland to pay back their debt, and then become daily-wage farmlands.

The lower class, when stricken with shock, has to draw advance money from the farmland-owner. In so doing, he receives at the wage rate of kyats 900-1000 per day instead of the regular kyats 2000-2500 per day. They work year round but remain poor. Most daily-wage workers go off to Kawlin, Hoping, Monhyin, Myitkyina and the villages in Shwebo Township environs as migrant workers. On their return home their earnings are soon used up as they have to pay back their debts. Daily-wage workers try to solve health and social emergencies by drawing advance wages from the farmland owner. When faced with serious troubles they sell off their house and land. They have to live outside of the village as the homeless.

In 2012, though the purchase price for summer paddy was claimed by buyers to be kyats 300000 the farmer at harvest time actually got kyats 280000 only even after pleading with the broker. Moreover it was not a down payment, but realized only after several visits to the buyer. About three months after the harvest of summer paddy the purchase price might raise to kyats 420000, benefitting big-time farmers with some capital of their own. Most paddy farmers receive less for their paddy because they have to readily pay the daily wages and make arrangements for cultivation of monsoon paddy. The farmers who met with a disastrous harvest in one season usually remains indebted for two years. Such a person is forced to sell off his farmland and becomes a daily-wage laborer.

Agricultural Reform

Development program, favoring paddy land owners and being not bottom-up planning, cannot aid the landless. Poverty alleviation policies are most important to rural people. The State in 1988 and 2011 adopted and implemented policies aimed at uplifting the life of rural people with agriculture based livelihoods. Since 1988, Myanmar has been in a transition from a developing country to that of a modern, developed country centered on agriculture. Myanmar landscape has significantly changed based on the five reform principles, namely: increased development of agricultural land

resources, new irrigation works are built and old ones repaired to have enough irrigation water, efficient agricultural mechanization, adopting new technologies and increased production and use of good quality seeds. In the study area it was found that results are found to be as follows.

Increased development of agricultural resources

For exploitation of agricultural resources around Chiba (North) and Chiba (South) villages there is no more vacant or virgin land to be developed. Most farming plots are not regular shaped but fraction into small irregular shapes. So, during a recess in farming the farmers have the dykes flattened out so as to create wide and extensive farming fields to facilitate the functioning of harvesters.

New irrigation works are built and old ones repaired to have enough irrigation water

Mainly engaged in paddy cultivation, the villages of Chiba (North) and Chiba (South) village lying in Dry Zone has to depend on irrigation. Before the Kabo Dam only monsoon paddy was grown. With irrigation two crops; summer paddy and monsoon paddy are being grown in a year. Thus, while the farmer gains in productivity farm workers have more income thanks to growing job opportunities.

Efficient agricultural mechanization

Several needs remain for the farm to have efficient agricultural mechanization. Most popular implement is the hand-driven tractor, but accessible only to half the farmers. The rest of machines (harvesting and winnowing machines) can be hired from the companies. Having to mainly struggle to satisfy family's living needs, most farmers have not enough money to buy farming implement as investment.

Adopting new technologies

Before 2007 farmers used broadcast system of paddy seed in growing monsoon and summer paddy. In that year a well-wisher came and demonstrated new technology which has been used to date to great success. It dictates that seedlings are grown in small nurseries for monsoon paddy; and seed be directly broadcast onto wet, ploughed field for summer paddy. That way makes for economical use of seed, easy irrigation, and rich additional sprouts, all leading to good yield. Advantages to be had for summer paddy are economical use of seed, time, less expenses and labor all leading to good yield.

Increased production and use of good quality seeds

It is most important for paddy growers to obtain good quality seeds. In the past the strain of summer paddy to be grown was dictated by department of agriculture but by 2012 paddy farmers can grow what strain they like. The seedlings of short stem strain of paddy they were required to grow in the past got submerged under water and soon died because some fields were like a basin with too much water. It is important for paddy farmers to seek seed paddy each on his own so that it soils his field conditions and be marketable.

In hopes of alleviation of poverty to some extent and helping the socio-economic life of rural people improve "National Workshop on Rural Development and Poverty Alleviation" took place on 2011. Following discussions there eight work programs to be sponsored by the State have been adopted. They are for enhanced development of the following: Agricultural production, Livestock breeding

and meat and fish production, Development of small scale industries in rural areas, Development of private micro-finance, Development of co-operative works, Socio-economic development of rural community, Energy development in rural areas and Environmental conservation. In the study area it was found that results are found to be as follows.

Agricultural production

Paddy farmers are to be helped in various aspects for increased rice production of the country, especially in essential inputs, namely, fertilizer, insecticides, good quality seed, controlled irrigation, and use of machines. The other factors needed are storage of paddy, distribution, sooth marketing agreement on reasonable price, natural disaster preparedness, agricultural loans, and improved education and health concerned with human resources. Only then would the farmers be awarded enough for their efforts. However, for increased rice production paddy farmers' contribution alone is not enough; it is to be supplemented by the contributory efforts of ministry of agriculture and irrigation, survey and land records department, banks, cooperative microfinance, NGOs and the rest of rural people.

Livestock breeding and meat and fish production

At Chiba (North) and Chiba (South) villages most people in agriculture breed cattle. But for lessening pastures, degradation of soil leading to bullocks' inability to work the land the water buffalo was introduced for use by 2008 to replace the bullock. So water buffaloes are being bred. Rich paddy farmers do not feel like livestock breeding for religious reasons. In the past paddy fields were like a fishery but fish are scarce by now because of electric shock fishing. Those without ownership of land would like to adopt livestock breeding as livelihood but they cannot afford investments.

Development of small scale industries in rural areas

To help fulfill family's living needs of paddy farmers without regular income, development of small scale industries in rural areas could play a significant role. There exist weaving on power loom or handloom and pottery at Chiba (North) and Chiba (South) villages. But without formal loans, those industries cannot develop as well as they should. Power loom operators, without investment of one's own, receive yarns from traders to weave textiles they have ordered. It is like receiving wages for weaving.

Development of private micro-finance

At Chiba (North) and Chiba (South), villages' farmers with ownership of land only have access to agricultural loans. Poor, landless families need to have regular income for their day to day living. Thus private microfinance is needed so that those families can invest to take up other productive occupations other than farm work. Only then would poor, landless people be able to enjoy regular daily income for their living and fulfillment of family members' health and children's education.

Development of co-operative works

Price for paddy from farming and those for products from small scale industries are depressed because there brokers in their marketing. So group wise cooperation to mutual benefit is called for, and then educative talks on prospective benefits of co-operatives should be held.

Socio-economic development of rural community

Development in harmony on the part of Natural, Physical, Financial, Human and Social capital is found to be weak. This cooperation among the government, banks, cooperatives, NGOs, businessmen, donors and locals is especially needed for the socio-economic development of rural community.

Energy development in rural areas

At Chiba (North) and Chiba (South), villages' energy is mainly dependent on natural resources, while firewood is mainly used for cooking. All locals have no access to electricity yet. Moreover draught cattle are mostly used in paddy farming for livelihood. Only a minority of farmers can use agricultural machines. More use of energy should mean economical use of time, labor and money, let alone the conservation of natural environment.

Environmental conservation

Rural people have direct influence on the conservation of natural resources, which in turn support locals' living needs to a large extent. Thus natural environment is found to have been harmed in various ways, through deforestation brought about by gathering of firewood, adverse climate change, fish species going extinct due to electric shock fishing in ponds and fields and degradation of fertile top-soil as a result of multiple cropping.

Discussion and Conclusion

Locals' livelihood activities are found to have been forced to satisfy their basic living needs. In the upper and middle classes most of a community's vulnerability is due to crop shock, insufficient capital, seasonality of price, insufficient inputs and weak knowledge of livelihood. Individual-wise, most vulnerability is caused by human health shock. In the lower class community vulnerability is complete lack of support from organizations; and individual-wise vulnerability comprises insufficient capital, lack of opportunities, human health shock, food security and education. Therefore more livelihood opportunities for the locals should be created. That development program, not being able to help all social classes in the study area, cannot make for poverty alleviation. Therefore development program is one of the most important factors for sustainable livelihood. To grow paddy for livelihood the peasants have to invest in money, labor and time. Agricultural loans are available to farmland owners only, thus development of the small scale industries and the welfare of the landless should be taken into consideration. Only then would all peasants have equal opportunity and proportionately benefit from the poverty alleviation program.

The livelihood of local people of Chiba (North) and Chiba (South) villages is agriculture based. Growing paddy does not make for year-round income and all members of social classes have alternative livelihoods on-farm and off-farm activities. Members of the upper and middle classes, making use of farmland as a natural resource, do double cropping of paddy-monsoon and summer through irrigation. Therefore people of all social classes are found to be earning their livelihood, being connected directly or indirectly with natural resources. Regarding physical assets, the study area with good year-long communications makes for economic activities and livelihoods connected with other towns and villages. Most farmers of the upper and middle classes have a tractor each but no harvesting and winnowing machines. At harvest time those machines are difficult to rent or the

rental fee is too high. Moreover, needs for pesticides and chemical fertilizer are on the increase year by year so farmers find it hard to acquire enough of them. This highlights accessibility of physical assets is a great help in a livelihood. Members of the upper and middle classes in study area have financial resources which are formal and informal services but there are only informal services in members of the lower class. All social classes need monetary loans in one form or another to have their livelihoods running smooth. Regarding human resources, in study area productive and reproductive roles are shared according to gender. Concerning social networks, in the upper and middle classes male usually take charge of livelihood activities as well as participate in activities of village organizations. Struggling hard for a living, the lower class members don't often participate in community affairs.

Regarding Development processes, in the study area there is no vacant land for expansion of farmland despite the principle of increased development of agricultural land. After completion Kabo Dam in 2000, summer paddy as well as monsoon paddy as extra crop was grown, leading to more job opportunities for local people. Local farmers would like to have mechanical agriculture due to degrading in fertile top soil. But their financial means are limited and so they use tractors only. By 2012 rice farmers could grow good quality seed so that they have come to grow field compatible and marketable strains of rice. Regarding poverty alleviation factors needed for rice production are: insufficient inputs on the part of most rice farmers; shortfall in financial means to make investments; and lack of a proper market for the rice output. The farmers also breed cattle at home for agricultural use. But for decreasing pasture land and falling usefulness of the animals the number of breeders has decreased. To have a partial support for the family's living the members of the upper and middle classes have taken up mechanical and hand weaving, while the lower class chooses pottery to that purpose. Those industries have markets but have not developed as they should, for a lack of official loans and insufficient investments on the part of would be producers. Without cooperative works their paddy and other industrial goods are often depressed in price at the hands of private traders. This highlights development processes in turn shape the livelihood assets directly or through shaping the vulnerability context.

Recommendations

1. To have sustainable livelihood, all social classes should be made conscious of need to lessen the loss of natural resources, and community wise maintenance of those resources should be undertaken.
2. The current livelihood vulnerabilities of the lower class, the poorest rural people, should be lessened through: vocational training to lead to a regular daily income and creation of other job opportunities for a regular income.

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