

APPENDIX 5

NEWSLETTERS

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A study, titled as the Development Study on Sustainable Agriculture and Rural Development for Poverty Reduction Programme in the Central Dry Zone, was commenced back in 2nd quarter 2006. A joint team composed of JICA team members and counterpart personnel from MOAI, MOLF, MOC has been carrying out various activities such as situation analysis and draft action plan formulation during the 1st year, implementation and M&E of pilot projects during the 2nd year, and now embarking on the 3rd year. We, in this financial year 2008/09, are to carry out new pilot projects aside from M&E for the preceding ones. This is the first news letter, telling all the interested partners what we are now devoting for !

Pilot Project 2nd Stage Kicked off !

■ What Have We Done So Far ?

The process of this study centres on the following; which itself is the prime objective, to formulate Action Plan with practically applicable measures to the CDZ for reducing poverty, focusing on the livelihood of those who live in the area. A draft action plan was firstly presented in early 2007, whereby high priority projects were identified. Taking into account the people's urgent needs, logistics, budget availability, etc., some of the projects were put in place already in year 2007/08 as pilot.

The pilot projects carried out in the financial year 2007/08 undertook as many as over 40 activities covering mainly such sectors as 1) agriculture, 2) livestock, 3) cottage and 4) living improvement. The pilot projects were conducted in the following 6 villages, situated in each of the 6 townships; Khaungkawe (M3, Tada-U TS), Magyi (M8, Ngazun TS), Ar La Ka Pa (S2, Myinmu TS), Ma Gyi Sauk (S6, Ayadaw TS), Mingan (G7, Chauk TS), and Legaing (G13, Pwintbyu TS). The first 2 villages can be found in Mandalay division, the next 2 villages in Sagaing division and the last 2 villages in Magway division (see Figure 1).

Those pilot projects were once reported and evaluated by all the engaged lead-stakeholders in January 2008 at Mandalay. Lessons,



Figure 1 Six Pilot Villages in the Central Dry Zone

better modus operandi, new experiences and knowledge were all shared in the main floor (see Photo 1). Of course, though, some of the pilot projects had not yet given fruitful results due mainly to time constraint. An example is improved chickpea seed regeneration, which harvest came after the evaluation workshop, and likewise cottage activities had just started up at that time, having yet to produce their sales product by then. Therefore, in this news letter just one scene for agriculture related activity is shown (see Photo 2) and more will come as we do the monitoring.



Photo 1: An Evaluation Workshop: A village representative is now presenting to the floor their activities, difficulties they faced and lessons learned out of overcoming the difficulties, etc.



Photo 2: Paddy dryer (Legaing Village) using rice husk. They are now drying pre-monsoon paddy which is usually harvested during the onset of rainy season, thereby needing drying.

■ What Will We Do in 2008/09 ?

This financial year undertakes the 2nd stage of its pilot implementation. Table 1 below summarizes the proposed pilot projects taking into account suggestions made by the Steering Committee during PR2 presentation back in December 2007, budget available, time frame, etc.

Table 1. Summary of the Pilot Projects in 2008/09

Field	Pilot Project/Programme
Agriculture	A1. Improved paddy cultivation promotion programme
	A2. Organic farming promotion programme(with indigenous microorganism: IMO)
	A3. Improved seeds regeneration project (with the introduction of seeder)
	A4. Pro-poor oriented Mushroom culture promotion project
	A5. Small-scale irrigation promotion project (shallow well + treadle pump)
	A6. Crop storage depots promotion project
	A7. Minimum tillage promotion project (mixed cropping with <i>desmodium</i>)
	A8. New varieties adaptability trial project
Livestock	L1. Pro-poor oriented goat/ sheep revolving programme
	L2. Pro-poor oriented piggery revolving programme
	L3. Livestock feeding improvement programme (molasses block, silo, Ipil Ipil, etc)
Cottage Industry	C1. Community revolving fund establishment project (by using amortization of capital invest')
Living Environment	I1-1. Firewood substituting bio-fuel promotion project
	I1-2. Improved cooking stove promotion project
	I2. Paddy husk power generation project
	I3. Children's nutritional improvement feeding center project

Above pilot projects are to be carried out in the same 6 townships, as undertaken in 2007/08, but in different villages. To stand on a common stage, a 2-day kick-off workshop was convened inviting relevant TS officers, district and divisional officers and CPs. Discussed in the floor were; 1) brief review of what the joint team has been doing to date, 2) content and modus operandi of each pilot project, 3) allocation of townships where which pilot projects should be carried out, and 4) discussion and agreement of selection criteria for villages by project, etc. Photo 3 shows the lead-presentation by the TL, followed by the National Project Director (NPD)'s presentation, and in photo 4 participants argue what criteria should be met in the village to put a pilot project in place there.

General criteria for selecting villages regardless of whichever project are that the villages; 1) should be

selected from nearby villages from the ones where 1st stage P.Ps were implemented (either within same VT or from neighboring VT), for the purpose of facilitating the monitoring of the 1st stage P.Ps, 2) should have a demonstration effect to not only the villagers but also people from other villages; namely, endowed with good accessibility and/or locational advantage, 3) should not have had much donor/government assistances so far, so as to avoid concentration of supports on just one place, etc.



Photo 3: A Kick-off Workshop held at Mandalay, inviting 45 participants. The JICA TL is leading the session, followed by U Thu Ra Soe, the National Project Director.



Photo 4: In this workshop, we discussed criteria for choosing new villages for the pilot projects in 2008/09. First discussed were general criteria for village, and then specific ones by project.

In addition, specific criteria were also discussed by project, e.g. mushroom-to-be-promoted village should have access to markets, or otherwise ends up in just domestic consumption giving no additional income. With such criteria in mind, now TS officers were fielded to find potential pilot villages by themselves. Potential pilot villages are to be reported in the 2nd kick-off WS scheduled on June 26 & 27, together with brief monitoring results for the pilot projects done in 2007/08.

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In the last financial year 2007/08, a number of pilot projects had been carried out, one of which was rural electrification by a bio-gas generator system. This project was implemented in Khaungkawe village located in the outskirts of Mandalay City, about one hour drive by car from the City. The construction of the bio-gas power generation system commenced in November 2007, and the operation started on February 1, 2008. This news letter, No.2, tells all the interested partners the process of bio-gas power generation set-up and also in what ways the electrification has changed people's life.

A Bio-gas Generator Lightens up Villagers Religious Good Deeds !

■ How the Plan Came up ?

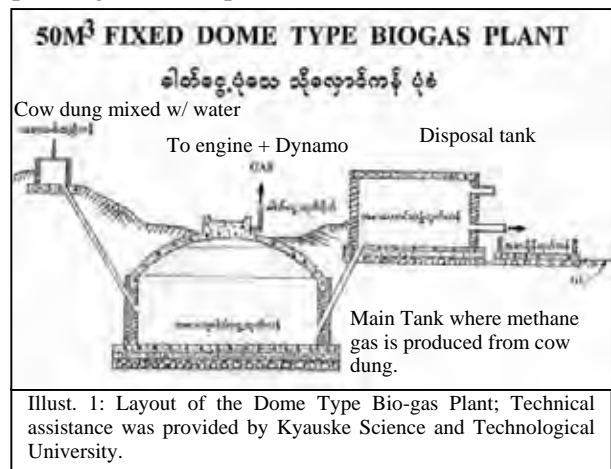
In 2006, the counterpart members with JICA team made several visits to the village, exploring their needs in terms of how outsiders could improve their livelihood. From the visits, several plans came up such as improvement of their agricultural practices, cottage industry, livestock husbandry, etc. A need of electrification did also come up during the discussions, which both sides believed could contribute in many ways to improving their life. One contribution may be to facilitate cottage industry activities being practiced in the village whereby villagers can be engaged in the work longer, creating additional income. Other contributions were so believed that children could have more opportunities of doing homework under light, families could cheer up enjoying chattering, etc. All these expectations led us to believe that the village should have rural electrification.

Next issue was in what way the rural electrification could be realized ? One idea was extending of national power grid, another was to introduce diesel generator, and yet the other was to introduce bio-gas utilization. Little after some discussions, we arrived at conclusion in that the electrification should be done by bio-gas from the view points of 1) availability of raw materials, 2) financial feasibility, etc. In fact, there are two ways of bio-gas generation in Myanmar, e.g. using of rice husk and using of cow dung. Since there are number of cattle not only for draft purpose but also for milking in this village, we finally decided that cow-dung bio-gas power generation should be applied (for the layout, see Illust. 1).

■ How the Construction Proceeded?

We asked technical assistance of the University of Science and Technology, Kyaukse. The university provided us with not only technical assistance but

also supervisors to the construction site. In fact, three supervisors stayed in the village and made great contribution in the completion of the bio-gas power generation plant.



Construction itself was carried out by a local contractor receiving villagers' participation (see Photo 1). During the construction one request came up from the villagers. Original design was to supply power to 100HHs only but they requested to extend the supply to all the household + monastery and pagodas, about total 310 lighting points.



Photo 1: Construction of the Main Tank (forefront) wherein bio-gas production by cow dung is to be made, and disposal tank (right above) where fermented cow dung is to be discharged.

The JICA Team asked the villagers whatever they can contribute should be made available to meet

the additional cost. Responding to this request, the villagers made arrangement for the 2 tanks excavation by collecting 1,500 Kyats each household. As a result of their contribution, finally 307 places became able to receive electricity with fluorescent light of 15 to 20 Watt each.

■ What Electrification Made on People ?

Construction was completed in January 2008, and went onto test running. After some adjustments, the power supply started on February 1, 2008. There was not enough time to monitor the start-up operation at that time, but now upon JICA members' return in this financial year, the National Project Director guided the JICA members to visit the bio-gas plant. The plant was of course in operation. The plant is operated 2 times a day; from 3AM to 5AM and from 7PM to 10:30PM, said the operator. According to the interview to the operator and several villagers, advantages with the bio-gas power generation are that;

- ✓ They feel very much proud of their pagodas and monastery now lit up thereby they can pay a visit and worship even night time,
- ✓ Children can do homework under much brighter light than candles (see below),



Photo 2: Children are doing homework under a brighter fluorescent bulb than candles, so the parent may expect good marks in the next exams.

- ✓ Villagers engaged in cottage industry can work longer under brighter fluorescent lights, earning more income,
- ✓ Families can really enjoy chatting under the brighter light of fluorescent tubes, harnessing family trust and good relations,
- ✓ Even elder women can thread a needle without much difficulty, etc.

From above statements, we can notice very easily that fluorescent lights that superseded candles have really made a big change in their rural life spiritually, religiously, and also physically.

How about financially ? The project team preliminary explored how financially their rural life has improved or worsened with the introduction of the bio-gas electrification. Before the electrification, they totally depended on candle light and to some extent on battery light. Most of the village people used to consume 3 candles or more before the electrification, spending about 150 Kyats per night (3 candles x 50 Kyats). Their monthly expenditure by a typical family therefore used to arrive at as much as 4,500 Kyats. Now they are supposed to pay 500 Kyats per household per month only. 500 Kyats versus 4,500 Kyats easily leads us all to an understanding of how beneficial the generator system is for the villagers, though they sometimes need just one candle per night as supplement.

Now let's us look into the financial viability of the power system itself. The total payment of 500 Kyats per household per month arrives at around 150,000 Kyats (around 300 households in the village), if collected all. This amount is enough to cover all the necessary expenses such as the operator's salary of 50,000 Kyats, engine oil of 16,000 Kyats, which are the major expenses. There may be need to spend more money e.g. repair, maintenance, etc. However, the financial viability of the system looks very much promised from the simple balance calculation, although full depreciation may not be able to take into account.

How about weaknesses associated with this system ? The prime weakness may be the fluctuation of the electricity, which causes damage to the fluorescent tubes, or otherwise the fragility of the tubes easily damaged by even small range of the power fluctuation. A villager estimates till today as much as half of the fluorescent tubes have gone. As the operator gets used to control the fluctuation, such happening is expected to decrease. Some villagers, however, face difficulty of replacing with new one costing the family 700 Kyats for bulb type or 1,300 Kyats for 2-inch tube type. This in fact results in absentee of the payment, 500 Kyats each per month.

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There was a comment from relevant officers during the last financial year; e.g. the officers should well be involved from the commencement and also throughout the process of pilot implementation. Though the project team tried to work together with the officers all the time, there were in fact sometimes lags due mainly to logistic difficulties. To improve that situation, we have in this financial year carried out 2 times kick-off workshops, soliciting the officers' ideas, experiences, etc. as much as possible. Newsletter No.1 already reported the 1st kick-off workshop, and now this is all about the 2nd kick-off workshop.

2nd Kick-off Workshop Done, Now to the Ground !

■ How the Workshop Proceeded ?

Discussion was beforehand held among the project team members, e.g. the counterparts and JICA Team members, on how we should structure the 2-day workshop. After some discussions, we arrived at a design that the Day-1 should be for work by TS officers, e.g. preparation of monitoring results for the pilot projects carried out in 2007/08, summarizing of villages selected for the pilot in this financial year, and the Day-2 for the presentation to the colleague TS officers as well as to the relevant district and divisional officers.

As designed above, in the Day-1, the TS officers summarized monitoring results and the villages they have selected by pilot project. The Day-2 started with reviewing of what was done in Day-1, so called recap by U Thu Ra Soe, the National Project Director. Then he invited responsible TS officers to present the plenary the monitoring results by project. After each presentation, clarification was made and there came questions and answers. There were lots of lessons and recommendations that we believe can improve this financial year's pilot activities. Amongst them are;

- ✓ Seeder should be strong enough to be used for which the frame should be fabricated stronger to well support the operator's weight (the operator rides on the frame).
- ✓ UMB (urea molasses block, an improved feed for livestock) should be improved to attract the beneficiaries and also the animals, for example not in a form of solid but in powder form.
- ✓ Bokashi compost making should be after harvesting when farmers are not at work.
- ✓ Moisture meter should be provided in relation to Paddy Drier Pilot Project to achieve appropriate dry condition for paddy.

- ✓ In cottage industry promotion, start-up materials should be provided in addition to the provision of capital equipment/ machineries.
- ✓ For the management of village revolving fund, training to impart knowledge on book keeping is needed.
- ✓ Pig model housing should be designed according to local situation (timbers used, which are not much available in their locality).

PM session of the Day-2 asked concerned TS officers once again that they present villages selected for this financial year's pilot projects. After each presentation, clarification was made, and then some changes and modifications were suggested on villages. In some cases, repeated component as last year was put in same village and there seemed to be too much investment in just one village. In such cases, given comments from the floor, the responsible TS officers made corrections.



Photo. 1: A Presenter explains to the floor the villages that his TS office has selected for pilot projects, following which interactive discussion and then agreement to start.

■ Agreed TSs/Villages by Pilot Project

Table below summarizes the selected township and number of potential villages at which pilot projects are to be implemented (village name omitted due to page limitation in this Newsletter). In fact, the

Pilot Project	Typology	Type I	Type II	Type III	Type III	Type IV	Type V
	Township	Chauk	Ngazun	Tada-U,	Myinmu	Ayadaw	Pwintbyu
A1. Improved Paddy Cultivation	12 TSs	Training to 12 TSs' MAS officers + district & divisional officers					
A2. Organic (IMO) Farming Promotion	12 TSs	Training to 12 TSs' MAS officers + district & divisional officers					
A3. Improved Seed Regeneration w/ seeder	3 Villages			✓	✓	✓	
A4. Mushroom Culture	2 Villages	✓				✓	
A5. Small-scale Irrigation	2 Villages		✓	✓			
A6. Crop Storage Depot	2 Villages					✓	✓
A7. Minimum Tillage Cropping	2 Villages		✓		✓		
A8. New Varieties Adaptability (with DAR)	6 villages	✓	✓	✓	✓	✓	✓
L1. Goat Revolving	12 villages	✓✓✓✓	✓✓	✓✓	✓✓	✓	✓
L2. Piggery Revolving	4 villages		✓		✓	✓	✓
L3. Livestock Feeding (Training)	6 TSs	Training to 6 TSs' LBVD officers + district & divisional officers					
C1. Village Revolving Fund Establishment	3 Villages		✓		✓	✓	
I1-1. Firewood Substituting	3 Villages	✓		✓		✓	
I1-2. Improved Cooking Stove Promotion	1 Village						✓
I3. Nutrition Centre (multipurpose use)	1 Village	✓					
Number of Villages		8	7	6	7	8	5

selection is relevant to the character that each TS is endowed or constrained. For example, Chauk TS is located in Type I area where we can see the severest environmental condition whereby L1. Revolving Project for goat, adjustable to such climate condition, is recommended. Another example is Rice Husk Power Generation, which can be promoted only in paddy rich area. That is Pwintbyu TS which under this Study falls in Type V by its typology.

In this Newsletter, you may allow us to talk a little bit about typology we applied. Since the Study Area is huge in its geographical extension, we needed to categorize the CDZ into groups to formulate workable development plan. The categorization was made by TS since it is the smallest administrative cadre at which statistical data are available. The CDZ was finally categorized into 5 typologies from Type I to Type V. Type I represents the least productive areas in CDZ exemplified by townships extending along Bago Hills. In the townships falling in this typology, we can see the severest condition in terms of natural resources. Then, as we move from Type I to Type V, more preferable condition in terms of production shows up. Type V, therefore, represents the most productive areas which in many cases can enjoy irrigated paddy cultivation. As summarized in the table, the selected 6 townships fall in one of the categories from Type I to Type V.

■ Improved Facilitation Amongst Them

The Project Team has held such participatory workshops since last year, and this time we

observed some improved interactive actions by the participants themselves. Pointed out here are; 1) some presenters started facilitating the floor for discussions upon his/her presentation, and 2) interactive questions and answers took place beyond the sector to which the presenter belonged.

As per former example, presenters in last year used to just give over the stick to the facilitator when he/she finished the presentation, waiting for discussions as facilitated by the workshop facilitator. In this time, however, many presenters automatically started inviting colleague participants to clarify unclear areas of what he/she presented, to give recommendations for improvement, etc. With regard to the 2nd point, discussions last year took place mostly amongst the concerned sector officers; namely, livestock officer barely gave any comments to agriculture officer, and vice versa. In this workshop time, however, we have observed agriculture officers who gave recommendations to livestock officers to improve livestock related project, and vice versa.

JICA Team has been pursuing these interactive actions since inception of this Study. We believe that constraints facing the CDZ people are multi-faceted; thereby single-minded-thought can hardly improve the situation of the CDZ. In this sense, comprehensive/ inclusive/ integrated actions are to be required to accelerate the development of CDZ in that interactive actions or interplay between different ministries, beyond a single ministry, will play a vital role.

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There were voices from farmers, saying seed e.g. chickpea seed, has degraded due to recycle use. Farmers of course try to procure certified seed all the time. It is however hardly possible, for they depend on their own harvested seed or sometimes buy from colleague farmers who have enjoyed good harvest, that are still recycled one. This situation urged the farmers to introduce a pilot project to regenerate improved seeds upon availing of certified seed in their farms. Beneficiary farmers were then provided certified seed in around September – October 2007, and harvested around February 2008. As JICA members went back to Japan in February last time, we have yet to report the harvest result. Now, this newsletter brings about the outcome from the pilot project.

Various Outcomes on Chick Pea Seed Regeneration Pilot !

■ Villages and Seed Arrangement

The chick pea seed regeneration was tried in 2 villages; Magyi village in Ngazum TS, Mandalay Division and Ma Gyi Sauk village in Ayadaw TS, Sagaing Division. In the former village, 98 villagers were identified and in the latter village 20 identified as the 1st generation. First generation means that these beneficiaries are supposed to deliver same amount of seeds to the 2nd generation beneficiaries out of their harvest, thereby called 1st generation beneficiary. This pilot is therefore operated on a revolving system whereby harvested improved seed is transferred to the succeeding beneficiaries within the village.

The project procured certified seeds in 2 government seed-farms, e.g. Mandalay Central Seed Farm under MAS and Zaloke Seed Farm, Monywa under DAR. ICCV2 for Magyi village was procured in the former farm, and ICCV2 and also ICCV95311 for Ma Gyi Sauk village were procured in the latter farm. Also the pilot project supplied the beneficiaries with compound fertilizers; half bag each for Magyi village beneficiaries and 2 bags each for Ma Gyi Sauk village beneficiaries (since beneficiary number in Magyi village was increased, they had to share the fertilizer, resulting in smaller amount per beneficiary as compared to Ma Gyi Sauk).

■ Outcome at Ma Gyi Sauk Village

This newsletter reports only on Ma Gyi Sauk village due to limited space, and the next one will talk about the other village; that is Magyi.

The chick pea seeds for the both varieties were planted in Kaing area, endowed with relatively fertile soil condition. Following table summarizes the harvests of the 2 varieties. Since ICCV95311

was the first time to introduce, there was no case of 'Outside-Project' while as ICCV2 has long been cultivated right there, we could carry out the 'Outside Project' case for its comparison.

Table 1. Yield Comparison in Ma Gyi Sauk Village

Case	Yield, bsk/ac	Fertilizer, Kg/ac	Remarks
ICCV95311	13.7	46	Sample Nr.=7
Outside-Prj.	NA	NA	
ICCV2	11.5	61	Sample Nr.=7
Outside-Prj.	8.2	4	

Source: The Project Team, sample survey in July 2008

As demonstrated above, ICCV 95311 showed high yield reaching 13.7 baskets per acre. As normal yield in this area ranges between 8 and 10 baskets per acre, this yield can be remarked for further extension. How about the other variety? ICCV2 showed a yield of 11.5 baskets per acre



Chick Pea now Growing in the Farmers' Field

which is lower than that of ICCV95311 but still higher than that of 'Outside-Project' case. One may say of course that good yield must have accrued thanks to the chemical fertilizer that the project provided. Above table in fact shows much fertilizer use under 'Project' than the 'Outside-Project' case, e.g. 61 kg usage under Project vs. only 4 kg usage under Outside-Project.

■ Estimation of Profit Margin

Then, the issue here is the net profit in that whether there is still net profit in the farmers' pocket after subtracting the cost of chemical fertilizer. Shown

below is the estimation of the profit by applying then-prevalent market price as well as farm-gate price as at October 2007 to February 2008:

Gross income under Project:	194,727 Kyats/ac
Gross income under Outside Project:	138,957 Kyats/ac
Chemical Fertilizer under Project:	24,242 Kyats/ac
Chemical Fertilizer under Outside Project:	1,739 Kyats/ac
Net Profit Under Project:	170,485 Kyats/ac
Net Profit Under Outside Project:	137,217 Kyats/ac
Increase b/t Under Project and Outside:	33,268 Kyats/ac



Chick pea has well grown up, and now waiting for the harvest. A part of harvested seeds to be delivered to the 2nd generation beneficiaries.

Put simply the estimation, cost on farm casual labours was not taken into account. However this does not vary between the both cases of 'Under Project' and 'Outside-Project'. The estimation above tells us that the yield increase can surpass the additional cost of the chemical fertilizer as indicated by a net profit of 170,485 Kyats/ac under Project vs. 137,217 Kyats/ac under 'Outside-Project', the former being high by 24%, an additional net profit of 33,268 Kyats per acre.

Another consideration may be the cost of the certified seed. The price of seed procured at Zaloke Seed Farm is 25,000 Kyats per basket. One basket of chick pea is equivalent to 16 pyi. Though one acreage of chick pea farm requires about 16 – 17 pyi of seed, most farmers in fact tend to sow around 1.5 baskets that is 24 pyi of seed, costing then another 37,500 Kyats. When this cost of 37,500 Kyats per acre for certified seed is subtracted from the additional net profit of 33,267 Kyats per acre, the margin is now arriving at negative, that is -4,233 Kyats per acre.

Of course, the farmers do not need to buy the certified seed every year but can recycle couple of years. However, on the other hand, the farmers may have to bear transportation cost additionally

accrued to deliver the purchased seeds all the way down to their village, which would ultimately eat up all the additional profit margin.

■ Thoughts on the Outcome

Two issues here are raised; 1) really attractive for the farmers to renew the seed on their own cost ?, 2) and For or Against chemical fertilizer usage?

As per issue No.1, provided that farmers recycle the seed over many years, they would ultimately face very low yield gaining almost no profit in their hands. This supports the periodical renewal of the seeds, but the issue then is how-often. Certified seeds could give the farmers better quality of harvest, which leads to higher farm gate price. However, given the economic margin out of the calculation above, we may need to think frequent renewal of seed may not attract farmers from the viewpoint of associated costs vs. potential profit. A systematic support from the Government to periodically renew the degraded seeds to certified seed may have to be considered, or farmers may not be interested in renewing the seed as advised.

As to the issue No.2 of chemical fertilizer, JICA Team is not always advocating for the usage. Foremost typical character of the CDZ, or all the semi-arid zones over the World by and large, is not the scarcity of the rainfall itself but the uncertainty of the rainfall pattern in terms of both when to fall and where to fall. Rainfalls in dry and/ or semi-arid zones always behave out of human-thought or expectation. This foremost character inevitably raises the risks on agriculture practiced under rain-fed condition. Therefore as long as it is concerned to rain-fed agriculture, especially Ya (upland) agriculture, JICA Team hardly recommends inputting of much chemical fertilizer.

However this thought should refer to the local condition. For example, chick pea in the village was cultivated in Kaing areas. The Kaing areas are endowed with enough residual moisture from retarding river waterfront. The areas with enough residual moisture would let the chemical fertilizer work, thereby we brought the chemical fertilizer in this case. However the type of the fertilizer may have to be reconsidered, e.g. from compound to Foliar, a liquid type fertilizer, which may better work under less rainfall condition.

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Newsletter No.4 reported on the results of Chick Pea Regeneration pilot project carried out in Ma Gyi Sauk village, Ayadaw TS, Sagaing Division. Same pilot project was carried out in Magyi village, Ngazum TS, Mandalay Division. 98 beneficiary farmers were provided certified chick pea seed in around September – October 2007, and harvested around February 2008. Also tried in the pilot was an introduction of seeder. In fact seeder itself is not new already in this CDZ area but the case in the village. The villagers used seeder for sowing the certified seed provided, and harvested at the end of season. Now, this newsletter brings about the outcome from the chick pea seed regeneration pilot project carried out in Magyi village.

Lessons on Chick Pea Seed Regeneration Pilot in Magyi Village !

■ Seed Regeneration Arrangement

Total 98 farmer beneficiaries were selected as the 1st generation. Each and every beneficiary was given 1 basket of certified seed of ICCV2 procured at Mandalay Central Seed Farm under MAS together with half bag of compound chemical fertilizer. The seeds were sown in September and October 2007 in time, and harvested in February 2009. The farmlands sown were mostly in Le (lowland) and in some cases in Ya (upland). In fact, though it is called Le, it can hardly expect good paddy cultivation in this area due to climate condition, soil condition, etc. Apart from seeds and fertilizer, the pilot project also provided a seeder, that you can see in photo 1.



Photo 1: Seeder introduced in this Magyi village, which can reduce seeds by about 1/3. Since the chick pea is planted in line, weeding work will also be easy.

■ Effectiveness of the Seeder

About two thirds of the beneficiary farmers used the seeder (not all the farmers could use due to time constraints). According to interviews to the users, they used to sow about 24 pyi per acre by broadcasting, but with the seeder they can now cover one acre of farmland with 16 pyi of seeds, a

reduction by 8 pyi. The seeds provided from Mandalay Central Seed Farm was 23,000 Kyats per basket (16 pyi), and therefore it can reduce the seed cost by 11,500 Kyats per acre with the seeder.

The seeder as is expected sows the seeds in lines as exemplified in photo 2. This line-planting can make weeding work easy as compared to broadcasting, however one may say it would reduce the harvest due to scarce plant density than broadcasting. Following table discusses the point:

Table 1. Yield Comparison With/Without Seeder

Case	Seed, pyi/ac	Yield, bsk/ac	Fertilizer, Kg/ac	Sample No.
With-seeder	16	10.57	27.05	10
Without-seeder	24	9.63	8.74	9

Source: The Project Team, sample survey in July 2008



Photo 2: Chick peas are now growing in lines, sown with a help of Seeder. This can reduce the required amount of seeds from 24 pyi to 16 pyi per acre, a reduction by about one-third.

As summarized above, yield under With-seeder was 10.6 baskets, which is higher than 9.6 baskets per acre under Without-seeder case. The beneficiary farmers under With-seeder case in fact used more fertilizer as supported by the Project as well as by themselves, e.g. total 27.1 kg for both urea and compound in With-seeder case while 8.7

kg in Without-seeder case. The higher yield in With-seeder case may therefore have come from the higher usage of fertilizer. To exactly set apart the effect of the fertilizer is very difficult and therefore net profit margin considering the usage of chemical fertilizer is estimated below (put simply, farm labour wages, pesticide use, and others which are not much different between the 2 cases are not considered):

Gross income in With-Seeder:	179,693 Kyats/ac
Gross income in Without-Seeder:	163,780 Kyats/ac
Chemical Fertilizer in With-Seeder:	10,819 Kyats/ac
Chemical Fertilizer in Without-Seeder:	3,496 Kyats/ac
Net Profit in With-Seeder:	168,874 Kyats/ac
Net Profit in Without Seeder:	160,285 Kyats/ac
Increase b/t With and Without Seeder:	8,589 Kyats/ac

Above simple comparison leads us to believe that seeder can reduce the required amount of seeds by about one-third, and furthermore the farmers still can keep the yield or if managed properly they can expect higher yields.

Any weaknesses associated with the seeder? In fact, some weaknesses can be found such as; 1) It can hardly work on heavy clayey soils because such soils are so hard that the seeder cannot well run, 2) If the seeder is used in clayey soils, pipes dropping seeds sometimes become clogged by soil turning back to the pipe's openings, and 3) Iron bars supporting the seeder frame on the farmland should be strong enough to support the operator who is on the seeder (see photo 1), or work efficiency becomes very low. Taking into these situations, the seeder cannot be well used in heavy clayey soils. It can however efficiently work on light soils, sandy soils, etc.

■ Outcome at Magyi Village

Following table summarizes the yield and chemical fertilizer use by 3 cases as; 1) Under-Project, 2) Outside-Project, and 3) In-Average Year. In Under-Project case, both seeder use and non-use cases are included and all the beneficiary farmers used the certified seeds provided by the Project. Outside-project shows the output achieved by themselves; seeds managed by them, fertilizer same, etc. All the chick peas were grown in Le (lowland).

Though the yield under Project is higher than those of other 2 cases, the difference is not much big despite the fact that they used nearly about triple amount of chemical fertilizer as well as certified seeds.

Table 2. Yield Comparison in 3 Cases, all in Le

Case	Yield, bsk/ac	Fertilizer, Kg/ac	Sample No.
Under Project	9.39	31.70	36
Outside Project	8.82	11.25	32
Average Year	8.58	8.79	32

Source: The Project Team, sample survey in July 2008

In fact, if we do the same estimation as with/without seeder use, following result comes out, not much different amongst the 3 cases:

Net Profit Under-Project:	147,014 Kyats/ac
Net Profit Outside-Project:	145,375 Kyats/ac
Net Profit in Average Year:	142,365 Kyats/ac

In fact, taking into account the cost of certified seeds of 23,000 Kyats/basket (eq. to 16 pyi), net profit Under-Project becomes lower than those of other 2 cases.

Why that happened? Probable reasons could be; 1) seed itself was not pure as observed by the farmers seeing different growth heights, 2) granule chemical fertilizer does not well respond under unstable and less rainfall condition, 3) some farmers might have diverted the provided fertilizer to other crops like onion, etc. Pertinent to the 2nd probable reason, we can show another example in the following table, which summarizes the results tried in Ya (upland). This result suggests that chemical fertilizer hardly worked in Ya that is placed under harsher moisture condition than Le.

Table 3. Yield Tried in Ya (Upland)

Case	Yield, bsk/ac	Fertilizer, Kg/ac	Sample No.
Under Project	4.81	30.21	4
Outside Project	NA	NA	NA
Average Year	6.31	7.69	3

Source: The Project Team, sample survey in July 2008

Above result really reminds us of how difficult to cope with the CDZ condition to increase the yields. Suggestions may be that we should: 1) not much depend upon chemical fertilizer, especially granule type, 2) procure seeds which are guaranteed in quality, etc.

In this financial year, we are to carry out additional seed re-generation pilot project in different villages, in that we should try Foliar fertilizer, a liquid type workable in dry condition than granule type, introduction of leguminous bacteria which can fix atmospheric nitrogen, thereby improving the soil fertility as well as its physical character which ultimately leads to making the crops better stand against dry weather.

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The Captioned study covers such 4 sectors as; agriculture, livestock, cottage, and living improvement. Newsletter this time talks about cottage industry promotion. The pilot project carried out in last financial year promoted diversified cottage industries in 5 villages, e.g. tinsmith improvement, guitar key improvement, stone ware improvement, village development sales shop establishment, knitting/ embroidery/ weaving promotion, etc.

To promote cottage industry needs much longer lead-time, as is expected, than other sectors; namely, organizing of potential beneficiaries, identification of necessary equipment/ machineries, ordering and procurement of the equipment, training, facilitating marketing, etc. During the last financial year, the cottage promotion sector therefore had completed all the activities only required under the project design, but not yet entered commercial production stage. This Newsletter reports on the present *businesses* activities for one of the cottage industries; that is the knitting promotion in Ma Gyi Sauk village, Ayadaw TS, Sagaing division.

Enlarging the Women's Option in Income Earnings !

■ Arrangement on the Machine Usage

In Ma Gyi Sauk village, you can see women's very powerful cottage activities; some are engaged in weaving, some in knitting, some in sewing, etc. The pilot project supported all the major 3 cottage activities, amongst which knitting is now reported in this Newsletter. There were about as many as 50 women who could be potential beneficiaries in this village, e.g. self-running knitting owner, employed women in knitting, still-trainee level women, and interested women in that knitting. On the other hand, the budget available for the project could provide only 5 advanced knitting machines, which is obviously smaller in number as compared to the potential membership of the beneficiaries.

There were 2 thoughts; 1) just limit the membership of the beneficiary meeting the number of machines, 2) include all the potential beneficiaries for the sake of public equity and let them decide how to utilize the limited number of machines. The JICA Team no doubt upholds the latter arrangement since we think avoiding jealous is much more important than just a success achieved only in limited membership. As well, people's needs always surpass donors' and government's resources in that we should think of covering as many needs as possible with the limited resources rather than just responding to a specific member group.

Finally 50 memberships came to the 5 machines. The arrangement we/they devised is that; 1) the 50 members are divided into 5 groups namely 10 sub-membership per group, 2) each group is allocated

to a particular machine to establish a sense of responsibility in operation & maintenance, 3) the 10 sub-members take a turn to use the particular machine. In sum, each member is now supposed to use the particular machine for a total of 3 days per month. You may think 3-day use per membership per month is too little, or too cumbersome in operation. But we do not think in that way.



Photo 1: 2 members each are using one machine, one is already trained and the other is now being trained. They often enjoy chatting while knitting sweater.

There are lots of trainee-level-beneficiaries, probably as many as more than half. These beneficiaries sit beside the already trained beneficiaries to learn advanced technology of knitting on double-layer deck machine. In fact, the pilot project sent 5 members, one each from the 5 groups, to Pyin Oo Lwin to learn the advanced technology with the double-layer deck, and then they have been transferring the technology to their colleague beneficiaries by using the machine together. The photo above shows each 2

beneficiaries are now knitting, one is already-trained and the other is now being trained. They enjoy chatting often while doing the knitting. The place for knitting in that sense becomes a social interactive venue for the women.

■ Business Point of View; Viability

The production started in March 2008, and so far they have more or less concentrated on production and not much on sale because this is not yet the season for sweater. However they have already sold some products, and also can expect how much they can fetch out of the new designs. Following are the benefit accrued so far, and we are quite sure of this program's success:

- ✓ The machine is an advanced model which can do end-knitting of neck, sleeve and body parts. Previously they did not have such machine and depended on an owner in neighboring village of *Myay Net* located about 4 miles away. It cost them about 300 Kyats per sweater. Provided with the new machine, they no longer spent on this extra money.
- ✓ If employed by a knitting machine owner, the employee is paid only about 750 – 800 Kyats per day depending upon how many sweaters she knits in the day. In fact, about half of the beneficiary members are employees who still have to depend on machine owner for the days when they cannot use the machine provided by the project. However, if she uses the machine provided by the project, her profit will increase very much; e.g. she can produce about 2 – 3 simple sweaters per day at a material cost of 4,000 – 6,000 Kyats, and she can fetch 9,000 – 13,500 Kyats in gross. This gives her a remarkable net profit of 5,000 – 7,500 Kyats per day. Of course, business is not that easy all the time. Simple design sweater can hardly be sold in a bulk number; therefore they need to include time-consuming sophisticated design sweater in those simple ones for sale. The machine provided by the project can of course knit sophisticated design sweaters but the time-consuming knitting would lead her not to expect such 5,000 – 7,500 Kyats net profit per day. Yet, it is for certain that she can earn by using the machine provided by project much more than being employed as wage worker.
- ✓ A smart lady already came up. She used to work as wage worker fetching that 750 – 800

Kyats only per day. With the machine provided, she produced 100 baby sweaters in just about 10 days. Then, she went to Kaw Lin township where she marketed the baby sweaters. As a matter of fact, her brother married with a woman in Kaw Lin, and they stay there together. The smart knitting woman visited the brother and started house-visit sale one by one. She sold out all the sweaters at a good price of 1,500 Kyats per unit. She gained a gross of 150,000 Kyats. Subtracting the material cost of 70,000 Kyats, transportation of 10,000 Kyats, food/lodging/ souvenir of 40,000 Kyats, a net profit of 30,000 Kyats remained in her hands after 15 days. Average net per-day profit is therefore 2,000 Kyats, which must be a very good business outcome in that rural area. Almost same story can be found out in another woman as well.



Photo 2: She, at the centre, is the smart woman who produced 100 baby sweaters and marketed in Kaw Lin township. She operates the machine very well and at the same time is training 2 trainees.

■ Revolving for Further Extension

We add no more capital but the beneficiaries do. The logic is each and every member shall pay 600 Kyats per month, totalling to 30,000 Kyats per month for all the membership (600x50). This is kept by the main committee established at the village level. Right now they need to spend this money for adjustment of the machines, repair of the house where machines are located, etc., and therefore there is a difficulty of saving. However, the membership fee, or in real sense rental fee, is aimed at purchasing additional machine costing about 600,000 Kyats per unit. This is the end-purpose of the revolving system under this payment arrangement.

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At stake is a different approach in implementing the pilot project in this financial year. In last year, most of the pilot project just pinpointed some specific villages wherein required activities were put in practice by the Project Team, contracted local consultants and relevant TS officers. The different approach applied in this year is to cover as many villages as possible, focusing more on dissemination of technologies/ skills needed for our beneficiary villagers. The best way to pursue wide range of dissemination, as may be agreed by all, lies on the best utilization of TS officers who are the frontline service provider. This approach is now tried in some of agriculture and livestock pilot projects. This Newsletter elaborates the approach being tried in the livestock sector.

LBVD Officers Trained, now Ready for the Extension on the Ground !

■ What should be Widely Disseminated?

Out of the evaluation done in February 2008 for the pilot projects last year, we have realized that goat and pig revolving projects contributed to improvement of the livelihood especially for the poor. As poorer people in the CDZ can be found in the social strata of landless people and small-scale farmers, we have well understood such projects could really improve their income status. There is therefore a need of further extending the projects for the sake of poor people such as landless people, who are suffering from bigger magnitude of poverty, and also small-scale farmers.

In addition to the goat and pig revolving projects, we think that LBVD TS officers can improve their extension services provided that they are supported in logistics as well as they are once well trained with some new technologies. Therefore the Project Team decided to carry out a training course on LBVD officers as the first step towards the wide range of extension, implanting the necessary knowledge of the pilot project as well as improving their extension services. The participants to the training was as follows; e.g. total 24 from 6 TSs, 6 from districts and 3 from the relevant divisions, totalling to 33:

Table 1. LBVD Participants to the Training

Division	TS	TS Officers	District Officers	Division Officers	Total
Sagaing	Ayadaw	4	1	1	10
	Myinmu	4	1		
Mandalay	Tada U	4	1	1	11
	Ngazun	4	1		
Magway	Chaunk	4	1	1	12
	Pwintbyu	4	1		
Total		24	6	3	33

■ Participants' Expectations on Training

The training was conducted in 5 days, overall coordinated by Dr. Khin Maung Win, the

counterpart in charge of livestock sector. Dr. Set Shwin, the Head of Mandalay LBVD Divisional Office, opened the training course, followed by announcement of the training overall schedule.



Photo 1: Dr. Khin Maung Win announces the objectives and overall schedule of the training, norms, and then briefed about pilot project.

Then, before going into the plenary training session, the participants and the project team had an interactive clarification session about their expectations. During the registration, the participants were asked what they expect from this training course ! Amongst major expectations are;

- ✓ To gain new technologies, knowledge, experiences and opportunities in livestock breeding sector (22 participants).
- ✓ To obtain necessary assistance such as logistics and materials (7 participants; including allowance for farmers to attend the trainings to be conducted by LBVD officers).
- ✓ To be able to reduce poverty and to bring about rural development (7 participants).
- ✓ To be able to ensure progress and success in livestock in different areas such as animal

housing, feeding system, sanitation etc (6 participants).

The project team replied one by one how to respond their expectations, e.g. a concerned knowledge to be lectured in such session, and this and that. One unique reply from the JICA leader may be for the allowance arrangement to the beneficiary farmers. There was a comment from a participant; allowance be paid to beneficiaries to attend his training in the village otherwise very little turnout. The leader's answer was so simple as; "donor does not have money, the government does not have either, and so where the money is. The money is in the pockets of farmers. If the extension service provided by you really deserves, why cannot we ask the beneficiary farmers to pay for the services."

In fact we should not make such arrangement for the beneficiary farmers, or only cosmetic outcome will show up, e.g. big number of participants expecting allowance but in real sense nothing done on the ground. Any extension officers should always try to improve their extension services such that the beneficiaries would pay for the service. Likewise, one may think in other way round that the beneficiaries should become rich able to pay for the services (in fact they don't need to pay but should have ability to pay), otherwise they remain in the poverty trap, which on one hand implies not efficient services by the extension officers.

■ Training Structure and Contents

As aforementioned, the training was done in 5 days including field trip to one of the livestock pilot villages carried out in 2007/08. The training sessions covered, aside from the modus operandi of goat/pig revolving pilot, such topics as feeding improvement including urea molasses (UM) block making, silage and silo making, vaccination, improved animal house, sanitary management, castration, Suckling and weaning calf, general animal husbandry, and so on so forth.

The project team requested the trainers to have sessions interactive, keep sessions active, let the participants think and speak. Therefore training norm was of participatory throughout all the sessions. Photo 2 shows an example, in that a female participant rigorously talks about her experiences, inviting the colleagues' contributions at the same time.



Photo 2: A female participant is now making clarification by telling her experiences in her extension area, thereby participants can share colleague's knowledge on top of what they have.

A practice was also done on urea molasses block making as shown in Photo 3. Urea molasses block is an improved feed consisting of nutritious ingredients such as urea, rice bran, molasses, salt, lime, cement, etc. Participants were divided by TS, total 6 groups. They started measuring the weight of the ingredients, mixed them, and moulded them (see Photo 3).



Photo 3: Participants are making urea molasses block, a rich nutritious improved feed.

The sessions which satisfied them are; 1) introduction of the pilot project, 2) life cycle of livestock, 3) breeding, 4) UMB making, 5) goat collective rearing, 6) improved goat housing, etc. In contrast, sessions not having satisfied them are such animal feed and nutrients as 1) fodder trees, 2) feed sources & their nutrient vale, 3) concentrates, 4) revolving system of the animal, etc.

At Day-5, the last day of training, the participants made their own plan of action including target, e.g. how many villages they are going to cover, etc... This target oriented plan of action is the basis for their activities to undertake. This will be reported in the coming newsletter, and just be patient please.

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This Newsletter is the 2nd instalment of Livestock Training administered from June 7 to 11, 2008. The training invited 24 TS LBVD officers, 6 district officers, and 3 divisional officers, totalling 33 attendants. It was 5-day training course, on last day of which the participants made their own targets, e.g. how many villages they are going to cover. In addition, post-training knowledge test, post-training evaluation, etc. were also carried out. Now this Newsletter brings you these outcomes !

Targets Set; Ambitious ?, Yet an Indication of their Commitment !

■ What is Action Plan ?

Participants were requested to prepare their own action plans by township. What is the action plan all about by the way ? Action plan, sometimes called plan of operation, is an elaborated guide which calls for the implementers, here LBVD veterinary officers, to undertake development activities in order to achieve agreed goal. It should therefore be composed of concrete time-series activities to be undertaken, the responsible persons relevant to the activities, by when or at when the activities should be put into practice, inputs necessary, expected results including target number out of the concerned activities, supporters, etc. The action plan is in other way utilized in monitoring as well.

A facilitator explained above basic to the participants, and exercise followed by just listing up some activities they are supposed to undertake (see Photo 1). After that, supports available under prescribed budget were shown to the participants. This is so called 'givens' for the participants, namely, logistics support, materials to be provided, etc. Referring to this 'givens', the participants started discussions amongst them, trying to formulate practical action plan.



Photo 1: The participants are now exercising the preparation of Action Plan guided by the facilitator, after which there were known the contents of supports that the project was to provide.

■ Targets Set by the Participants

They worked on the action plan formulation so hard, and as the work went on we had just realized some targets might be too ambitious. The overall coordinator Dr. Khin Maung Win just tipped in to comparably check their targets. We summarized their targets by TS-wide, so that the participants could see some targets unrealistic to effectively carry out. After long discussions, we have finally arrived at the targets as indicated in Table 1.



Photo 1: Dr. Khin Maung is now checking with his counterpart TS officers whether the target is achievable or too ambitious with reference to other TSs' targets.

The goat revolving and pig revolving pilot projects are to be carried out in 12 and 4 villages respectively, as shown in the upper part of Table 1. Apart from these villages, the TS LBVD officers can deliver extension services to other villages as well. The extension services they can deliver are for example; urea molasses mineral block (UMMB) making, livestock housing, urea-treated straw making, castration, disease control, and so on so forth as indicated in the same table.

Now you can see their targets as; 253 villages in extension and 145 villages in demonstration (the latter is a part of the former). They are going to deliver their extension services to as many as 253 villages by around July 2009, the time when the 1st generation beneficiaries for the goat/ pig revolving

Table 1 Targets (Villages) set by TS and by Activity in Extension and Demonstration

Typology Component	Type I		Type I		Type I		Type I		Type I		Type I		Total (villages)	
	Chauk TS		Ngazun TS		Tada-U TS		Myinmu TS		Ayadaw TS		Pwintbyu TS			
Goat Raising	4		2		2		2		1		1		12	
Pig Fattening	0		1		0		1		1		1		4	
Demonstration & Extension	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n
UMMB Making	4	20	3	30	2	38	2	10	3	17	2	12	16	127
Livestock Housing	4	10	3	5	2	8	2	5	2	5	2	5	15	38
Urea-treated Straw Making	4	10	3	30	2	38	1	5	3	17	5	10	18	110
Castration	25		30		20		15		20		15		125	0
Disease Control	5	20	3	80	2	38	35	0	20	0	15	0	80	138
Pasture Improvement	4	10	3	20	2	68	1	5	3	5	2	13	15	121
Disinfection	4	10	10	15	2	20	2	5	3	5	5	15	26	70
General Training		25		30		40		35		20		15	0	165
Silage/ Silo	4	0	3	0	2	38	2	5	3	17	2	15	16	75
Accumulated Village Nr.	54	105	58	210	34	288	60	70	57	86	48	85	311	844
Max Nr. of Villages by TS (Extension target)	25		83		70		35		20		20		253	
Max Nr. of Villages by TS (+demo)	25		30		20		35		20		15		145	

pilots are to deliver kid to the 2nd generation beneficiaries. They are going to carry out demonstrations at as many as 145 villages. These are the targets to be pursued by 24 TS officers supported by relevant district and divisional offices. Some may feel the targets may be too ambitious but the Project Team believes that the targets must be the indication of their committed determination.

■ Knowledge Enhancement

The training course administered a knowledge test before and after the training using same questionnaire. Following table shows the ratios of correct answers of pre- and post-training tests by question.

Table 2. LBVD Participants to the Training

Question No.	Ratio of Correct Answers, %		
	Pre	Post	Impr't
1 Cattle			
1.1 Puberty age of male and female	3	46	43
1.2 Weaning period of calf	18	46	27
1.3 Lactation period, calving interval	33	79	46
1.4 Fresh fodder in % of live body weight	3	52	49
1.5 Gestation period	94	97	3
1.6 Advantage of AI	82	94	12
2 Goat			
2.1 Puberty age of buck	15	61	45
2.2 Age to serve for doe	33	55	21
2.3 Weaning period for kid	39	58	18
2.4 Twins rate on average	30	67	36
2.5 Fresh grasses per day	21	52	30
2.6 Gestation period	67	94	27
2.7 Age in month for marketing	55	97	43
3 Swine			
3.1 Average nr. Of piglets per bearing	76	94	18
3.2 Fattening period to marketable size	85	97	12
3.3 Average marketable size of pig	24	64	39
4 Forage			
4.1 Leguminous crops with higher protein	12	88	76
4.2 Fodder trees for animal feed	21	76	55
5 Livestock advantageous for CDZ landless	54	91	36
Average	40	74	33

The table shows trainees' knowledge enhancement on livestock and animal husbandry from 40% to 74% in average through the training. It can be

noted that the participants were strengthened especially in knowledge on fodder, animal nutrient, and various general guidelines on breeding, feeding, marketing, etc. On the other hand, areas to still need to enhance are; puberty age of cattle, weaning period of calf, fresh fodder requirement in % of live body weight, age to serve for doe for goat, weaning period of kid for goat, fresh grasses per day in goat, which are all marked lower than 60% in the correct answers.

■ Comments to Further Improve

As a part of training evaluation, comments to further improve such training were asked. Following are the comments given, and should be taken into consideration in next opportunity;

- ✓ Trainees should be informed of the training about 15 days ahead so that they will have enough time to make preparation.
- ✓ This kind of training should be carried out periodically e.g. every 6 months or every year.
- ✓ Study on animal housing and raising should be enlarged.
- ✓ Experiences, field documents and current technologies obtained from other developing countries should be included.
- ✓ Lecture should be given more widely, and also theoretical knowledge and practical knowledge should be combined to be more effective, e.g. 40% in theory and 60% in practice (in the training, more theory was given than practice).
- ✓ Training participants should be accommodated in one place so that they can communicate even after the day's training.

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As reported before, we can see very active cottage industry in Ma Gyi Sauk village, Ayadaw TS, Sagaing Division. One of the pilot projects carried out in financial year 2007/08 supported 3 cottages such as embroidery, knitting and weaving in the village. Machines and equipment necessary were all installed in a production centre, to which members come rotationally and do the production. The ownership of the machines and also the production centre are with the main committee established at the village level encompassing all the 3 cottages' members. In this sense, the cottage promotion in Ma Gyi Sauk village may be a kind of village-based business entrepreneurship. This newsletter is now reporting on embroidery promotion in that village:



Adding Value on the Sewing Activities by Embroidery Technique !

■ What is Production Centre ?

As mentioned above, a production centre was established in this village wherein all the 3 sectors' cottage activities are now operational. Photo 1 shows the production centre together with the concerned members of embroidery group, knitting group and weaving group (not all the members but those who are on their turn on that day. Since the nr. of machines is limited, they have to come here in turn).



Photo 1: Production Centre wherein 3 cottage groups; embroidery, knitting and weaving, are now producing their products. Women in the small photo are the members.

The main committee is composed of VT Chairman being the chair of the centre, 3 cottage groups' leaders, and other village leaders such as agriculture group and livestock group which were also established under the pilot project. The committee is in charge of overall management of the production centre as well as of collecting the fee of using the machines. The collection is on a revolving system whereby the committee is to procure additional machines in future.

■ Embroidery Training

There were lots of women engaged in sewing in their households. Apart from the orders from villagers on an ad hoc basis, they would produce pillow-case. A broker comes to this village periodically from Monywa town and buys from them in a big number. They used to produce only non-embroidery pillow-case with ordinary sewing machine. Before the pilot project there was no embroidery machine in this village. Non-embroidery pillow-case is very simple to produce, and even beginner can do it. However, such simple pillow-case is not always marketable since people nowadays tend to have good-looking case like embroidered one.

They needed a machine which can add value on top of what they can produce with their ordinary sewing machines. This was the motive of why embroidery machines were introduced to this village. Training was then conducted. Photo 2 shows the training done back in December 2007. In fact, there was confusion whether embroidery machine should be operated with manual or only by motor. The villagers themselves misunderstood that embroidery machine can work only with motor. The first trainers were therefore mistakenly sent to the



Photo 2: Training of Embroidery conducted back in December 2008.

village as they could teach only motorized embroidery.

The training was suspended for a while and then we looked for new trainers. Through the second training for the embroidery by different trainers, the villagers came to understand the machine can function manually, and that is more suitable for the village due to the limited electricity supply in this village. The project finally supplied 3 manual embroidery machines with 1 beating machine.

■ Embroidery Production

Currently, there are 3 embroidery groups relative to the 3 machines provided. Each group consists of 10 members, totalling to 30 memberships in this embroidery sub-sector. They started production in March 2008 upon completion of the production centre. An interview was made to one of the embroidery groups in mid July 2008. The leader of the group was embroidering flowers on *Htamein* (nether garment for female) ordered from a villager. She can finish this embroidery in just 2 hours and fetching 600 Kyats in gross. Subtracting string cost of about 150 Kyats and about 50 Kyats for oil, she can now earn 400 Kyats for the work.



Photo 3: She is now embroidering flowers on Longyi, which was ordered from a villager. She can finish this in 2 hours, fetching about 400 Kyats for net.

Apart from the orders from villagers on an ad hoc basis, they can now produce embroidered pillow-case. Now, we like to show you the income accrued from the embroidery:

- ✓ They usually buy 10-yard length cloth at a cost of 8,000 Kyats. This cloth is enough to produce

20 pillow-cases, thereby the cloth cost of a pillow-case arrives at 400 Kyats.

- ✓ To produce embroidery, she needs to spend on strings, and also put oil periodically to well run the machine. The cost of the former is usually 100 Kyats, and the latter is about 20 Kyats for putting embroidery on pillow-case. Therefore, total material cost per one unit of pillow-case arrives at about 120 Kyats.
- ✓ Net profit is now 280 Kyats per embroidered pillow-case. They can put embroideries on 5 – 6 pillow-cases per day, indicating that one member can fetch about 1,400 – 1,700 Kyats net income per day.
- ✓ In this area, if a woman works as wage labour, she can fetch only 700 – 800 Kyats, and therefore we can see the above net profit being almost double.

In fact, the embroidery machine cannot be used as ordinary sewing machine. So, they have to do pre-work in their house, which is sewing of ordinary simple pillow-case at their house. However, this work is very simple and they can make 5 – 6 simple pillow-cases in just half an hour. They do this pre-work in their houses, and bring the finished ones to put the embroideries on them.

Many memberships may be another concern. 10 members each are now allocated to one machine. This means if they take an exact turn, one woman can use the machine only for a period of 3 days in a month. This situation is not exclusive in this group only but also in the kitting group as earlier reported. Less number of machines vs. many memberships may not create noticeable income increase when we think as a whole. However, when her turn comes, she can fetch almost double net income, and we believe this is a new opportunity created in income earning in that village.

One more thing to mention ! Six members in a group are already experienced so that they can get order while the remaining 4 are still beginners, who cannot take any order yet. The beginners are learning from the experienced members by working together, e.g. a kind of on-the-job-training. This pilot was meant to disseminate the embroidery technology to many women, which is now actually practiced on the ground.

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One of the specific characters pertinent to CDZ is not just the meagre amount of rainfall but its unpredictable pattern. Rain in the CDZ indeed falls but as a matter of fact does unpredictably, varying from time to time and from place to place. Especially, the onset of the rainy season is exceptionally erratic in its rainfall pattern. This situation being prevalent in the CDZ, high input agriculture automatically entails high risk; for example, chemical fertilizer easily turns in vain, leaving nothing but debt in the farmer's hands. This Study therefore promotes organic farming which does not require high investment. In this line, an organic farming training was administered in collaboration with OISCA International Myanmar.

MAS Officers Trained on Organic Farming, Extension Topped Up !

Who Participated in the Training ?

Organic farming pilot project is to cover as many villages as possible focusing more on extension. The best way to pursue the wide range of dissemination lies on the utmost utilization of TS officers who are the frontline service provider. The training therefore invited MAS officers from 12 townships together with relevant district and divisional officers. Table 1. summarizes the participants by their offices and Figure 1. shows their working-year as government officer. There were 34 participants invited from the 12 TSs, 7 from 7 districts and 3 from 3 divisions, totalling 44. Their experience varies from 8 months at shortest to 31 years at longest with the average of 14 years.

Table 1. MAS Participants to the Organic Farming Training

Division	TS	TS Officers	District Officers	Division Officers	Total
Sagaing	Ayadaw	3		1	14
	Myinmu	3	1		
	Monywa	2	1		
	Wetlet	2	1		
Mandalay	Kyaukse	4	1	1	15
	Myitta	5			
	Tada U	1			
	Ngazun	2	1		
Magway	Chaunk	2	1	1	15
	Pwintbyu	3			
	Saline	3			
	Minbu	4	1		
Total		34	7	3	44

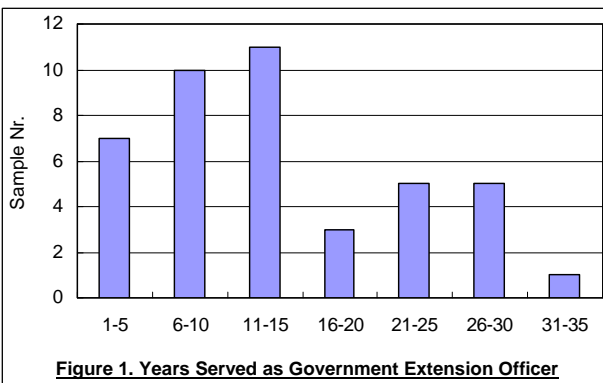


Figure 1. Years Served as Government Extension Officer

Participant's Expectations on Training

U Htin Aung Shein, the counterpart in charge of agriculture sector, opened the training by delivering message of "the training course is rich in practices so let us work together all forgetting our official position". He then briefly explained the objectives of the training, overall schedule, norms, background of the study as well as pilot project, etc.



Photo 1: U Htin Aung Shein announces the objectives and overall schedule of the training, norms, and then briefed about agriculture practices in the Central Dry Zone (CDZ).

Then, before going into the plenary training session, the participants and the project team had an interactive clarification session about their expectations. During the registration, the participants were asked what they expect from this training course. Amongst major expectations are;

- ✓ To gain new technologies on *bokashi* compost manure and paddy improvement, thereby discharging effective extension services,
- ✓ To know of how to make organic manure including *bokashi* compost to be disseminated in CDZ area,
- ✓ To be able to increase crop production,
- ✓ To gain new knowledge of improving organic compost manure,
- ✓ To be able to improve farmer life by introducing low-input agriculture technologies, etc.

The project team and trainers from OISCA replied one by one how to meet their expectations, e.g. a

concerned knowledge to be lectured in such session, etc. Photo 2 shows that the principal trainer, Mr. OKAMURA, the head of OISCA Training Centre, replies which expectation can be met in which session. He, on top of that, maintained that organic farming is well linked up with how we can improve soils to be suitable for crop growing. To do so, continued he, it is indispensable to have help of micro-organisms existing in soils, which is the key-point of this training.



Photo 2: Mr. OKAMURA, the principal of OISCA Training Centre explains how to meet the participants' expectations, e.g. an expectation can be dealt with which session, etc.

■ Training Structure and Contents

The training was composed of 7 modules, amongst which key contents are Organic Manure Making with the help of Indigenous Micro-organism (IMO), Paddy Nursery Preparation including *Dapog* and Early & Sparse Transplanting Technology. Both technologies have long been tried by OISCA, and now rooted in and around there. The training dealt with not only theory but also practice with the latter being emphasized. This is because organic farming very much depends upon local conditions thereby try-and-error attitude becomes essential to implant in the participants.

Photo 3 shows the participants are collecting soils which are rich in IMO, and in Photo 4 the participants are mixing the collected soils with rice bran (soil : bran=1:0.5 ratio) to get the IMOs ready for multiplication. After a couple of days, we can see white patches on the mixed soil, which are the multiplied indigenous micro-organisms. The indigenous micro-organisms are the aerobic medium facilitating the decomposition process of organic matters, thereby good organic manure can be made easily.



Photo 3 (left) shows participants collecting soils rich in IMO, and Photo 4 (right) shows them mixing the soils with rice bran,

Following 2 photos demonstrate what *Dapog* technology is. It is an improved nursery for paddy. The process of *Dapog* making is to; 1) put paper or plastic sheet on nursery field, 2) place soils thereon with about 1 cm thickness, 3) put charcoaled rice husk thereon, 4) drop paddy seeds on that, and 5) cover the seeds with charcoaled rice husk. The charcoaled rice husk works well in keeping water and nutrients dissolved, and also keeps nursery worm thereby early preparation, even in early March, can be made possible. Key advantage may be the lightness of the nursery. You can see Photo right where two participants are carrying *Dapog* nursery, making easy the hard work associated with transplanting. Another advantage with this *Dapog* technology is that roots cannot be damaged when being uprooted for transplanting. Keeping nursery roots very much healthy definitely contributes to enhancing the subsequent plant growth. This implies that early transplanting to the main field can be tried as well, which could lead to better yield under well-controlled water environment.



Photo left shows the *Dapog* nursery, and photo right illustrates *Dapog* nursery rolled up is now carried by 2 men to main paddy field. *Dapog* nursery is very light and also can prevent roots from being cut during uprooting.

For more, please wait for the next Newsletter !

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This Newsletter is the 2nd instalment for Organic Farming Training carried out in mid July 2008. It was a five-day live-in and -out training, and on the last day the participants prepared their own action plans. Action plan, as known by all, specifies all the activities together with numerical targets they are going to undertake based upon what they have learned. This newsletter talks about the action plan, and also achievements of the training objectives, recommendations to improve such training in future, etc.

Target Set, now Ready for On-site Extension of Organic Farming !

■ Action Plans formulated by TS

Action plan is an elaborated guide which calls for the implementers, here MAS TS/district officers, to undertake development activities in order to achieve agreed goal. Upon having been explained what the action plan was, the participants started preparing their action plans by TS (see Photo 1). Then, they took a turn to present the plan to their colleague participants (see Photo 2). Interactive clarification was made between the TS officers in the presentation and the colleague participants, and comparable checking in targets was also made.



In Photo 1 (left), the participants were grouped by TS and now preparing their action plan, and in Photo 2 (right) a TS representative is presenting the plan to her colleague participants.

■ Target Set by the Participants

The training was carried out in 2 batches, dividing all the targeted 12 TSs into 2 groups, due to the capacity of the training centre. Table 1 summarizes the numerical targets in terms of village to cover; the upper part for the first batch and the lower part for the second batch, with the lowest part being the sum. The activities to be extended for both groups are; 1) IMO bokashi making, 2) IMO seed extraction, 3) rice husk charcoal making, 4) rice husk vinegar making, 5) paddy seedling by Dapog method, 6) early and

sparse transplanting for paddy, and 7) training of trainers. In addition, the second batch group topped up some activities such as; 8) establishment of organic farm, 9) foliar fertilizer making by local product and 10) selection of quality seed.

As you can see, the target varies by activity e.g. in Monywa TS IMO bokashi making is to be extended in 10 villages out of which 6 villages will have demonstration while rice husk charcoal making to be extended in 20 villages out of which 10 villages will have its demonstration, and so on. If we pick up the biggest number of target villages throughout townships, we can see there are **291 villages** to be covered by at least one extension activity, and out of them **124 villages** will be having at least one demonstration. These are the targets in terms of villages to be extended and to be demonstrated an activity for organic agriculture promotion.

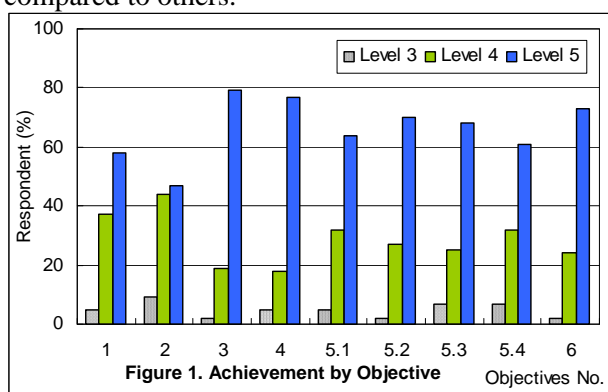
■ Achievement on Training Objectives

At the end of the training, the participants were asked how much they think they have achieved the training objectives in a scale of 1-5. Here reviewed are the training objectives; namely, the participants by the end of the training should be able to:

- 1) Discuss the MAS's objectives, bases and development direction to improve the CDZ agriculture,
- 2) Discuss constraints and opportunities on agriculture development in the CDZ,
- 3) Acquire necessary skills and knowledge of promoting the technologies taught during the training,
- 4) Understand the TS MAS officer's roles and responsibilities in disseminating the technologies learned during the training,
- 5) Familiarize with the Pilot Projects now being carried out under the Study in the following areas of;
 - 5.1) Organizing of farmer beneficiaries for demonstration of new technologies learned,
 - 5.2) Training of farmer beneficiaries to acquire necessary knowledge through the demonstration and in cases lecture-style-teaching,

- 5.3) Facilitating of farmer beneficiaries to put the knowledge on the practice on their own,
- 5.4) Monitoring of the activities of farmer beneficiaries and reporting to the Project Office, and when needs arise give necessary advices, and
- 6) Discuss way-forward for agriculture development focusing on organic farming.

Figure 1 summarizes the achievements relevant to the above objectives. We can see no achievements lower than level-3, and objectives given higher achievements are No. 3, No.4 and No.6 while it may be said that objective No.2, 'discuss constraints and opportunities on agriculture development in CDZ' was achieved a little lower as compared to others.



■ Comments to Further Improve

As a part of training evaluation, comments to further improve such training were asked. Following are the comments, and should be taken into account in next opportunities;

- ✓ While most of the participants replied the training was more than what they expected due mainly to a lot of practices, some participants pointed out that there were difficulties of translating Japanese to Myanmar language.
- ✓ The training period should be more than a week. Also, handouts should have been provided beforehand since some of them were provided after the lecture (*this was in fact meant to let the participants to concentrate the trainer's lecture rather than looking at the handouts*).
- ✓ Though organic agriculture may depend very much upon try-and-error practice, technologies presented during the training should have been based on experimental data as far as possible, and etc.

As coming to the end of the training, we heard a lot of positive comments, of which what impressed us very much were; 1) Organic farming could open a better future for the coming generation farmers, 2) Now confident able to disseminate organic farming not only from theory point but also from practical point of views, 3) Now able to respond the farmers of how to solve the problems they are facing, 4) Could establish better improvement by interacting amongst participants having come from different places, and so on so forth.

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Table 1 Targets (Villages) set by TS and by Activity in Extension and Demonstration

First Batch														
TS	Monywa TS		Myinmu TS		Ayadaw TS		Wetlet TS		Kyaukse TS		Myitta		Total	
Demonstration & Extension	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n
1) IMO Bokashi Making	6	10	4	20	5	20	6	20	2	20	7	45	30	135
2) IMO Seed Extraction	6	10	7	20	20	20	8	15	10	20	10	50	61	135
3) Rice Husk Charcoal Making	10	20	7	20	10	20	12	20	5	10	15	50	59	140
4) Rice Husk Vinegar Making	0	10	1	3	3	10	1	20	2	10	3	20	10	73
5) Seedling by Dapog Method	2	10	1	8	5	10	5	15	5	10	10	30	28	83
6) Early and Sparse Transplanting	2	10	1	8	5	10	6	20	2	10	10	30	26	88
7) Training of Trainers	15		5		3		9		6		27		65	
Accumulated Village Number	26	70	21	79	48	90	38	110	26	80	55	225	214	654
Number of Villages by TS (Extension)	20		20		20		20		20		50		150	
Number of Villages by TS (+ demo)	10		7		20		12		10		15		74	
Second Batch														
TS	Chauk TS		Nagzun TS		Tada-U TS		Minbu TS		Salin TS		Pwintbyu TS		Total	
Demonstration & Extension	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n	Demo	Ext'n
1) IMO Bokashi Making	4	15	3	25	4	18	5	21	3	25	3	25	22	129
2) IMO Seed Extraction	5	15	10	25	12	18	12	21	6	25	5	25	50	129
3) Rice Husk Charcoal Making	2	7	10	25	5	25	9	21	3	25	5	20	34	123
4) Rice Husk Vinegar Making	2	7	3	20	5	25	2	17	2	25	2	20	16	114
5) Seedling by Dapog Method	2	5	3	25	10	30	3	21	2	25	3	25	23	131
6) Early and Sparse Transplanting	2	5	2	25	4	30	3	21	2	25	3	25	16	131
7) Training of Trainers	15		9		3		13		24		22		86	
8) Establishment of Organic Farm	2	15	2	25	2	30	3	21	3	25	3	25	15	141
9) Foliar Fert. Making by Local Prd.	2	4	2	25	4	30	2	5	3	6	0	0	13	70
10) Selection of Quality Seed	3	5	2	25	2	25	5	21	3	25	5	25	20	126
Accumulated Village Number	24	78	37	220	48	231	44	169	27	206	29	190	209	1094
Number of Villages by TS (Extension)	15		25		30		21		25		25		141	
Number of Villages by TS (+ demo)	5		10		12		12		6		5		50	
Number of Villages by TS (Extension)	35		45		50		41		45		75		291	
Number of Villages by TS (+ demo)	15		17		32		24		16		20		124	



The Study Area, CDZ, is well known for goat and sheep producing area in Myanmar, accounting for as much as 80% of goat & sheep population in the Country. The goat & sheep are mainly reared by small-scale farmers and also landless people who are generally classified into poorer strata, whereas cattle mainly by middle to large scale farm households. Landless people, however, do not always own goat or sheep to cope up with their living expenses. The rate of the owner is estimated at about only 15% at most.

Goat is characterised to be tolerant to dry climate of CDZ, and considered to be a suitable livestock for the landless people because they can be fed on grazing ground throughout year. Moreover, twin rate can be expected at about one-third of deliveries on the average, which therefore can bring quick benefit of improving living standard to the goat raisers. This is why we have introduced goat-revolving project as one of our pilot projects:

Goat Raising, One of Promising Projects for The Landless !

■ Goat Adjustable to Dryer Climate

Goats & sheep are more found in the areas so called “Heart of Dry Zone in the CDZ”, which are dryer areas in the CDZ as indicated in the Figure 1”. The figure shows the distribution of rainfall by bar chart and number of goat & sheep by solid-line across TSs falling in the CDZ. In fact, one can see inverse correlation between annual rainfall and the number of goat & sheep; namely, high rainfall township areas rearing fewer goats & sheep while less rainfall township areas raising more of them.

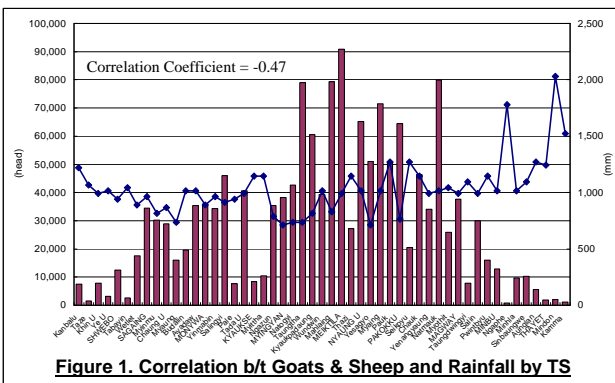


Figure 1. Correlation b/t Goats & Sheep and Rainfall by TS

In dry areas where upland prevails, farmers are apt to keep goats & sheep, given the fact that crop production is unstable due mainly to fluctuated and small amount of rainfall. Here goats and sheep can compensate the meager and unstable income from the agriculture. Likewise, landless people, to large extent, try to rear goats because they know the animal can eat almost anything in the botanical world. Their plant diet is, in fact, extremely varied and easy to let them graze on natural lands.

As a unique practice in the CDZ, there is a contract breeding for goats & sheep, which is operated under the condition that the contractor

(herd boy or girl) can receive 50% of kids born in his/her herd entrusted by the owner. In fact, there exist the landless people who became owner of a herd of goats by increasing kids delivered under the contract. Though in rare instances, some landless people also succeeded to have become goat owners by sparing expense on rice by changing from standard rice to broken rice and from sesame oil to palm oil, latters being much cheaper.

■ Pilot Goat Revolving Project

In 2007, the Project Team started a goat revolving pilot project targeting poorer social stratum in 4 villages. The project aims at generating additional income for the beneficiaries by selling offspring sometime after they have grown up. On top of that, in order to expand the benefit from the original beneficiaries to other villagers, this pilot project is operated on a revolving system. The beneficiaries who were delivered 5 female goats are required to hand over same 5 female kids born from the original stocks to the 2nd generation beneficiaries; that is the revolving system being tried in this pilot project (see Figure 2). To make this system operational, a supervising committee at the village level is formed engaging LBDV TS officer, the beneficiary leader, village PDC chairman, and some members as

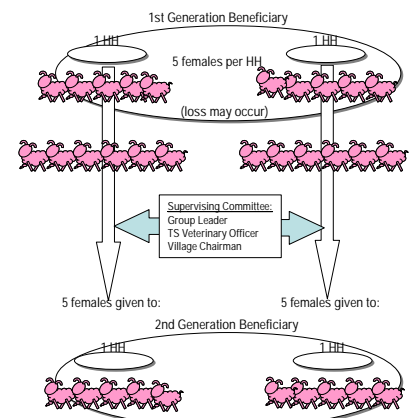


Figure 2. Revolving System Applied

required.

In line with this pilot project, the Project Team has constructed improved goat house as a model in the 4 villages. Goat is an animal originally living on hilly or mountainous areas, and therefore have the characteristic of pleasing high places. Their living environment becomes comfortable, if preparing slightly higher part above the ground level inside goat barn. A raised-floor with bamboo slats of the model housing was designed, also to facilitate falling down of dung on the ground automatically. This structure can keep goat body clean and healthy. Therefore, it is expected that reproduction rate becomes higher compared to conventional barn. As goat dung can be sold at higher price of 200 Kyats/basket than 80 Kyats/basket of cattle dung for betel growers and vegetable farmers due to its higher content of nitrogen and phosphate, beneficiaries can get additional income regularly. In this way, we may see an interlinking between agriculture and livestock sectors or relationship between non-farmer and farm households.

■ Unique Practice done by Beneficiaries

Construction of improved goat house has produced by-products such as collective construction of goat house and collective management of goats by group. This idea originally had taken place to save money for the establishment of goat house among beneficiaries in Ma Gyi Sauk village in Ayadaw TS in Sagaing Division. Since JICA members could not supervise goat house construction in the last financial year 2007/08, completed model barns were somewhat considerably sumptuous for local goats, and looked too expensive for the poor beneficiaries.



Photo 1; Five beneficiaries formed a group, and put up this collective improved goat house where all the goats are brought together to collectively rear.

Faced with this situation, the beneficiaries consisting of 5 members got together and constructed a group-use barn collectively (see Photo 1). Then, the 5 members established even collective management system, and have attained good reproduction of kids to date.

Likewise, beneficiaries in 3 pilot villages constructed their own goat barn pursuant to the model house but using locally available materials as much as possible at a cost of one-tenth or even less than that. One of the examples is shown in the Photo 2.



Photo 2; An improved goat barn made with locally available materials

■ Progress & Expansion this Year

Best status among the 4 villages can be seen in Ma Gyi Sauk village where a total of 125 female goats were provided to 25 beneficiaries grouped into 5 consisting of 5 members each. The original stock has delivered 41 female and 49 male offspring till end of July 2008. Though number of offspring very much varies by group, it is dependent on when the original stock were delivered, some were in February 2008, not enough conception period yet.

Table 1 Status in Ma Gyi Sauk village

Group No.	Original Stock				Kids				Current No.	
	Provision		Died		Born		Died			
	F	M	F	M	F	M	F	M	F	M
1	25	2	0	1	23	20	0	0	48	21
2	25	0	0	0	9	16	0	0	34	16
3	25	0	0	0	6	13	0	0	31	13
4	25	0	5	0	0	0	0	0	20	0
5	25	0	0	0	3	1	0	0	28	1
Total	125	2	5	1	41	49	0	0	161	51

The above status is about to reach the early stage of the revolving that distributes the nanny goats to the 2nd generation beneficiaries. The selection of the 2nd generation beneficiary is now being done in the Ma Gyi Sauk village. Also, they can sell male offspring. As of June 2008, current market price of goat is 40,000 Kyats/head, increased from 30,000 Kyats in 2007. Here, it could be said that goat raising pilot project has made the foundation to generate sustainable income source for the beneficiaries !

Pig Raising Project, one of the pilot projects initiated in last financial year 2007/08, targeted mostly the landless people living in villages in paddy areas. This is because raising of goats, another potential income generating activity for those people, is hardly practiced due to scarce pasture lands in the areas dominated by paddy. As income disparity tends to widen between paddy farmers and the landless in villages holding large paddy areas, generation of income sources for the latter group of the people has acutely been desired, leading to the idea of introducing pig raising project.



This Newsletter tells you about a pig-raising beneficiary in Legaing village as a part of the activities of the Pilot Projects in the last 2007/08 financial year. What kind of life pig-raising beneficiaries are leading to and how their everyday life improved will be shared to you. And about their future plan will also be brought into light as we have cordially met with them at their homes.

How Life Can Be Improved by Pig Raising !

■ Turn Over a New Leaf

The Project Team, after making a systematic survey, selected Legaing village to be under the Pilot Project. Among the activities having been undertaken by the Project to Legaing village, there included pig-raising activity. Piggery has been active in Legaing village owing to the availability of rice bran, broken rice and easy access to market. Commercial based pig fattening is also practiced by a few large scale farm households.

30 piglets for fattening, 2 piglets per HH, were delivered to 15 beneficiary HHs. So far, 5 piglets died of illness (probably cold in the winter season). In accord with the aim of poverty reduction in CDZ, the Project in fact targets the poor, landless people and the poorest of the poor. In this way, U Mya Mg, one of the poor and landless people, was selected for pig-raising and became a beneficiary of the Pilot Project.

■ His Life in the Past

The beneficiary of pig-raising pilot project, named U Mya Mg, had to earn his living by grinding peas into batter (to be used for making snack or Myanmar traditional frier or cake) for others. He could earn only 400 - 500 Kyats per day, which is even about half what a farm casual labour can earn. He is a widower. He has one son and four daughters, though, only two daughters lived together with him as the son and two daughters got married and lived separately. His two daughters, who live together with him, are farm-labourers, jointly supporting the family household.

Transition Period of Life Begins

There were altogether 15 beneficiaries for pig-raising in the Legaing village. He, U Mya Mg, was provided with two piglets, 1 male and 1 female in November 2007. He was too poor to construct a pig-raising at his own cost. He kept his piglets under his daughter's house (the house was built on stilts) at night and let them out at daytime for about one and a half months (that daughter lives separately). He fed the piglets with kitchen-waste (usually surplus water which is drained off while rice is being cooked) mixed with rice bran and broken rice. At that time, the price of rice bran was 2,000 Kyats per basket and he had to spend about



Photo 1: U Mya Mg and his one of the piglets.

300 Kyats per day for feeding his piglets. Fortunately, his son supported him to buy a small piece of land on which a pig-housing was to be built. The son bought a small piece of land for 60,000 Kyats from his nextdoor neighbour and constructed a pig-housing which cost 25,000 Kyats.

■ Project Operation

The project is operated on a revolving system. The system is similar to what has been tried in goat

raising project, another pilot project, reported in Newsletter No.12. However, the mechanism of passing the benefit to the succeeding beneficiaries is a bit different from that of goat raising pilot project. Figure 1. below shows the mechanism of the revolving in that; 1) a beneficiary is given 2 piglets preferably male and female, 2) the beneficiary rears the 2 piglets until they get fattened for sale, around 6 – 10 months period, 3) out of the sale of the now fattened pigs, the beneficiary buys 2 piglets and passes over them to a 2nd generation beneficiary under close supervision of the revolving committee, and this process is to continue. In some cases, there happens that grown-up piglet delivers babies as the case reported in this Newsletter. In this case, s/he can just pass over 2 of his/her newly born piglets to the 2nd generation beneficiary.

died five days later unfortunately. So there left two big pigs and four piglets, being six in number.



Photo 1; U Mya Mg and his pigs. He was provided 2 piglets in November 2007, and now rearing the 2 grown-up pigs and 4 piglets very attentively, latter of whom were delivered by the big pigs.

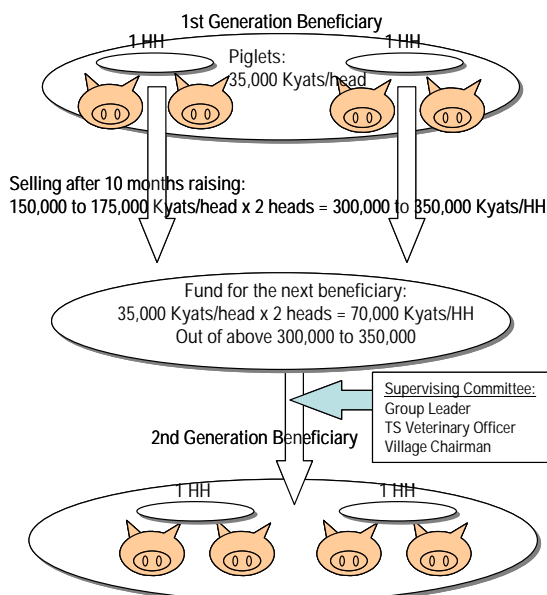


Figure 1. Revolving System of Pig Raising

Fruits of Labour

Now he is 58 years old and his two daughters are 22 and 13 years of age. He reared the two piglets provided by the Project very attentively. He always watched his piglets' movement and changes. When he saw his piglets were suffering from constipation (not emptying the bowel) and they had poor urination, he always put about 0.025 viss of ngapi (fish-paste) and a little amount of salt in their food and fed them. He used the mixture obtained from ginger and tobacco leaf pounded together as eye-drop for his pigs. He could enjoy the fruits of his labour on 8th August 2008. On that day, from his pigs provided in November 2007, 5 piglets were born, 1 male and 4 female. One female piglet

Benefit and Future of the Pig-raising

He will have to give 70,000 Kyats (the price of two piglets) to the next-generation beneficiary according to the fixed period. He raised two pigs from November 2007 to August 2008 and the feeding cost for them was about 60,000 - 80,000 Kyats. If he sells his 4 piglets when they are about two months old, he will earn 35,000 x 4 = 140,000 Kyats (but 70,000 Kyats must be subtracted from that for the next-generation beneficiary). Not only that, he has already owned two big pigs which are about 300,000 - 350,000 Kyats worth.

To be specific, now he owns two big pigs and two piglets (370,000 - 420,000 Kyats) and the cost for raising them was 60,000 - 80,000 Kyats. So, his potential net profit is 310,000-340,000 Kyats. In other words, after becoming a beneficiary of the Pilot Project, his daily income increased to about 1,000 Kyats per day (divided by the total days of pig raising till then). His family improved. He has made up his mind to continue pig-raising on a self-help basis.

Owing to revolving system, more and more pig-raising beneficiaries will appear in the village year after year and in the long run the lives of the poor, landless people and the poorest of the poor will be uplifted gradually, no doubt. In the years to come, pig-raising will become wider and wider and we hope it would cover considerable extent of the poor in the Legaing village.

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For livelihood improvement sector, altogether 4 pilot projects have been carried out in the 2007-08 financial year in 3 villages. Among them, electrification by diesel generator was one of the components for Mingan Village, Chauk Township, Magway Division. Now, in this newsletter, how villagers took part in the activity, their feelings, what difficulties they have encountered, how they tried to overcome and lessons out of solving the problems are reported with an aim at sharing information among us.



As If We Were Taken Into A Magic World !!!

■ What improvement be brought about?

Mingan village is situated about one and a half miles away from Gway Cho motor-road junction of Yenanchaung and Chauk. In accord with the natural resource, almost all villagers are engaged in sandstone wares production such as circular grinding slab for Thanakha (Myanmar traditional skin beautifier), mortar and pestle, honing stone (to sharpen tools), grinding slab with a wooden handle, and so on. Their sandstone products are well-known within and outside the region. When there is a good demand for their products they have to work overtime till late in the evening. Taking account of it, the Project, both for boosting sandstone production and for livelihood improvement, assisted the electrification of the whole village by providing a diesel generator, wires, etc. to Mingan village in December 2007.

■ Step by step activities

Electrification Committee was formed with 12 members - village PDC leader and 11, 10-household leaders. Discussions were held to be able to decide how much should be for electricity charge per day, how many hours electrification should be, who should be exempted for electricity charge, etc. in conjunction with the calculation of diesel consumption and the price of diesel. According to the final decision made by the Electrification Committee, 50 Kyats was charged per evening for one fluorescent tube (2ft). Seven poorest households in the village were exempted for electricity charge. Power-supply duration was 3 hours - mostly 6:00pm to 9:00pm or 6:30pm to 9:30pm. Lamp-posts were erected. Village Pagoda and lamp-posts were lit with electricity.

■ Villagers' feeling on the first experience

According to our interviews with villagers once carried out in February 2008 soon after the commencement of the diesel generation, the villagers were very happy and pleased with having electricity. One of the old women expressed her feeling saying "I can't believe my eyes because the light is so bright. My heart is too full to express my thanks". Wherever we looked, we saw lively scenes: some young women chatting; some students studying their lessons; some sandstone workers finishing their products; some villagers going here and there on the village roads with the help of lamp-posts; some doing their household chores; and young children playing joyfully on the ground. It was quite heartening to see the whole village alive with electricity.

■ Difficulties villagers had to encounter

The man who operated the generator was not skilful in handling the generator and so there occurred fluctuation of voltage and some fluorescent tubes got burnt. The electrification committee had to buy new tubes to replace the burnt ones without taking any charges from the users. Two months later, electricity charge was raised from 50 Kyats to 60 Kyats as the generator used more diesel. The committee learnt that there were some who were using electricity for charging invertors and batteries without the committee's knowledge. As a result, there arose a conflict between the committee and those mischievous persons. However, the committee managed to proceed electrification, pushing them (about 10 households) not to use electricity any more.

There was another problem in connection with collecting electricity charge. From the beginning, electricity charges were collected by 10-household leaders. One of the 10-household leaders failed to

pay the money he has collected to the committee as he spent it for his own purpose. To add to their trouble, the price of diesel went up from 4,000 to 5,000 Kyats per gallon and therefore the charge also had to be raised from 60 Kyats to 70 Kyats. To date, owing to such financial difficulties, electrification had to stop intermittently, for about five times in total.

■ Lessons out of solving the problems

The committee hired another person both for operating the generator and collecting the charges. He had to collect the money every Friday and hand over the money to the committee on week-end. If there were some households who still remained to pay the charge, he had to inform the committee and the committee sent a village-crier to collect the money. The new generator-operator is, at present, paid 6,000 Kyats per month and he would be paid extra money according to the monthly profit, it was roughly agreed. The decision, though, is not yet the final one by the committee as this system was only practised beginning from August 23, 2008.

■ Benefits at Household Level

Villagers, without electrification, depended on candles and some on battery light. In fact, these lights are not so cheap, e.g. if a household uses candles they will have to spend 100-200 Kyats per night because the price of a candle is 50 Kyats and at least two candles are needed for one night. If a typical household uses 3 candles/night throughout year, they have to spend a total of 54,750 Kyats per year, equivalent to about 2-month farm casual labor's wage !.

Here, we would like to mention about a villager, named U Pyuu (62 years), as a part of our interviews. There are altogether 6 members in his family. He used 4 candles per night. The cost was 50 Kyats x 4 candles = 200 Kyats per night. Now, the cost is only 70 Kyats per night, less than half what he used to spend on candle. Of course, he may need to use half - one candle per night for addition. In this case his expense becomes 70 + 50 = 120 Kyats at most, still much lower than that of 4 candles, 200 Kyats.

Not only that, his granddaughter's educational position in her class improved from standing twelfth to standing third because she studied a lot under very bright fluorescent light. Same example can be seen in another household; Ma Than Than Moe living near the generator, who is 15 years old

in 10th standard, raised her English mark from 30/50 to 40/50 recently. Her 2 sisters are also very much happy, who are college students under distant education, because they now feel no difficulty of preparing their



Photo 1: Happy Ma Than Than Moe and her 2 sisters, enjoying study as well as chatting.

reports under the bright fluorescent tube.

Sandstone workers are of course another beneficiaries. In fact, the committee allows sandstone workers to borrow fluorescent tubes from the committee and use electricity free of charge if they have to work overtime at night.

In short, we can say that electrification really helps the students to study their lessons comfortably, the sandstone workers to produce their products more, and the villagers' everyday life to improve to a great extent.

■ Income and Expense for the Committee

At present, 89 HHs use electricity and 82 HHs pay the charge (7 poor HHs are exempted from the payment). Therefore the expected total income per month for the committee is 172,200 Kyats (70 x 82 x 30 days). There are 6 households who use electricity for their TVs and VCDs, and income per month from them can reach about 18,000 – 19,000 Kyats at maximum (charge per TV is 100 Kyats/day, and TV+VVD is 130 Kyats per day, and some watch TVs or VCDs daily and some do not). Now shown below are the actual income and expense from August 23 to September 23, 2008.

Income;	177,730 Kyats (+)
Cost for diesel;	127,750 Kyats (-)
Repair for Dynamo;	6,700 Kyats (-)
Operator;	6,000 Kyats (-)
Net Profit;	37,280 Kyats for a month

The net profit above may not be enough when we think of depreciation. However, not to the least we say the diesel generator has definitely brought development opportunities for the villagers, and we hope the villagers will, on a self-help basis, go on electrification with better and better management.

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Mingan village, once reported in Newsletter No. 16 on diesel power generation, had another pilot project; that is the construction of primary school. Back in September 2008, villagers requested the Project to facilitate the erection of a primary school near their village. Discussions were made between the villagers and the Project, and finally the Project decided to support the construction as one of the pilot projects in FY 2007/08. In fact, budget from the Project was not enough to complete the school building. We had to ask the villagers to contribute as much as they can. This has therefore become a joint project in that the Project supported the basic parts of the building; now reported:



Primary School Construction as a Process of Capacity Development !

■ Remote Situation of a School

An age-old building used as a school was situated in the monastery compound and, in fact, it was one of the buildings in the monastery. The school was so far from the village that pupils had to bring their lunch-boxes to school. On the way to and from the school, the pupils had to pass-by a big pond and take a foot-path on one side of which there were big stones on the hill. In fact, in rainy season some stones rolled down and sometimes blocked the foot-path. Parents were worried about their children for one way or another whenever they went to school. For very young pupils, their parents had to accompany with them to and from school. For these reasons, villagers had a burning desire to have a school not far from the village.

■ School Committee's Leadership

As aforementioned, this was a joint project with the villagers, asking their maximum contribution in its construction. To materialize their contribution, a School Committee was formed with 7 members. Under the leadership of it, villagers actively contributed their voluntary services in digging the ground for laying foundation stones, digging holes for toilets, digging for a brick water-tank foundation and so on. They also contributed locally available materials such as stones, sand, water and gravel for school foundation.

In fact, Mingan village is engaged in sandstone ware production as the village major industry, and therefore sandstones are much available here and there. Arrangement was made to collect 45 stones and 15 slabs from each household. There are 126 households in the village, of which about 100

households contributed the stones and slabs as poorest households were exempted for that.

■ Well-wishers for the School Construction

To cover the shortfall of the budget, a well-wisher's contribution played a big role. A well-wisher named Ko Khin Mg Oo, who was born in Mingan village but brought up in Mandalay and now living in Mandalay, donated 150,000 Kyats in cash and 120 bags of cement in kind totalling 810,000 Kyats worth when the school construction work commenced in January 2008. Again on September 13, 2008, after he had raised fund for school construction from his friends, he donated 8 lakh (800,000 Kyats) to the school committee (in that donation, he himself donated 190,000 Kyats so that his total donation would be 10 lakh when added to his first donation 810,000 Kyats). In other words, the village received a total donation of 1,610,000 Kyats (about US\$ 1,300) from well-wishers.

■ Unexpected problems arose

Sawn timber planks, to be used as poles or pillars, arrived at the village. When the school committee members saw the timber planks, they became angry and refused to accept them because some planks had cracks and they were of low quality. The Project in fact made efforts in procuring good planks, but this happened during the period when carrying of sawn timber planks from one place to another was being prohibited by the authorities concerned and so it was difficult even to get sawn timber planks at that time.

There was a dispute among the committee members in connection with whether to accept the planks or not. "At last, two including me were left

in the committee while all the others, 5 members, had gone. I was in fact about to give up too, but as the village chairman I did not want to miss an opportunity to construct a village school. I accepted the planks.”, said the chairman. From that day onwards, the village chairman has been wrestling with the problems in getting things done.

■ Effort made and School Opened

A new school committee was formed with 9 members under the same chairmanship. During an interview, the village chairman explained in detail about the estimated cost for fixing wooden frames and putting up sandstone walls for the whole building. According to him, 12" x 5" x 4" sandstones will be used and the estimated cost for walls (including carpentry charges, cement and the price of sandstone) will be 2,600,000 Kyats.

The school committee did not have enough fund to get the school building completely finished. And most of the villagers are from hand to mouth sandstone workers. So, the village chairman asked the villagers to contribute two toddy-palm leaves and two toddy-palm twines each, to be used as walls temporarily. In fact, he thought at first to use bamboos as the temporarily wall. However, he learned he would have to spend about 150,000 - 200,000 Kyats for that, and instead, he decided to save that money by using local materials.

The unfinished, but with temporarily walls, new school was opened on July 1, 2008. The new school building is 60' x 30' and it has a spacious playground in front. The building is roofed with galvanized iron sheets and there are gutters. There is a brick water tank in which rain water from gutters is to be stored for the pupils to drink. The total number of pupils from kindergarten to fourth standard is 58. There are one headmistress, two assistant teachers and one general worker.

■ How to get out of a Maze

Aside from schooling for the children, construction work of the walls, the unfinished part, has to continue. The chairman said that the school committee went to nearby villages and raised fund to complete the unfinished part. The committee members also went to Kyaukpadaung town and raised fund. They had to spend the fund to settle for carpentry charges, which were spent on fixing the wooden frames for walls, doors and windows. Necessary sawn timber planks for making wooden frames were bought from Sharr Pin village saw

mill on credit for about 5 lakh. Fortunately, when a well-wisher from Mandalay, Ko Khin Mg Oo donated 8 lakh (800,000 Kyats) in cash for the second time, the committee could settle the debt for timber planks.

The committee will go on raising fund and the walls will be fixed one cell after another. Village chairman, Ko Thet Cho Win, mobilized the villagers on the evening of September 24, 2008, explained the situation to the villagers and organized them to contribute, as an instalment, 25 stones or 3,750 Kyats each (the price of a stone is 150 Kyats) to be able to start wall-making. As a matter of fact, the committee members know that they will have to try harder than ever before.

■ A Donor's Thought

Since the budget from the Project was limited, the villagers have had to struggle a lot in contributing their labours, locally available materials, fund-raising, etc. There were disputes amongst the committee members, and maybe between the villagers and committee members as well. The village chairman has been putting his utmost efforts but sometimes looked really stuck.

Yet, they have come to almost completion of the school construction. The building may not look as good as others in physical appearance. However, we shall say that they have really tried, through which they have strengthened themselves. One may say it was a process of empowerment for them by themselves. There were difficulties, over which they have empowered themselves to overcome.

By the way, parents are very happy because now even their 3-4 year-old children can go to school together with their elder brothers or sisters as pre-kindergarten pupils. They feel confident for their children to complete their primary-level education because there were some people in the village who did not complete their primary-level education. They feel quite sure that their children have brighter future.



Pupils are happily studying, behind which wall construction continues.

It was back in July 7 – 11, 2008, when the first training course on livestock improvement was carried out. During the training, the participants from 6 target TSs, 6 districts, and 3 divisions concerned established action plans, based upon which the TS officers have been carrying out extension activities accompanied with demonstrations in cases. Now this newsletter No. 23 talks about the follow up training held on October 16 – 18, which also worked as a refresher course for the participants. In this follow up training course, the participants were expected to share and exchange what they have experienced on the ground due on the course of the extension, and also expected to interact and learn each other:

LBVD Officers Again Gathered and Presented their Accomplishment!

■ Participants and Objectives

Total 33 officers participated in the follow up training, composed of 24 TS officers, 6 district officers and 3 divisional officers. Though they were supposed to same as those who participated in the first training, 6 out of the 33 were fresh replacing the former officers who had retired or been transferred to other TSs. Those 33 officers were expected to achieve the following by the end of the training, which themselves are the objectives of the training:

- 1) Sum up experiences of the participants on the improvement of livestock in the CDZ,
- 2) Share the skill and attitude to solve the problems encountered during the extension,
- 3) Gain collective insights on what needs to be further improved for livestock development,
- 4) Review, and modify if needed, the action plans prepared during the 1st training,
- 5) Prepare extension materials which fit in the context of the beneficiaries of the CDZ, and
- 6) Discuss way-forward for livestock development in the CDZ.

■ Pre-training Questionnaire

Prior to the commencement of training proper, a pre-training questionnaire was administered asking the participants difficulties they have faced, experiences that they can be proud of, etc: Difficulties they have faced are:

- ✓ Low awareness of villagers to vaccination and UMMB (urea molasses and mineral block),
- ✓ Difficulty in organizing villagers,
- ✓ Low knowledge of villagers for animal husbandry.

They have solved or are still trying to solve above difficulties by corroborating with village PDC, delivering supplementary explanations e.g. about

the effectiveness of vaccination, etc. On the other hand, the experiences they can be proud of are:

- ✓ Demonstration of UMMB making for villagers well done,
- ✓ Procurement of goat together with the villagers concerned, assuring them good quality and healthy goat,
- ✓ Construction of model housing with raised floor for goat, which can attract both the goat and the beneficiaries,
- ✓ Vaccination well done given consensus from the villagers concerned, and
- ✓ Door to door extension works being done.

■ Achievements So Far Done

They have been carrying out extension activities as specified in the Action Plan they prepared during the 1st training course. Table 1 below summarizes the achievements so far done by activities with target village numbers, both by extension and demonstration, and those village numbers actually covered by the time of the 2nd training course. It can be said that livestock housing, sanitation and general training have been implemented with high achievement in extension work, and livestock housing, disease control, pasture development and sanitation in demonstration.

Table 1. Achievements by Activities as at End of September 2008

Activity	Target (Nr. of Villages)		Accomplishment (Nr. of Villages)		Achievement (%)	
	Ext.	Demo.	Ext.	Demo.	Ext.	Demo.
1 UMMB making	127	16	33	9	26	56
2 Livestock housing	38	15	29	16	76	107
3 Urea treated straw	110	18	18	3	16	17
4 Castration	0	125	0	15	0	12
5 Disease control	141	80	69	61	49	76
6 Pasture development	123	15	57	13	46	87
7 Sanitation	75	26	56	16	80	62
8 General training	165	0	102	0	62	-
9 Silage/silo	75	16	0	0	0	0

On the other hand, low achievement can be found in such activities as urea treated straw, castration, silage/ silo. According to the participants, few people show interest in urea treated straw and

silage/ silo. Burdizzo, castration tool, was delivered recently, resulting in low rate of achievement.

Table 2 shows numbers of villages and villagers who have actually practiced what was extended or demonstrated. As to accumulated numbers, so far extension was carried out in 364 villages, out of which demonstration done in 133 villages. Through these extension and demonstration works, 186 villages and 1,795 villagers both in accumulated number have done at least one of the activities extended or demonstrated. The biggest number shows up in disease control, followed by general training. Activities carried out under disease control are vaccination, prescription of traditional medicines, etc. while those under general training are all related to improved animal husbandry.

Table 2. Actual Practices by Activity against Achievement

Activity	Achievement to Date, villages		Of which how many actually tried	
	Ext.	Demo.	No. of Villages	No. of Villagers
1 UMMB making	33	9	13	55
2 Livestock housing	29	16	17	166
3 Urea treated straw	18	3	3	NA
4 Castration	0	15	3	4
5 Disease control	69	61	82	865
6 Pasture development	57	13	8	50
7 Sanitation	56	16	26	199
8 General training	102	-	34	456
9 Silage /silo	0	0	0	0
Total	364	133	186	1,795

Aside from the numerical achievements mentioned above, following points were raised by the participants as major outputs:

- ✓ TS officers in all the cases accompanied with the beneficiaries when they procured goats. The officers carefully checked the goat condition, whereby selected best ones. They also selected already conceived ones where available. Officers now feel relationship with the beneficiaries has really improved.
- ✓ There are non-beneficiary livestock villagers who copied raised floor goat house. By looking at these events, the extension officers have become more confident in their extension works, mentioned they.
- ✓ The officers who accompanied with the beneficiaries when procuring goats got involved in price negotiation with traders who sell goat. Some of them succeeded in the bargaining, whereby additional goats were procured, e.g. 504 goats originally planned but actually 550 goats procured, topping up 46 goats.

- ✓ The officers, as aforementioned, intentionally selected already conceived goats. In CDZ area, animal kids are in most cases delivered in March/ April and September/ October, 2 times a year. Original goats were procured from August to early October, and they have already delivered 106 kid goats in total, 50 female and 56 male, by the end of October. The beneficiaries who saw the early delivery were very much pleased, which in turn gave confidence to the extension works of TS officers.
- ✓ Though there were difficulties of letting goat to lick UMMB since they were not used to. Some of officers modified its formula, e.g. reducing cement, and also at first gave salt and then UMMB, which could facilitate the goat getting used to the taste of UMMB.

■ Extension Material Preparation

2 TSs prepared their own extension materials on the course of their extension activities, but the other 4 TSs not. On the final day of the training, therefore, all the participants agreed to prepare extension materials by choosing some topics. They selected following topics by TS; Livestock housing by Chauk TS, Sanitation by Pwintbyu TS, Silage/silo by Tada-U TS, Urea treated straw making by Ngazun TS, Castration by Ayadaw TS, UMMB making by Myinmu TS.

After the preparation of the extension materials, a representative of each TS presented the floor their finished extension materials. We, participants and



JICA Study Team, examined the descriptions and illustrations they have made, and some modifications were required taking into consideration practical application for the target villagers. Some check points were to: 1) be visual, 2) be simple in the explanation, 3) be with necessary illustrations, and 4) be step by step.

Upon feed-backing experiences and lessons between colleagues, they are going to improve their extension activities and continue the work. Their final achievements will be reported during an evaluation workshop to be held in February 2009.

Information about Bio-gas Generator in Khaungkawe village, Tada-U Township has been shared in the Newsletter No.2 which was put out in June, 2008. In that newsletter, how the plan to construct a bio-gas generator came up, the work of construction with the help of University of Science and Technology, Kyaukse and completion in January 2008, commencement of electrification in February and the benefits enjoyed by the villagers were mentioned. In this newsletter, now, how the bio-gas committee faced with difficulties during the period of nine months after electrification, how they tried to find out the ways and means to overcome the difficulties, and how they improved the system of electrification will be highlighted.

Towards Improvement by United Efforts !

■ All income for maintenance cost?

The Bio-gas committee was formed on November 9, 2007 and electrification was commenced on February 1, 2008 (see Newsletter No.2). According to the decision made by the majority, the bio-gas charged each household 600 Kyats per month for a U-shaped fluorescent tube and 1,500 Kyats for TV users per month. Another decision for each household to contribute one basket of cow-dung per week was made, which is used as fuel for Bio-gas Generator. Therefore, the committee could earn 180,000 Kyats from electrification and 8,000 Kyats from selling used cow-dung every month.

The committee arranged to spend 70,000 Kyats from that income every month for a generator-operator and 2 money-collectors as their salaries and the rest to spend for maintenance and to save for Village Development Fund. It is learnt that for April and May the electricity charge had to be reduced to 500 Kyats per month due to villagers' low income from their business and for the rest months the charge returned to normal. Although it can be assumed that the committee generally could have saved over 900,000 Kyats, the committee could not have saved any fund up to November 2008. The reason was the committee had to spend all money for the cost of generator repairing.

■ How the problem started

Although it was thought that the work of electrification would run smooth, the committee had to face with many difficulties. The most important problem was unauthorized use of electricity by some villagers. In Khaungkawe village, there were about 20 households who used electricity for TVs. For those households each outlet for TV was arranged. However, some villagers used electricity multiplying from the outlet for some purposes (e.g. battery-charging). Besides, some villagers who paid only for fluorescent tubes also used electricity for some purposes without the knowledge of the committee.

Owing to such unauthorized use of electricity, there brought about fluctuation of voltage and wire

short-circuiting, extremely shaking of generator and damage of its base frame, and suddenly stopping of generator. On the part of the rest villagers, they often had to buy new bulbs because their bulbs got burnt owing to the fluctuation of voltage and for some poor villagers they stopped using of electricity.

■ Detecting the source of the problem: First Step

The committee often had to solve the problem of wire short-circuiting, burning of bulbs, and damage of the generator's base frame because of its extreme shaking. In June, with the help of a professional electrician, they tried to find out why the generator was shaking that extremely as:

- 1) the use of electricity was much more than the generator's output capacity; and
- 2) the breakers, which protect the generator, were bigger than they should be.



Photo 1: Instead of big breakers, such small breakers were installed to protect the generator from overloading.

They knew that the first point was caused by unauthorized use of electricity by some villagers but it was difficult for them to solve it immediately. So, the committee solved the second point first.

After the small breakers had been installed, the generator did not need to run for overloading. If there was the use of electricity more than the generator's output capacity, the breakers would automatically cut off the electricity. By so doing, they could solve the problem of damage of the generator's base frame. However, there was still unauthorized use of electricity in the village. Whenever the use of electricity became more than

the output capacity, the breakers had to cut off the electricity. The power went out every now and then and the committee was criticized for that.

■ *Second step*

To protect the damage such as wire short-circuiting and burning of bulbs, it was necessary to have voltage stabilization. So, the committee tried to prevent the unauthorized use of electricity, which was the main cause of bring about fluctuation of voltage, as second step. About the end of June, the committee discussed with an electrician in the village about that, and then fuse-wires were installed at the power-supply lamp-posts (each lamp-post supplies power to 10-15 households). The purpose of using fuse-wires at the lamp-posts was if there was the use of electricity more than the output capacity, only the fuse-wire at the lamp-post would be melted and break the circuit, without affecting the breaker for the generator. As a result, the power did not go out for the whole village.

However, among the households regarding the lamp-post with a damaged fuse-wire, there was no one who admitted his/her wrong-doing, only blaming one another, instead. At last, the committee cancelled the use of fuse-wires at the lamp-posts about one month later because the committee had to install fuse-wires very often and there were conflicts among villagers.

■ *The last weapon attacking the unauthorized use*

The committee came to fully understand that the unauthorized use of electricity must be eradicated, or the work of electrification would never be convenient. The committee made necessary enquiry to prevent it around their neighbouring villages. They got information that Zee Kan village, which is about 11 miles from Khaungkawe, has been using bio-gas generator for the last five years. They came to know that the village used a certain electrical instrument, AC-DC converting switchboard, which could prevent the unauthorized use of electricity. They learnt through a professional electrician that if they installed that AC-DC converting switchboard, it would cost about 170,000 Kyats. They made necessary arrangement to buy and install that instrument.

At the time when it was the beginning of October the committee could have saved enough fund for installation of the AC-DC switchboard. While the programme for installation of AC-DC switchboard was being arranged, the committee mobilized the villagers and explained them why the AC-DC switchboard was to be used and how it would be effective. Then they informed the villagers that after the switchboard had been installed electrification for TVs would temporarily be

stopped and arrangement had been made to keep a separate power line for TVs and so TV users could use their own wire at their own cost.

Then the villagers were reminded not to use electricity without the knowledge of the committee after the switchboard had been installed. Some villagers, though, continued using electricity in a dishonest way. So, the generator-operator had to suddenly change from AC to DC while the electrification was being done to cause damage to unauthorized electric appliance without causing any damage to tubes and bulbs (**TV, Cassette, Battery-charging Inverter, etc. have to use only AC. If there is a sudden change from AC to DC, their inner parts can be burnt. However, tubes and bulbs can be used for AC and DC as well.**)



Photo 2: Generator-operator can cause damage at the place where there is an unauthorized use of electricity by changing from AC to DC when there occurs fluctuation of voltage.

It is learnt that an unauthorized use of electricity could be prevented by changing from AC to DC if a generator-operator thought there was an unauthorized use of electricity during the generator operation. We found that at the AC-DC converting switchboard not only AC-DC converting switch but also meters, fuse-wires and switches for different power lines had been installed to save the generator from the fluctuation of voltage.

At the end of October, about one month after the installation of the switchboard, when we visited Khaungkawe we were told that the Bio-gas Power Generator had been running without any difficulty and that there was no more fluctuation of voltage because there was not an unauthorized use of electricity at all. At present, the committee have saved about 200,000 Kyats. This fund will be subscribed to Village Development Main Committee, and small-scale credit with low interest will be carried out for the welfare of villagers, it is learnt. In fact the committee took the lessons out of solving the problems unitedly and marched towards the goal by making use of those lessons effectively step by step.

After the World War II, in Japan activities for livelihood improvement were carried out all over the country for rehabilitation. Japanese people, based on the things which they had already had as an entry point, collectively thought out the ways of how to carry out to bring about livelihood improvement in the country and they could achieve success in rehabilitation. At present, the Study is carrying out activities for rural development in the central part of Myanmar. In the 2008-2009 financial year, Pabe (North) village in Chauk township, Magway Division was provided with a Children's Nutrition Improvement Centre. The Project assumes that if the Centre is used as an assembly place, villagers will be able to think out the ways to overcome their difficulties. By forming a conversation there, they can share their difficulties and the ways of how to overcome the difficulties can be made. In other words, owing to collective thinking the points that someone does not take into consideration can be pointed out and suggested by another person reciprocally. It can be hoped that such phenomena created by villagers by suggesting reciprocally will bring about new improvement owing to their active or enthusiastic feedback.

Efforts for livelihood improvement within the village on a self-help basis !!!

■ What is Livelihood Improvement Movement?

Although there can be many ways for carrying out livelihood improvement, it may be defined in such 3 ways. They are 1) activity that needs financial help 2) activity that does not need financial help and 3) activity that can earn money and save it. For example for the activity that does not need financial help, time is spent effectively (time management) and old and infirm men are looked after. For the activity that needs financial help, housings are upgraded. Establishing a communal library by collecting private-owned books is the activity that can earn money and save it because this can save the money to buy books.

It is known that the role of a facilitator is very important to make villagers able to think collectively and carry out activity for livelihood improvement by themselves. At Pabe (North) village, there has been an assembly place for villagers. However, for the matters of group formation, co-operation with local authorities concerned, etc. a facilitator plays a vital role. Counterparts who have already learnt the ways of livelihood improvement could, in fact, be the most suitable persons to be facilitators.

■ Pabe(North) Villagers' Burning Desire

In the last week of December 2008, the two Counterparts, Project Director U Thura Soe from MAS and Daw Cho Cho Tun from Department of Co-operative, went to Pabe (North) village and explained the village PDC chairman of why they had to come there. Then arrangements were made to use Children's Nutrition Centre as 'an assembly place' and to discuss about their difficulties they are facing with in their daily life. Before the discussion the Project Director met with 8 village elderly persons including village PDC chairman, 10-household leaders, etc. and shared information concerning villagers' life in advance.

Pabe (North) villagers want to keep abreast with the other two villages which exist in the same

village-tract, it is learnt. In Pabe village-tract there are three villages, namely, Pabe (North), Pabe (South) and Mingan. The Project provided a diesel generator to Mingan village for electrification last year and so there has been electrification in Mingan. Pabe (South) village which is adjacent to Mingan has been making arrangements to connect a power line from Mingan. However, Pabe (North) villagers do not have fund to be able to buy a generator by themselves although they wish for electrification. Most villagers rely on candle light and they have to spend 4,500 kyats (50 kyats x 3 candles x 30 days) per month. In Mingan village after a diesel generator had been provided for electrification villagers could save about 3,000 kyats per month and students could study their lessons until late in the evening. Pabe (North) villagers after knowing about Mingan village's success want to uplift their standard of living relying on candle light.

■ Suggestions for Increase of the Fund

After knowing that they will need about 40 lakh for electrification, villagers come to fully understand, according to the Project Director, to raise their income first to be able to collect village fund for buying a generator. There are altogether 140 households in Pabe (North) and each household will have to contribute about 28,000 kyats to village fund to get the needed amount of money. To be able to contribute so, the following ways were suggested for increase of income.

1) As a part of catering for Children's Nutrition activity, vegetable cultivation programme which is being implemented will be extended. Now villagers have to buy vegetables from places around Kyaukpadaung. If vegetable cultivation can be extended, they will be able to save money and even sell vegetables to neighbouring villages if the cultivation is successful. Besides, housewives can spend time effectively and children can enjoy nutrient vegetables. Such things were discussed. To solve the water problem for cultivation, the Project Director suggested to try the method of using a

plastic sheet at base to save water and villagers accepted that idea interestedly. Three villagers will try that method practically.

2) It was discussed that if plum seeds were collected and sold, 3,000 - 5,000 kyats could be earned per year. Villagers came to notice that kind of work could earn extra income and more plum trees would be grown. Plum flesh and jaggery are local products and if they are made into plum jam women can have more job opportunity. Plum jam will be distributed through a woman who always goes to Yangon to sell local products.

3) The price of jaggery is so high at present and so there are only a few workers who produce jaggery. Therefore the yield of toddy-palm nut becomes high. At present, toddy-palm nuts can be collected by anybody free of charge. The outer cover of toddy-palm nut is used as fuel and the flesh is fed to cattle. If toddy-palm nuts are made into toddy-palm shoots, they can be sold and extra income can be earned. In some regions, toddy-palm shoots are being produced on business scale, though in Pabe (North) village and its neighbouring area there is nobody to do so. Toddy-palm nuts are available in abundance free of charge in the region and if they become toddy-palm shoots they can be sold at the price of 10 kyats per shoot. Many villagers were interested in that work and three villagers decided to carry out that practically, it is learnt.

4) There was no special effort for getting better yield of tamarind by villagers, it is learnt, and so the Project Director decided to consult with experts about that and then reply to villagers. At present tamarind fruits are being sold as raw materials to Kyaukpadaung. Instead of selling tamarind fruits as raw materials, if they are sold after being separated flesh and seed there will be value-added. Not only that, women can have job opportunity in January and February when they have no farm-labour work. Therefore, many villagers were interested in that.

5) Growing of perennials such as mango, custard apple, plum, jatropa, etc. at fences to earn extra income was discussed. Although jatropa growing does not earn a lot, collecting jatropa seeds and selling them can earn extra money for landless people. So it should be done. The current price of Jatropa seed is 4,000 kyats per basket and if someone can collect and sell half a basket of Jatropa a day he will earn 2,000 kyats. More money can be earned if it is sold as Jatropa oil.

6) Custard apple, plum and mango trees grown in their home compound are of poor local varieties and so it seems no earning. In places of local varieties, if approved varieties of plum, mango and custard apple are grown two plants per variety in every home, they will become valuable village products in the next three years, it was suggested. However, it is learnt that it is necessary to obtain new varieties and technologies (e.g. how to graft). If aids from outside are provided, seedling farm

can be established. Seedlings of good quality can be distributed not only in the village but also to neighbouring villages. It was also discussed that long-term income can be obtained by selling *thanakha* seedlings.

■ Discussion for an Improvement on a Self-help

Discussion for livelihood improvement in Pabe (North) village was attended by about 100 villagers including some villagers from Mingan. During the discussion, villagers emphasized on the activity that needs financial help at first. When facilitators led the discussion to the activity that does not need financial help, villagers suggested to do village sanitation work and to repair roads in the village.



Photo 1-Scene of Pape (North) village discussion for livelihood improvement on a self-help basis.

In connection with village sanitation work, it was discussed and suggested to do once in two weeks, to keep dust bin at every home (if they cannot keep dust bins, dig a hole for garbage), to burn plastic waste and to pile up garbage in one place which can be used as compost. The road within the village is damaged in the rainy season every year and villagers face with such difficulty, though, they did not discuss about that. Now, at the discussion that difficulty was designated as communal difficulty and all agreed to repair the road collectively.

■ Outcome of the Discussion

In a nut shell, such difficulties as sanitation work and repairing the road must be done by villagers, though, there was no one to have suggested to do so and there was no discussion about that by villagers. Now, Counterparts led the villagers to use Children Nutrition Centre as an assembly place and villagers with same views and thoughts could be organized. And views and thoughts were shared. Then valuable outcome of villagers' confirmation on village's need, through understanding on the present condition of village and discussion on suggestions for livelihood improvement within the village was emerged. Counterparts will monitor and evaluate how villagers try to implement their action plans and necessary assistance will be sought to bring about livelihood improvement on a self-help basis.

This news letter No.27 is issued both in English and Myanmar. In this newsletter, one of the activities carried out in the last 2007/08 financial year with regard to agricultural sector, vegetable cultivation by raised-bed method, will be mentioned. That activity was introduced in Khaungkawe, Ma Gyi Sauk and Magyi villages in Mandalay and Sagaing Divisions. Here, though, we would like to share information about Khaungkawe village raised-bed cultivation as it is gaining momentum and playing a leading role in that activity and there is a successful cultivator in it.

Where there is an arable land, there is a treasure trove !!!

■ Dissemination of new technologies to farmers

Nowadays, many farmers cannot afford to use chemical fertilizer due to its high price. The Project, taking into consideration of that, introduced Bokashi compost making with Effective Microorganism (EM) as one of the activities of the Pilot Project in year 2007 and trainings were conducted in five villages in Mandalay, Sagaing and Magway Divisions. About 150 farmers were disseminated with that technology in conjunction with demonstrations and practical making of Bokashi compost by each trainee. Not only that, for farmers to be able to earn extra income from vegetable cultivation, raised-bed cultivation method was introduced to farmers in 3 villages, namely, Khaungkawe, Ma Gyi Sauk and Magyi by conducting trainings plus demonstrations. Altogether about 45 farmers were given training for the raised-bed cultivation.

■ Raised-bed cultivation in Khaungkawe

In Khaungkawe village, 15 beneficiaries who attended the training on raised-bed cultivation were provided with seeds of cabbage, tomato and onion. With regard to cabbage and tomato cultivation, the seedlings were destroyed by seven-day-long rain, unfortunately. Nevertheless, most beneficiaries laid much more emphasis on onion than cabbage and tomato because they knew they could earn much profit from onion although the labour-cost for onion cultivation was high. It is roughly estimated that the cost for onion cultivation per acre is 250,000 - 300,000 kyats and the yield is 2500 - 2900 viss per acre, it is learnt according to our interviews with onion beneficiaries in Khaungkawe.

One of the beneficiaries of raised-bed cultivation and the group leader of agriculture sector in Khaungkawe, Ko Myo Tint, said that he grew onion in 1.25 acres in year 2007 and the yield was 2800 - 2900 viss. At that time the price of onion per viss was 400 kyats (the price of onion fluctuates depending on market demand). So, he could earn 1,120,000 - 1,160,000 kyats and the cost

for onion cultivation was about 250,000 kyats. His net profit was, therefore, 870,000 - 910,000 kyats. According to him, it is learnt that the beneficiary who could earn most from onion cultivation was U Chit Nyunt. He used 1 pyi and 6 nohzipu of onion seeds and the total cost was about 300,000 kyats. His total income from onion cultivation was 1,300,000 kyats. So, his net profit was 1,000,000 kyats (about US\$ 1,000). About half of 15 beneficiaries and about 7 non-beneficiaries continued applying raised-bed cultivation method, it is also learnt. In fact, villagers came to know the effectiveness of raised-bed cultivation method especially in onion cultivation.



Photo 1 - Ko Myo Tint, a cultivator of Khaungkawe, and his onion beds. Onion will be cultivated in 1.5 acres this year 2008.

Ko Myo Tint, the leader of the agriculture group, grew onion again in year 2008 in his 0.75 acre of farmland, using raised-bed. For the raised-bed preparation, he had to hire 5 male farm-labourers for two days. For planting small onion-bulbs, he had to hire 15 - 20 female farm-labourers for one day only. According to him, the present day labour-charge is 1,200 kyats (without lunch) and 1,000 kyats (with lunch) per day for a female farm-labourer while 2,000 kyats (without lunch) and 1,700 kyats (with lunch) per day for a male farm-labourer (because they are always hired for harder work than that of women do). For weeding, he had to hire 15 - 20 female farm-labourers for one day. For onion cultivation, he applies basin-irrigation

method, and used about 20 carts of cow-dung. When we interviewed him on his farmland, we saw that he has already sown onion seeds in a nursery and raised-beds for them have been prepared. The harvest and the earnings will be reported in another opportunity.

■ Irrigation by Locally Made Manual Pump

Here, we would like to let you know about his irrigation method which should be imitated by others. The Project asked one of tinsmith workers in the Khaungkawe village, producing a manual pump to be operated by treading. The worker perfectly produced the pump by referring to a model brought about by the JICA Team, imported from India. He, Ko Myo Tint, well operates the pump as shown in the photo below. Also we can see a unique practice by him. At the heads of his series of raised beds, he dug small pools and put Bokashi compost in them. Then irrigated water was made to pass through those pools to reach ditches between the raised-beds. By so doing, he expected an effect such like liquid fertilizer and also managed the soil condition from not being eroded.



Photo 2 - Irrigated water passing through Bokashi compost to ditches between raised-beds to make vegetables grow very well.

■ How he became a successful bitter-gourd cultivator

In addition to onion, Ko Myo Tint grows chilli, kaffir bean (only for home consumption) and bitter-gourd. He does such crop diversification in accordance with market demand and the weather. He is now regarded as a successful cultivator of bitter-gourd by topping up Bokashi use and raised-bed use on his original cultivation method, not only in his village but also in other neighbouring villages. He was even invited by Nga Zin Yine villagers to share information and experience about bitter-gourd cultivation through Deputy Township Officer of Tada-U MAS. This was really a successful farmer to farmer extension.

He knows that if he buys and grows Taiwan variety bitter-gourd seeds from the market, they will be

infested with insects/pests. So he started collecting good Taiwan variety bitter-gourd seeds from the first harvest or improved seeds of Taiwan variety. He sometimes had to buy bitter gourd for everyday meal and some possible seeds were saved. When he had collected about 350 seeds, they were sown in rows on a raised-bed of 150ft x 20ft (0.06 acre), on 5th May, 2008. He used 20 - 30 baskets of Bokashi compost in bitter-gourd cultivation. To date (as of October 2008), no insecticide or pesticide or chemical fertilizer was used. However, to make it a perennial and to bear fruits more, he used solid bamboo poles for the plants to climb on. The solid bamboo poles were once used in tomato cultivation under the Pilot project. So, there was almost no cost for bitter-gourd cultivation.

Up to the end of September 2008, he had earned 100,000 - 150,000 kyats from selling bitter-gourd at the price of 350 - 400 kyats per viss. He has a regular broker for bitter-gourd at Tada-U. He always picks bitter-gourd in the morning



Photo 3 - Ko Myo Tint's bitter-gourd cultivation, with Bokashi compost manure and also irrigated by treadle pump.

and he gets 35 - 40 viss per time. However, in winter, bitter-gourd does not bear fruits very well. The demand for bitter-gourd on the market, though, is still strong. For example, in Nyaung Pin Zauk village, which is located at the far-end of Tada-U Township, the price of bitter-gourd per viss is as high as 1000 kyats in retail price. His expected total earning was not available at that time the Team made the interview. However it is obvious the cultivation would raise his income to a great extent.

■ Sustainable Raised-bed Cultivation

Training on raised-bed cultivation conducted in September 2007 in Khaungkawe village contributes towards applying systematic cultivation method for those who are doing market-gardening or vegetable cultivation. Advanced technology or systematic procedure plays a vital role in getting high yield. At the same time, MAS extension staff are discharging their duties in respective areas to bring about development in the long run so that there will be rural development as expected.

In general, there should be a relationship between underweight in human body and severe environmental condition in which they live. Likewise, there could be a relationship between low income and underweight in human body. Now, this newsletter No.28 tries to find out if there is such relationship between people's physical body appearance and environmental condition and also between the appearance and income status.

Any Relationship between People's Physical Appearance and the Environment, in natural and financial, wherein they live ??

■ Methodology to know nutritional status

As aforementioned in the introduction, it may be natural to believe that those who live under severe natural condition, like less rainfall and hot weather, tend to be thinner in their physical appearance. Likewise, those who have low income may tend to be thinner as compared to those who are wealthy. If the thinner physical appearance falls in a normal range, it does not matter. However, if the thinnish physical appearance goes beyond normal range, it can be believed that he/she is suffering from underweight or even from malnutrition (and in the severest case, suffering from starvation).

In this concern, BMIs (Body Mass Index) and other indexes for sampled villagers are examined to know their physical status which can be corresponding to their nutritional status. BMI is originally used for an index of adults. By this reason, it is necessary to employ other indices for younger strata positioned in between infants and children although the measurement itself is made for height and weight for obtaining a proper interpretation. In this Study, a normal BMI index is employed for adults, but the samples are further sub-divided into starvation and underweight referring to CED (Chronic Energy Deficiency). Also, as to infants (3 months - less than 6 years after birth) the same BMI is calculated for this age group but Caup Index is employed in its interpretation that is different from ordinary BMI index). Further, as regards an age stratum in between infants and adults (boys and girls aged 6 - younger than 20), body masses are examined by means of "standard of determining weight by Hibi's method" that is employed in the Ministry of Health Welfare and Labor in Japan. The 2 formulas, BMI and Hibi's method, and 3 types of corresponding indices with body masses are summarized below.

$$\text{Body Mass Index (BMI)} = (\text{Body weight in Kg unit}) / (\text{Body height in meter unit})^2$$

$$\text{Hibi's Standard Body Weight} = (\text{Coefficient 1}) \times (\text{height by cm unit})^3 + (\text{Coefficient 2}) \times (\text{height by cm unit})^2 + (\text{Coefficient 3}) \times (\text{height by cm}) + (\text{Coefficient 4})$$

Sex	Coefficient 1	Coefficient 2	Coefficient 3	Coefficient 4
Male	0.0000641424	-0.0182083	2.01339	-67.9488
Female	0.0000312278	-0.00517476	0.34215	1.66406

Table 1. Indexes of Body Mass According to the Class

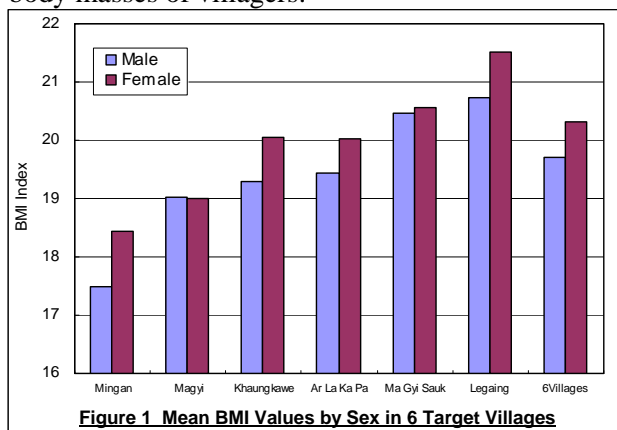
Class	Starvation	Underweight	Standard	Overweight	Obese
Standard BMI	Over 20 yrs old BMI < 16.0	16.0 ≤ BMI < 18.5	18.5 ≤ BMI < 25.0	25.0 ≤ BMI < 30.0	30.0 ≤ BMI
Class	Too Thin	Thin	Normal	Fattish	Obese
Hibi's method	Age: 6 to 19 W < -20%	BMI < 13 -20% ≤ W < -10%	BMI < 13 -10% ≤ W < +10%	BMI < 13 +10% ≤ W < +20%	BMI < 13 +20% ≤ W
Caup index	Age: 5 to 5.9	BMI < 13	13 ≤ BMI < 14.5	14.5 ≤ BMI < 16.5	16.5 ≤ BMI < 18.5
	Age: 4 to 4.9	BMI < 13	13 ≤ BMI < 14.5	14.5 ≤ BMI < 16.5	16.5 ≤ BMI < 18
	Age: 3 to 2.9	BMI < 13.5	13.5 ≤ BMI < 14.5	14.5 ≤ BMI < 16.5	16.5 ≤ BMI < 18
	Age: 2 to 1.9	BMI < 13.5	13.5 ≤ BMI < 15	15 ≤ BMI < 17	17 ≤ BMI < 18.5
	Age: 1.5 to 1.9	BMI < 14	14 ≤ BMI < 15	15 ≤ BMI < 17	17 ≤ BMI < 19
Age: 1 to 1.49	BMI < 14.5	14.5 ≤ BMI < 15.5	15.5 ≤ BMI < 17.5	17.5 ≤ BMI < 19.5	
3months to < 1	BMI < 14.5	14.5 ≤ BMI < 16	16 ≤ BMI < 18	18 ≤ BMI < 20	

■ Result of BMI measured in 6 target villages

Figure 1 shows mean BMI values by sex in 6 target villages of 2007 Pilot Project (in this case, as the data for infants and children are also taken into average as BMI values, it is not intended to use them as an indicator of determining whether the samples are standard or lean in physical body mass, but to utilize merely for the comparison among the villages). In this figure, both male and female give the same BMI value, or 19.0 in Magyi Village, but in other 5 villages male always gives lower BMI value than that of female. As the overall means among the 6 villages, BMI for male gives 19.7, whereas that for female does 20.3 (equivalent to the difference by 1.5 kg on weight basis assuming that an average women is as tall as 160 cm).

Regarding BMI values by village, the figure shows considerable difference from one village to another. BMI values were 17.5 for male and 18.4 for female in Mingan Village located on Bago Hill with the severest natural conditions, e.g. least rainfall and hottest temperature with infertile soils for agriculture produce, among the target villages. Whereas, they gave 20.7 for male and 21.5 for female respectively in Legaing Village bestowed with irrigated paddy tracts with a favourable natural conditions for farm production. Assuming that the villager's height is averaged at 160 cm, there found the difference by 8.2 kg for male between these two villages, and by 7.9 kg for female between these two. This probably leads to a conclusion that natural as well as farm-producing

conditions prevailing in a villager cause variance in body masses of villagers.



■ Comparison of BMI by social stratum

Farm and non-farm households exist in rural areas in the Study Area. It is already known that the poverty rate of the latter is higher in this social hierarchy (refer to Newsletter No.21). For instance, according to the result of the baseline survey carried out in the target 6 villages of 2007 Pilot Project, poverty rates of the former and the latter indicate 33% and 67%, respectively. It is recalled that the latter includes farm labourers' households known as the poorest stratum in the social hierarchy. The poverty ratio of these farm labourers' households reaches even 75%.

The following will examine what influence the difference of social strata in terms of poverty gives to body masses or Fattish- Thinnish relationship. Table 2 shows the result of the chi-square test by infant, boy/girl and adult on the difference in BMI values or Fattish-Thinnish relationship between these two social strata, subdividing the total samples surveyed into farm and non-farm households. Likewise it shows the result of the chi-square test on the BMI difference by such groups of farm households, the richest social group, and farm labourers households, the poorest social group.

Table 2. Result of chi-square test on BMI among Social Strata

Sample class	Infant (3 months-5 years old)	Boy / girl (6-19years old)	Adult (elder than 20 years old)
Farm Households	No significant difference (51.1%),(N=524)	No significant difference (8.00%),(N=1,973)	No significant difference (26.2%),(N=5,903)
Non-farm HHs			
Farm Households	No significant difference (19.0%),(N=435)	Significance at 1% level not found (1.31%),(N=1,717)	Significance at 1% level not found (1.11%),(N=5,213)
Farm Labourers' HHs			

Source: JICA Study Team based on BMI measurements

Table 2 indicates that the difference between BMI of farm households and of non-farm ones is not significant for any groups of infant, boy/girl or adult. This is because that the probability without

significance as a result of chi-square tests stands at 51%, 8% and 26% respectively.

The probability without significance derived from chi-square tests between farm households and farm labourers' ones gives 19%, 1.3% and 1.1% for infant, boy/girl and adult, respectively (see the bottom row of the Table 2). From these results of the tests it can be said that no significant difference is found in the comparison of BMI of infant between two groups, farm and farm labourers' households. With regard to BMI of boy/girl and of adult, the significant difference can be recognized at 5% error level (or the probability of incidence at 95% level) though it is not significant at 1% error level (or occurring probability of 99%).

There is one thing to notify; though there appears significance at 5% error level in boys/girls between farm and farm labours households, higher BMI appeared in the poorer group that is the boys and girls in farm labours' household (In case of adult, the tendency is however as is expected, that is higher BMI appeared in the farm household group). Summarizing these, (surprising as it is) in the comparison of farm households with farm labour households, the difference in the degree of Fattish-Thinnish is not found significant, showing that we cannot say farm labours, poorer people, are thinner than farmers, richer people, from the statistical point of view. More simply, mean values of BMI for these two groups stand at 20.85 and 20.76 for the farmer group and the farm labour group, respectively, showing that these are almost the same or comparable level. Therefore, in short, no remarkable difference can be found in BMI values of different strata of social hierarchy.

Villager's dietetic life style has some bearing on this similarity of BMI. People assimilate 67% of their caloric requirement from rice in term of standard food basket, while rice has been regulated as the top priority food item in Myanmar and it has been dealt as a contraband even if surplus happens, thus leading to a state of domestic abundance. It is conceivable from this fact that people including those who are ranked as poorest stratum assimilate most of their caloric requirement from cheap rice. Although dietetic contents may be different between wealthy farm households and the poorest farm labourer ones as is shown in the frequency of eating meats, it can be deduced that no statistically significant difference exists supporting that body masses of the members of farm labourer households, or the poorest stratum, tend to be extremely thinnish as compared to those of farm households as far as the data is concerned to our 6 pilot villages.



There is a "gift" coming from Heaven to the people of CDZ to start a prosperous livelihood. Actually, the gift is a living creature; an animal, that is cute looking, and very promising animal to raise and make profit as compared to vulnerable agriculture in CDZ. That is a goat! Fortunately, they can survive and breed well in dry lands. They are adaptable to extreme weather and environment such as high temperature and drought. In fact, CDZ is known as goat producing area in Myanmar accounting for about 80% of its population.



Goat raising does not need any farmlands, dieting on all sorts of wild grasses, bush leaves available around throughout the year. That is why goat is most recommendable animal, considering higher rate of non-farm household in CDZ. The market for 'mutton' or as 'Herd-basis' is always lively, and mutton price is always highest among meats. The buyer or the broker will be at your door, any time you wish. Under this situation, since 2007, we have been implementing a pilot project of raising goat for the poor in CDZ by applying revolving system to expand beneficiaries more and more. Here we report that how the poor expect to improve their standard of living with goat raising by picking up a case of U Myint Sang in Ma Gyi Sauk village, Ayadaw TS, Sagaing.

A GIFT OF HEAVEN FOR THE PEOPLE OF CDZ ! — A Family got Growing Property —

■ His Life Living on Farm Labour

Ma Gyi Sauk village belongs to Ayadaw TS, Monywa District, Sagaing division. The village has 260 HHs with population of 1,300. The major income source of the villagers is agriculture accounting for 45% of products. Annual precipitation of Ma Gyi Sauk Village is 800 to 900 mm but every 2 to 3 years there are hit by drought. Under such condition, U Myint Sang (51) makes livelihood from working as farm casual labour. However, agriculture itself does seasonality and moreover with the unreliable climate condition, he cannot work as farm casual labour all year-round. U Myint Saung and his wife may be earning, as interviewed, only 1,800 Kyats per day (800 Kyats by wife and 1,000 Kyats by him) for about half a year due to the seasonality of agriculture. He, in fact, has no valuable property in the past.

construction materials excluding some nails etc. He didn't borrow any money from others, though some members had to borrow for sharing the cost. They graze 2 times a day, and the group decided to graze goats alternately considering their availability for herding (Later he only was engaged in the herding given some financial support from other members).



■ Goat Raising has Started!

The pilot project delivered original stock of goat, 5 female per each member + one male for the group, to the selected beneficiaries in September 2007. In Magyi Sauk village, the beneficiaries composed of 5 members each per group got together and constructed collective goat house to minimize investment cost. The house has a raised floor taking into account the goat's instinct behaviour. U Myint Sang become the leader of a group, raising 25 female and 1 male goats. Their goat housing costed them a total of 26,500 Kyats upon sharing 5,300 Kyats each. They used locally available

■ Kids were Born!

Starting from 25 female and one male provided by the project, U Myint Saung group had got 48 kids (25 female and 23 male) at the beginning of January 2009. Surprisingly NO mortality has taken place in the group's herd for both original stock and newly born kids. They spent 1,000 Kyats per month to cure sick goats using traditional local medicines. But any feeding cost has not occurred thanks to the year-round natural grazing system.

He and the members really took care of those goats

in order to hand over to the 2nd generation beneficiaries according to an established revolving system. Revolving is a 'System' that is going to be revolved without stopping. A 'practice' with continuous activity without termination. A 'procedure' targeted to every poor family to gain benefit provided by the Project. The revolving system was promptly established by the Project before providing the animals. Each owner of fully-grown "does" has to manage to hand over the young does to the second beneficiary group. The second beneficiary group will have young does and in a limited time, they then hand over to third group and so on. The revolving system requires the beneficiaries to hand over same number of goats, e.g. 25 female and 1 male goats in case of U Myint Saung's group, to the 2nd generation beneficiaries.

■ Handover has Finished !

The group headed by U Myint Saung managed goats collectively in collaboration with TS LBVD officers, and finally they finished handing over 26 goats (25 female and one male) to a 2nd generation group in September 2008 (about 1 year later upon the original stock delivery). For the 2nd generation beneficiaries, village PDC chairman and his close members chose also poorer villagers, mostly landless, according to the project purpose. The present stock, as of the beginning of January 2009, is as follows; namely, the group composed of 5 members has 25 adult female goats and 23 male goats (22 kids and 1 adult male goats):

Table 1. Summary of Goats. Original. Newly Born. Handed

Particular	Female	Male
Original stock	25	1
Original died	0	0
Kids born	25	23
Kids died	0	0
Above total	50	24
Goats handed over	25	1
Current Stock	25 (original 25)	23 (original 1)

As of January 2009

■ Benefit and Future of the Goat Raising

Since they finished their due under the revolving system, U Myint Saung and his group members became real goat owners and got additional income source which can be increased depending on their effort. As of January 2009, still they have to grow the male goats until marketable size for a couple of months to 10 months at maximum depending upon when the kids were born. Now we try to estimate the capital portfolio out of the goats they own as their newly created property:

The group has 48 goats (25 female and 23 male) which can be distributed 9.6 head (48/5: 5 female and 4.6 male) for each member. Current price of matured goat is 35,000 Kyats for male and 33,000 Kyats for female respectively. Applying these rates, U Myint Saung has property equivalent to gross 326,800 Kyats (In real sense, sale price for kids should be reduced). He may need medicinal cost of 2,400 Kyats (1,000/5x12 months), however this cost can be offset by selling the goat dung.

This arrives now that he has a property, equivalent to 326,800 Kyats, and again equivalent to 890 Kyats worth per day. In the past, he and his wife used to earn roughly 324,000 Kyats for 6 month (1,800 Kyats x 180 days) from working as farm casual labour. Goats now he owns, if converted into monetary value, adds him almost same profit as the total wages of working as farm casual labour. Since he and his wife earn very little from those other than working as farm casual labour, it may imply that their annual income has almost doubled.

■ His Expectation in the Future

He intends to continue goat raising in future too. He will continue the collective management method in cooperation with other members since he could establish confidential relationship among the members. U Myint Saung, who had no property in the past but now became real goat owner, believes that goat raising is a promising way of improving the livelihood of the people's in CDZ.

Smiling during the interview, he said 'I will settle the debt I have, I will offer more donation to monastery and monks. I have a plan to improve the goat housing so that I can expect more goat kids to be born'.

By the way, he and his wife have only two children, and on one day back in early 2008 one of the Project members asked him why only two, any plan to have lovely 3rd one ? Then he replied I will have more number of goats, instead !



U Myint Saung and His Wife, smiling during interview

This newsletter No.(30) is issued both in English and Myanmar. The Project has been implementing many activities concerning agriculture, livestock, cottage industry and livelihood improvement sectors based on revolving system with an aim at bringing about sustainability and being able to turn out more and more beneficiaries in respective sectors. In connection with the practice of revolving system, handing over of quality chickpea seeds from the first generation group to the second generation group has been described in NO. 5 Newsletter and goat rising under revolving system has been described in No. 12 Newsletter, so on so forth. Now in this newsletter one of the activities of cottage industry which has been enjoying the fruit of establishment of revolving system will be shared to you.



Photo 1: Traditional bags made by Khaungkawe village weavers.

Achievement of Success by Revolving System !!!

■ Village background history and commencement of development programme

Shoulder-bag weaving by hand loom is a traditional and successful cottage industry of Khaungkawe village in Tada-U Township. Of all the villagers who earn their living by weaving shoulder-bags or whose major income source is weaving, only 25 per cent own hand looms and the rest are loom-less weavers. Even hand loom owners themselves are dependent on employers in Mandalay to carry out a system of taking raw materials and returning finished products.

This means that although they own hand looms they have no investment or capital to start the business. So, they have to rely on employers who supply them with raw materials. Under such circumstances, they cannot sell their products according to the current market price.

There are also two other traditional activities of cottage industry, namely, tinsmith and guitar-key production in this village. (It is quite surprising to learn that Khaungkawe is the only village which produces guitar-keys all over the Country.) The Pilot Project, in the 2007 - 08 financial year, selected Khaungkawe village as one of the six target villages where village development activities will be carried out by the Project. For cottage industry sector, tinsmith, guitar-key production and weaving shoulder-bag activities were improved by the Project with an eye to contributing towards bringing about village development.

First and foremost, an executive committee for weaving was formed with 5 members out of 90 female weavers in the village. And then 5 weaving groups were formed including each executive

committee member in each group. All weaving beneficiaries said they did not need technology because they could weave shoulder-bags of different designs by looking at a design. They just wanted to obtain raw materials for weaving shoulder-bags. The Project, in accordance with their consensus, provided them with 250 lbs (113 kg) of wool on Nov 11, 2007. Khaungkawe villagers have already learnt about revolving system and understood it very well because there were goat/sheep beneficiaries in the village under a revolving system. And so they agreed to carry out revolving system for the 250 lbs of wool provided by the Project.

■ Immediate benefits after being provided with raw materials

250 lbs of wool provided by the Project were divided for 5 groups, each group procuring 50 lbs of wool. Each group is composed of minimum 12 members and maximum 19 members (See Table 1). Group leaders are hand loom owners and they settle their members' labour-charges according to their piecework. Previously the hand loom owners had to take raw materials according to the price fixed by employers in Mandalay. As a matter of fact, the employers fixed the price of raw materials after they had calculated their investment in the form of loan with interest. Not only that, they did not have an opportunity to look for the market for their products by themselves. What they had to do was they had to accept the price fixed by the employers for their products within the limited period.

After the project had provided those with 250 lbs of wool, they did not need to carry out a system of taking raw materials and returning finished

products. They could sell their products to the market directly and so they got more profit, at least 15% more though depending upon the then-market situation. For members they used to earn only 500 Kyats per bag previously and after the provision of wool their labour charge was raised to 600 Kyats per bag, increased by 20%, as hand loom owners got their profit more than before.

Table 1 First Beneficiaries of 5 Weaving Groups

Sr No.	Name of Group Leader	Nr. of loom	Nos. of weaver	Wool, lbs	Executive Committee
1.	Daw Cho	15	15	50	leader
2.	Daw Moh Moh	19	19	50	vice leader
3.	Daw San Myint	17	17	50	member
4.	Daw Mya Khin	12	12	50	member
5.	Daw Tin	12	12	50	member

■ Implementation of revolving system by Khaungkawe villagers

Leaders of 5 groups considered that more profit will surely be gained if they were able to start the business with bigger amount of wool than 50 lbs. So they negotiated each other to contribute 10 lbs each to the first group amongst the 5 groups so that that group would be able to start the business by using 90 lbs of wool (original 50 lbs+40 lbs contributed by other 4 groups). They would have to do like that monthly until the last group could start the business by using 90 lbs (like a system of saving money.) Those 5 groups carried out the above-mentioned system from December 2007 to April 2008 for 5 months.



Photo 2: Khaungkawe female weavers weaving shoulder-bags with the wool provided by the Project.

Besides, they intended to provide other weavers and hand loom owners with wool to be able to start the business like them. With this intention, they decided to save 1,000 Kyats per month by each group beginning from January 2008. Right up to the end of July, 2008 they could save 35,000 Kyats. And to make the provision more effective they decided to collect 1 lb of wool each per month beginning from August 2008. In this way, they

could collect 15 lbs of wool at the end of October. Those 5 groups are supposed to refund the wool to Village Committee until their 50 lbs provided by the Project are completely settled, and therefore discussion has been held between leaders of 5 groups and Village Committee. The leaders willingly agreed to contribute added wool or money according to the decision of the Village Committee to make every weaver in the village become a beneficiary.

At the end of October 2008, 10 lbs of wool were bought by spending their saved money 35,000 Kyats. They could collect altogether 25 lbs of wool. 5 small groups were then formed and each group was provided with 5 lbs. Those 5 small groups collected 1 lb each per month and handed over 5 lbs of wool to next small group in order of seniority. To date, 10 small groups have been provided with wool, it is learnt.

■ Objectives for the future

By collecting the wool contributed by original 5 groups and small groups monthly, more and more small groups are being provided with wool in a revolving system. After the Project had provided beneficiaries with wool, female villagers whose main job is weaving could enjoy the fruits of their labour without being exploited by others. In other words, all beneficiaries are leading to a better life enjoying more labour-charge, more profit and own stable market.

It is learnt that at the time when weaving activity in the village is stable under revolving system with enough raw materials, an executive committee for weaving will take steps to establish microfinance by saving fund for it. They will follow the rules and regulations of Village-level co-operative and Township-level co-operative. They will manage to keep proper capital for storage of raw materials and for establishment of microfinance. They will always keep their ears open for the market of raw materials without losing sight of it. Such aims and objectives, hopes and systematic arrangements are appreciated by other villagers.

In short, shoulder-bag weaving by hand loom is a traditional cottage industry and it has been gaining momentum for years. It can be assumed that shoulder-bag weaving is indispensable for female weavers' daily life. The Project provided villagers with raw materials (250 lbs of wool) and beneficiaries on their part made concerted efforts to achieve success in weaving under revolving system. Owing to co-operation, there brought about unity within the village on one hand, and there emerged job-opportunities for more and more villagers.

Following the Pilot Project implemented in FY-2007/08, goat raising for the poor or landless people was decided to continue in the selected (12) villages in Sagaing, Magway and Mandalay Divisions in FY-2008/09. Based on the lessons learnt in FY-2007/08, better performance and several successful activities could be done. For example, beneficiaries joining hand in hand with LBVD Township Officers and some committee members could purchase strong and healthy goats which are completely accustomed to the region from nearby villages at cheaper prices. By so doing, the rate of mortality could be reduced to less than 5% and at the same time the rate of productivity could be raised. In fact, the mortality rate for the Pilot Project of 2007/08 was as high as 12 % as of October, 2008.



U Maung San and his Wife with the Last Born Child.

This FY also, most of the beneficiaries for goat raising are landless people as the Project targeted the poorest of the poor to be its beneficiaries. They constructed goat housings with raised-floors collectively to save the cost and the cost was shared among themselves. Not only a collective goat management but also semi-intensive and intensive feeding have newly developed. Here, in this Newsletter, we report about U Maung San (40 yrs), a goat raising beneficiary and one of the poorest of the poor, residing at ZaYit village in Ayadaw Township, Sagaing Division.

He got an additional income source while keeping the original one !

■ He and his family living on vending

Za Yit village is situated in Ayadaw Township, Sagaing Division. U Maung San lives in this village together with his wife and eight children, earning his life by vending firewood and seasonal vegetables. His eldest daughter is 16 years of age and the youngest son only 1 year of age. Of all his eight children, except for the youngest three (5, 3, 1 year respectively) the rest have to help their parents with their work. His main job is firewood selling. Whenever he goes to the forest to collect firewood, his wife and his children who are able to carry firewood, follow him and help him. Likewise, his wife's main job is seasonal vegetables selling.

It will not be wrong to say that the whole family is working like a unique force. According to him, he and his wife have been selling firewood and vegetables for 16 years, and they can earn at least 1400 Kyats from firewood (700 Kyats x 2 bundles) and 1500 - 2000 Kyats from seasonal vegetables (depending on amount and variety). So, roughly speaking, his family's daily income is about 3,000 Kyats. However, in reality, there are days on which they have no jobs. According to him and his wife, out of 12 months they have no jobs for about 4 months. Therefore, his family income per day could be 1,973 Kyats (3,000 Kyats x 8 months ÷ 365 days).

He has no valuable property, even a toilet, and relies on his neighbour's tube-well for water supply. Though poor they are, all his family members are, thanks to God, in good health. However, one day in November 2008, his eldest daughter fell down from the gooseberry tree while picking gooseberry and broke her left arm (the price of gooseberry is 200 Kyats per pyi). He had to borrow 50,000 Kyats with 10% interest for his eldest daughter to be hospitalized in Ayadaw Township Hospital.

For everyday meal, his family can enjoy chicken eggs twice a month and meat curry 5 - 10 times a year. For the rest days, they eat roselle, lima bean, vegetables from the forest. His wife said that they eat very small fishes almost every day and the expense was 300 Kyats for two meals. They consume 2 pyi and 2 nohzibu of old rice mixed with broken rice per day (they always buy old rice because it has cooking quality). For lighting, 100 - 200 Kyats per day and for other kitchen expense such as cheap mixed oil, salt, ngapi, etc. about 600 Kyats have to be spent. U Maung San likes cheroots (local cigarette) and betel-chewing which cost him 100 Kyats per day (because he keeps a betel box at home). Therefore, the daily expense of his family is estimated at about 1,730 Kyats. Every three years, he has to spend 7,000 Kyats to buy toddy-palm leaves for roofing and walls.

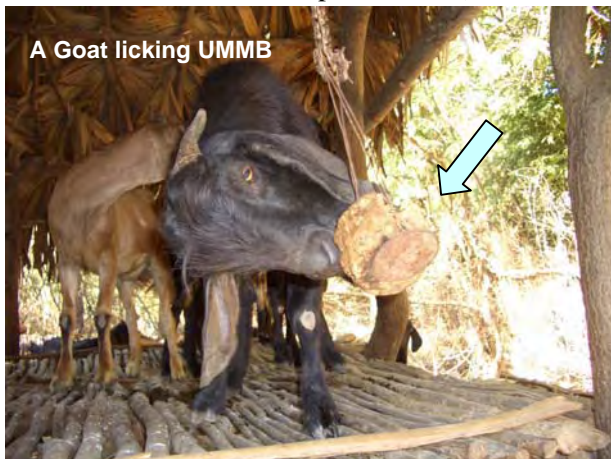
■The goats were distributed

Za Yit village was provided with goats of 50 female goats and 2 male goats for 10 beneficiaries. U Maung San and other 4 beneficiaries formed a group to manage goats collectively. In August 2008, they were provided with 25 female goats and 1 male goat. They started raising goats at the goat housing with a raised-floor which collectively constructed at the cost of 25,000 Kyats. They shared the housing cost evenly each member contributing 5,000 Kyats. U Maung San did not have to borrow money for that contribution.



Since he had experience of goat raising in the past, other members wanted him to do the herding for them, and in turn they decided to pay him 5,000 Kyats each per month. This arrangement is really good for him, because he can herd the goats while still collecting firewood, his old job. Of course, the volume of the firewood collected may not be as much same as before, but at least that does not mean he has to spare the old income source. It means the herding gave him an additional income source while still keeping the old income source.

Now, he manages goat housing sanitation work by applying ash and lime powder according to the instruction given by LBVD Township Officer. He feeds the goats even with UMMB (urea molasses and mineral block, see the photo below).



■Benefit and the Future of Raising Goats

In his group, 6 female and 2 male were born as of January 2009 though 1 original female died. They bought a female goat for 10,000 Kyats immediately after the death by contributing 2,000 Kyats each to replace the dead one.



At this moment the group owns 34 goats (31 female and 3 male). Assuming that existing 25 female reproduce at least 18 kids (25x0.7), probably by this summer, since most of female are pregnant at this moment (Jan 2009) they will have 52 goats (40 female and 12 male). However, they will have to revolve 25 goats to the 2nd generation probably in the next year. If subtracting 25 goats, the group will own 27 goats, which are their own property equivalent to 189,000 Kyats per member (5.4 x 35,000 Kyats of prevalent market price).

U Maung San's Group's Herd

As of Jan 2009				End of 2009 to early 2010					
Original		Kids born		Expected kids		For Revolving		Own Goats	
F	M	F	M	F	M	F	M*	F	M
25	1	6	2	9	9	13	12	27	0

Note*: Male goat can be changed to female ones very easily in this area; therefore male is counted as part of the revolving programme.

In addition, he could earn extra income from selling goat-dung (1.5 baskets - 500 Kyats). To date, 8,200 + 3,500 Kyats from selling goat-dung twice have been earned. To be exact, goats were provided by the Project in August 2008 and in December 2008 he could earn extra income 11,700 Kyats from selling goat-dung within the period of five months. It can be said that he earns 2,340 Kyats per month from selling goat-dung. From goat raising, at present, he earns 22,340 Kyats per month (herding + goat-dung). His income and his household economy will surely be improved in the near future.

■Their expectation

He decides to continue goat raising taking this opportunity. He thinks that he could get the property that brings him sustainable and reliable income sources. If he is able to manage them well, his family will enjoy more benefit. He also expects his debt can be reduced or cleared off in the future. He has a plan to improve the housing condition, either. His wife wants to open a small shop selling kitchen things such as eggs, rice, oil, salt, onion, chili, etc. using profit from the goat raising. Hope their dream would come true in the days to come.

This Newsletter, No.32, is presented in English and Burmese versions: People prefer meats. Villagers in our pilot villages say they want to have meats every day if household economy allows. At restaurant, beef, pork, chicken and mutton are surely served. According to data from the Ministry of Livestock and Fisheries in 2000, chicken is the most consumed meat by Myanmar people at a rate of 4.4kg per capita per year, followed by pork at 2.4kg (by the way, typical Japanese consumes 10.5 kg and 12.1 kg respectively).

The share of goat and sheep of CDZ accounts for 77% of the Union while only 28% for pigs. However, small-scale piggery can be observed whenever visiting rural villages especially in Sagaing Division and in paddy cultivation areas. Most pigs in village level are raised in small scale on free range, excluding few commercial basis piggery. Based on an idea that piggery will contribute to uplifting living standard of the poor as the case of goat raising, a piggery pilot project was firstly tried in a village in FY 2007/08 and now expanded to 4 villages in this FY 2008/09. Here, we report the progress and current status of the piggery project of FY 2007/08, that is in Legaing Village in Pwintbyu TS, Magway.



Beneficiaries Increased from 15 to 31, Pigs Increased from 30 to 95 !!!

■ Disparity in Legaing Village

Legaing Village has 776 households including 326 farm households (42%) and 450 non-farm households (58%). The farmland, almost all being Le (lowland), of the village is irrigated, which is of rare case in CDZ. It is widely said that under Ya (upland) areas at least 8 to 10 acres are necessary to feed a family with a pair of draft cattle but only 3 ac can be of minimum farm size able to feed a family here in Legaing Village thanks to the availability of irrigation.

However, one may notice that farm households have received the favourable terms, leaving the landless out of the sight of irrigation benefits. Most of landless people have been living on farm casual working wage paid by farm households. Their household economy must be vulnerable because of the seasonality of farming. In fact, it is difficult to well maintain a family only by depending on income from farm wage even if both husband and the wife have worked almost throughout a year.

If both of them work 360 days a year as farm casual labour, their estimated annual income arrives at 648,000 Kyats, e.g. (1000 for husband + 800 for wife) x 360 days. As a result, most of them fall below the poverty line estimated at 1.1 million Kyats/year/HH under this Study. Under such condition, it is confirmed by a household economic survey done under this Study that there exists

considerable economic disparity between farm households and non-farm households in this village as exemplified by a Gini Index of over 0.4.

■ The Poor, Target People

The piggery pilot project aimed at targeting the poor strata in this Legaing village, mostly landless people. 15 villagers were selected as the 1st generation beneficiary, consisting of 12 landless people and 3 small-scale farm households, of whom 4 women involved. During September to November 2007, 2 piglets (about 5kg/head) each were distributed by the pilot project, so total pigs provided were 30 to this village. All the beneficiaries were requested to construct a pig housing before the provision and also follow a revolving system established for this pilot.

■ Revolving System Established

The revolving system for piggery was set up with the aim of expanding number of beneficiaries under the pilot project. Under the system, each beneficiary is supposed to sell pigs after finishing the fattening to refund the 35,000 Kyats/head, the price with which the pig was procured, to the committee. The refunded money will of course be used to purchase piglets for the 2nd generation beneficiaries. By applying this system it will be possible to increase beneficiaries and to improve household's economy of the poor in this village to an extent.

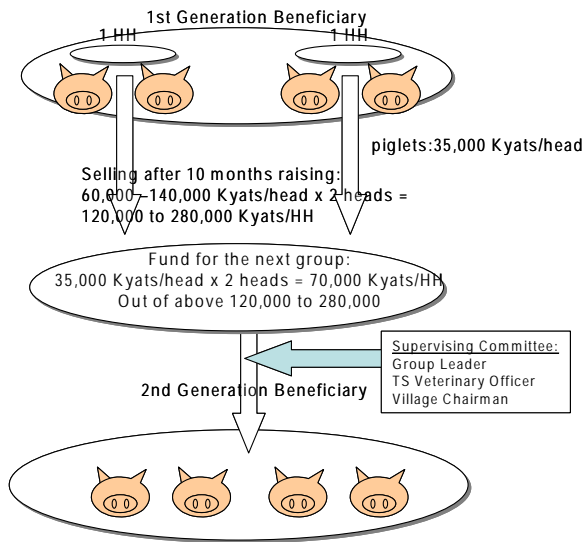


Figure 1. Piggery Revolving System (in form of cash)

■ Handover to 2nd Generation was Done!

Out of 30 piglets distributed by the project, unfortunately 6 heads died of winter cold, and remaining 24 heads were sold out after the fattening according to the revolving system. Though individual live weight of pigs when sold was not confirmed, it is estimated that there existed some differences in the body weight, which would have definitely resulted in the difference of the selling price. The committee of the village, upon receiving the refund from the 1st generation beneficiaries, purchased piglets and then distributed them to the 2nd generation beneficiaries. When distributing, the committee decided to provide only one piglet each considering cost saving for feeding. As the result, number of beneficiaries of 2nd group has increased to 24 (original 15 beneficiaries x 2 pigs – 6 died = 24 pigs), who are landless people including 2 women. Unfortunately again, there have been 5 piglets died out of the 24 piglets provided to date due to winter-coldness. However, 12 kids were born to date (as of end of January 2009), well recovering the death.

■ Beneficiaries Chase up more Profit

The revolving by the 1st generation of the beneficiary has finished on September to October 2008 (almost one year later from the time the 1st generation pigs were provided), and all the beneficiaries fulfilled their duties excluding the ones whose pigs died. Surprisingly, 12 beneficiaries out of the original 15 beneficiaries of the 1st generation have been continuing piggery using profit out of selling the fattened pigs. 3 beneficiaries in fact decided to quit raising pigs for reasons of; 1) low profit, 2) busyness for other works, etc. Some beneficiaries of the 1st and 2nd generation have sought more profit from piggery by purchasing female pigs for breeding purpose

and some beneficiaries have changed even provided male to female to get piglets. Originally it was fattening programme but not mixed with breeding. Currently 12 beneficiaries of the 1st generation raise a total of 64 pigs (32 female and 32 male). In other words, those who had almost no property in the past became owner of 5.3 head of pigs each on average in spite of that they started from almost zero.

Table 1. The Current Status of Legaing Piggery Pilot Project

Nr.	Beneficiaries	After Handover to 2nd Generation											Remarks		
		Adult Pig Newly Bought for Breeders			Pigs Born			Pigs Died			Present Status				
		M	F	Total	M	F	Total	M	F	Total	M	F		Total	
1	U Kyaw Thein	0	1	1	3	4	7	0	0	0	0	3	5	8	
2	U Zaw Than	0	0	0	4	6	10	0	0	0	0	4	6	10	
3	U Nyo	0	0	0	2	1	3	0	0	0	0	2	1	3	
4	U Myint Htay	0	0	0	10	6	16	2	2	4	8	4	12		
5	Aye Cho	0	0	0	0	0	0	0	0	0	0	0	0	0	No more raising
6	Daw Mya Yi	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	U Kyaw Win	0	1	1	0	0	0	0	0	0	0	0	1	1	No more raising
8	U Lay Maung Maung Tin	0	0	0	6	4	10	0	1	1	6	3	9		
9	U Kyi win	0	1	1	4	4	8	0	0	0	4	5	9		
10	Daw Ohn Tin Mya	2	0	2	0	0	0	0	0	0	2	0	2		
11	U Mya Maung	0	0	0	2	3	5	1	0	1	1	3	4		
12	Ko Pyar/Ko Ag Myint	0	1	1	0	0	0	0	0	0	0	1	1		
13	Ko Kyaw Swe	0	0	0	0	0	0	0	0	0	0	0	0	No more raising	
14	Ma Su Mon Yi	0	0	0	3	4	7	2	3	5	1	1	2		
15	Daw Saw Kyi	1	2	3	0	0	0	0	0	0	1	2	3		
	Total	3	6	9	34	32	66	5	6	11	32	32	64		

■ Beneficiaries were Increased!

Now in Legaing Village 31 beneficiaries are rearing pigs when accumulating 12 beneficiaries, originally 15 – 3 dropped off, of the 1st generation and 19 beneficiaries, originally 24 – 5 pigs died, of the 2nd one. This accounts for about 7% of the landless households in this village. Assuming that this status will be continued, ratio of the beneficiaries who are the landless poor could exceed 10% within this year of 2009, assisting the rural poor landless people. Likewise, economic disparity in this village may be alleviated to some extent through this piggery pilot project, which is one of the major objectives of the project.

■ Fattening or Breeding?

The beneficiaries can be divided into two, those who fatten piglets, and those who fatten and do breeding at the same time, in both 1st and 2nd generation. For the former, it is very important to grow pigs reasonably bigger for marketing to sell at a good price. Regarding breeding, it requires some specific knowledge and technology to judge timing of mating and feeding for sows, etc rather than simple fattening but it will generate more profit by regular kidding of piglets of 8 to 10 head (sometimes 12 head), which can be sold after weaning at about 25,000 Kyats /head for fattening purpose. In other words, it may bring profit in shorter period if s/he succeeds in the breeding. Depending upon the condition allowed such as feeding cost for sows, service charge, availability of space for pigs, beneficiaries may choose fattening, breeding or integrated one.



This newsletter No.35 is issued in both English and Myanmar. In this newsletter raised-bed cultivation, one of the Pilot Projects of agriculture sector in the 2007-08 financial year will be presented. That project was carried out in Khaungkawe village in Tada-U township, Magyi village in Ngazun township and Ma Gyi Sauk village in Ayadaw township respectively. Here we would like to share information about a successful cultivator who has been applying raised-bed cultivation method in Ma Gyi Sauk village.

Conquest of Raised-bed Cultivation !!

■ Lessons taken from practical experience

In Ma Gyi Sauk village, there emerged a cultivator who has been making headway in raised-bed cultivation of 'gladiolus flower'. Instead of onion, tomato and cabbage, he cultivated 'gladiolus flower' by using raised-bed method. His name is U Hla Htun and there are altogether 10 family members including himself. He owns about 10 acres of upland. According to him, why raised-bed cultivation was not so successful in Ma Gyi Sauk was owing to beneficiaries' lack of experience, it is learnt. Some beneficiaries were reluctant to try raised-bed cultivation method again since they did not meet with success at their first attempt. On the contrary, U Hla Htun, taking lessons from his past experiences and failings, continued trying raised-bed cultivation method this year.

■ Why success comes to him

U Hla Htun was so interested in raised-bed cultivation method that he asked for advice from his intimates who have been practicing raised-bed cultivation to a large extent and in a systematic manner at 'Khin Mon' village and its neighbouring villages which are situated in Monywa district. Before gladiolus flower were sown, he intended to do vegetable cultivation such as tomato, cabbage, etc. Then he paid a visit to his relatives who live in Sagaing town and it happened to him to meet with some horticulturists who have been practicing horticulture on a large scale in Pyin-oo-lwin.

He was absorbed in cultivation with them and an idea of 'gladiolus flower' cultivation flashed upon him. He strongly believes that raised-bed cultivation method will be far more profitable than conventional upland cultivation, and accordingly, he energetically learnt the nature of gladiolus, cultivation method for it, etc. When he got back to his village, he carried out gladiolus cultivation to the best of his knowledge and ability. And in turn, his raised-bed cultivation was more successful than he had expected. In that plot, Thanakha and other vegetables were sown previously, but he did not take care of them. Only after he has been trained by the project for raised-bed cultivation did he come

to know much profit can be obtained by raised-bed method in a small area, he explained so. Gladiolus was cultivated in 0.50 acre in September and another 0.20 acre in November.

According to him, it is learnt that one seed bulb of gladiolus has to be bought for 10 Kyats and one original seed bulb can develop to 2-4 new seed bulbs. Therefore, profit from selling not only gladiolus flowers but also seed bulbs can be obtained for him. About 10 interested villagers within his village, on hearing his success in gladiolus flower cultivation, are to imitate him. U Hla Htun said that they will certainly practice raised-bed cultivation method next year but crop may be different. Those who want to grow gladiolus flower will buy seed bulbs from him. Flower seed-bulbs developed from original seed-bulbs, which he bought for 10 Kyats per seed-bulb, will be sold to his villagers for 10 - 12 Kyats per seed-bulb.



Photo: U Hla Tun was found in the plot near his house where gladiolus flowers were grown.

This year, U Hla Htun grew not only gladiolus flower but also betel-leaf plantations. Betel plants were grown in 0.20 acre just to procure seeds for the next year. In the next year betel plants will be grown on an extended scale, it is learnt. One betel seedling (with one tendril) has to be bought for 350 Kyats and seedlings have been grown with great expectation. He grew betel seedlings in September and beginning from mid December 2008, and as of early 2009 he could pluck betel leaves. The price of

betel leaves is 5,000 Kyats per viss and about 4 viss of betel leaves are obtained per plucking. Plucking of betel leaves is to be done every 15 days and he sold his betel leaves to betel shops and households which keep betel-box at home in his village, he said. According to his explanation he gained the technology of betel plant cultivation from Ma Le Tha village and Ngar Kin village in Myinmu township from those places he had to buy betel seedlings.



Photo: Betel plant cultivation was explained by U Hla Htun.

■ Raised-bed method in (0.5) acre and conventional method in upland (5) acres-the choice is yours

Gladiolus flowers, 2.5 months after seed bulbs have been sown, can be harvested for the first time. At the time when he was interviewed, he was gaining 40-60 bunches of flowers, each bunch containing five plants and selling them at the price of 250 Kyats per bunch to 5-6 vendors and hawkers in his village, in fact, his regular buyers. He could have earned about 300,000 Kyats from selling gladiolus flowers 3 months after sowing them.

There are 2 more horticulturists in Ma Gyi Sauk village like U Hla Htun, though, they could not harvest as much as that of U Hla Htun as they did it on smaller areas such as 0.30-0.40 acre. U Hla Htun said, "Last year, being the first experience for me, I faced with many technical difficulties. Although the training was conducted to beneficiaries by the project I came to notice a few differences between theory and practice when I applied raised-bed cultivation method practically. According to my experience, for example, it is better to use foliar fertilizer a little earlier than the time taught at the training, and so and so. Raised-bed cultivation was not much successful last year, but the profit we got is the experience of raised-bed cultivation method".

Owing to his valuable experience and continuous learning of raised-bed cultivation method, now he can cultivate not only gladiolus flower but also many crops by raised-bed method. According to U Hla Tun's explanations, gladiolus likes cold weather and so the most suitable time to sow it is winter. In rainy season, seed-bulbs are to be unearthed and kept under shelter on the ground to make seed-bulbs strong. If a seed bulb of gladiolus is sown, it takes about 5 months to be harvested and seed bulbs have to be dug up and kept on the ground for about 3 months before they are sown. Seed bulbs can be kept on the ground for about 5-7 months. Normally, seed bulbs are sown within 3-5 months. Even though they are not sown under the circumstances and delayed, it does not matter at all, it is learnt. What is necessary is to spread sand on the ground and to put seed bulbs on the sand and to keep them under cover.

U Hla Htun expressed his opinion and said "Raised-bed cultivation is, if it has been successful, much more profitable than conventional Ya cultivation. In my opinion, if 0.50 acre under raised-bed cultivation method is successful, it can compete with 4-5 acres of Ya land under conventional cultivation. Last year there was no good market for onion, otherwise onion could earn much profit".

At present (when he was interviewed) seed bulbs of gladiolus flower have been dug up and kept on 0.20 acre and the harvest from 0.20 acre is quite enough for 0.50 acre, it is said. While seed-bulbs are kept on the ground and the plot is vacant, he intended to grow a kind of vegetable. He is going to sow onion next year if farm gate price of onion is good. According to him he needs a water pump with a compressor for enough irrigation and he will try his best to be able to buy it. In his home compound, there is already a tube-well and when a water-pump has been bought he'll extend his raised-bed cultivation by growing other crops.

Raised-bed cultivation method is really effective to get much profit from a small area and so it is good for those who do not own many acres of land. What is necessary is to sow systematically and with care. As for U Hla Tun, if he is keeping on doing like this, he will be able to extend his raised-bed cultivation and earn much income in the near future. Not only that but also it is showing how much we succeed a part of our purpose, poverty reduction and livelihood improvement programme.

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Under the captioned study, pilot project implementation has been progressing with the initiatives from the Ministry of Agriculture and Irrigation, Ministry of Livestock and Fisheries, and Ministry of Cooperatives. In fact, FY 2009/10 is the 3rd year for the implementation, and the Team resumed the activities together with the counterparts upon arrival at Yangon on May 18, 2009. The team, after courtesy call to HQs of the Ministries, started following up of the pilot project from Magway division. This Newsletter, No.36 and the first one in the FY 2009/10, brings you the extension activities to promote ICM (integrated crop management) on paddy cultivation. The extension has been carried out in 13 TSs since the completion of a net 6-day training course held back to January 2009, out of which activities in Magway area are now reported in the following:

How Committed the TS MAS Officers are to Improve Paddy Cultivation !!

■ Review of the Training: What is ICM?

In essence, ICM referred here is to well manage the cultivation by paddy growing stage. The growing stage is composed of germination stage, nursery stage, active tillering stage, panicle formation stage, initial reduction division stage, heading and flowering stage, and active ripening stage. Points taken have been well lectured by the stage during the training. In addition, what was strengthened was how to increase the yield and also what factors affect the yield to what extent.

First step of paddy cultivation starts with selection of good paddy seeds. Good paddy seed means heavy seeds filled with contents inside. Selection by using salt water is a recommendable method to select good seeds. Light ones are to float and therefore the good seeds are the ones which remain at the bottom of the container. To soak the seeds well into water for a prescribed time-period leads to improvement of germination rate. Growing itself is done in main field at which the land should be leveled as evenly as possible. Otherwise, water cannot be distributed evenly, giving deeper and shallower patches in one field, resulting in uneven growth of paddy plants. Rainfall is not even and not predictable either in CDZ, and the fields should be leveled as evenly as possible, making water management better.

Nursery starts with preparation of the bed and then casting the seeds. Good seedlings lead to the successive good and healthy growing, and therefore growing of healthy seedlings is one of the most important process in paddy cultivation. Good seedlings need good nursery, e.g. reduced area wet-bed nursery, and also period of the cultivation in the nursery should be 15 days to 25 days, and not more than that. If seedlings are more than 30 days, the tillering in the main field would no longer take place. Recommended number of plants per hill in this ICM training was taught to be around 3. In

case where main field is not fertile, a narrower spacing like 6" x 6" or 9" x 4" is recommended while where soils are fertile, the spacing can be extended to 8" x 8" or even to 9" x 9". The water depth when the seedlings are to be transplanted to the main field should be around 1 inch.

After a seedling has been transplanted to the main field, tillering is to start. Tillerings come out from a part between the stem and roots, growing to panicles. The period till panicles have been formed is called active tillering stage. Top dressing fertilizer or organic fertilizer may be required at this stage if panicle formation is not well being developed or number of tillerings is less. Panicle formation stage covers up to the time initial panicle shows up, length of which is usually 2 mm. After that, reduction starts and still the paddy grows until heading stage.

When the panicles have been formed, flowering starts and self-pollination is done. To increase the number of seeds top dressing fertilizer is required. Drying-up the paddy field is also required if it can be done associated with good drainage system, which can facilitate giving nutrition to roots. Weeding must be done regularly.

All those above are tips to improve paddy cultivation taught during the training. In fact, at the end of the training, the participants, total 42 from 13 TSs and relevant upper cadre officers such as districts and divisions, formulated their own actions plans, following which they have been extending above technologies contributing to the improvement of paddy.

■ Extension Activities in Mimbu TS

The team visited Minbu TS MAS office on May 21, 2009. Minbu TS manager, U Tun Myint, showed us a demonstration plot established within the compound of the office where ICM is demonstrated. This demonstration plot was indeed

utilized for TOT, training to his staff. There are total 19 staff he oversees, out of whom there are 7 extension staff. The 7 extension staff learned all the ICM technologies transferred by the TS manager just beside the demonstration plot. In addition, he invited to the demonstration plot as many as 89 participants composed of farmers and TS PDC relevant officers. He in fact took an advantage of TS PDC meeting to which all the village chairpersons (mostly farmers) are supposed to attend.



Photo-1: Demonstration plot established in the MAS compound, used for TOT and invited 89 participants.

Tips tried in the above demonstration plot were raised-bed nursery, early transplanting of 17 days (as against conventional method of 30-45 days seedlings), 3 plants per hill (as against conventional 5-8 plants per hill), about 1-inch planting (as against about 2-inches), etc. There is one thing which should be noticed. Temperature in this area is very high, shooting up to near 40 Celsius degrees. With this high temperature, sometimes young seedlings can die, and therefore he recommended 3 plants per hill and did not try 1 or 2 plants per hill as SRI alike.

They produced an extension material. It is an almost A-1 size and printed on vinyl paper. The TS office produced 2 kinds of the extension materials with reference to the manual provided during the training. Then, the Divisional Office found out the extension material very effective, and decided to produce a bigger one shown in the photo-2 and distributed to all the 25 TSs in the division. Given the powerful and visual extension materials, the extension became more efficient, reaching deeply to the farmers.

As the TS officers have been extending ICM technologies, a farmer came across the extension and found the extension manual that the TS extension officer used to carry. The manual, according to the farmer, was so simple as to easily

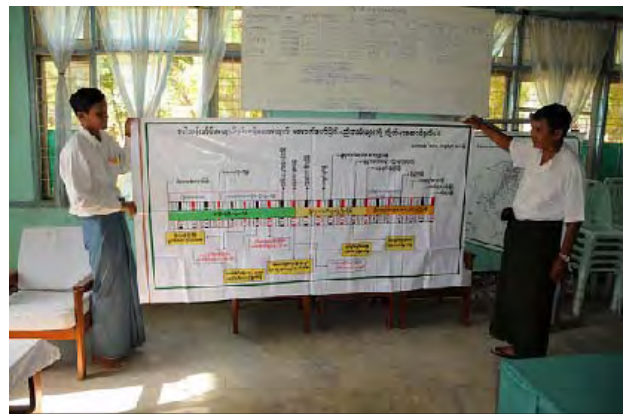


Photo-2: Extension material produced by divisional office, showing the paddy growing stages with appropriate intervention.

understand and so effective that anyone can apply in the fields. The farmer, U Lwin Oo, convened his fellow farmers, total 7 farmers, and they contributed 5,000 – 8,000 Kyats each of fund to order the manual to the publisher. In fact, surprisingly, they ordered total 300 booklets, unit price of which is 500 Kyats !! They distributed those booklets to their fellow farmers at the same price if the fellow farmer can afford and if not free of charge.



Photo-3: U Lwin Oo with the extension manual that he and his fellow farmers ordered 300.

We interviewed 3 farmers including U Lwin Oo. U Lwin Oo has 7 ac, his friend has 7 ac and another friend has 34 ac. These are equipped with irrigation canal, so that summer paddy can be cultivated. Their yields for summer paddy are 80-100, 90 and 80 baskets respectively per acre so far. This time, 2009 summer paddy, they can expect another 10 baskets more harvest thanks to the technologies tried under ICM. They changed the preparation of nursery bed from flat to raised bed type, introduced early transplanting and changed the timing of fertilizer application, etc. Their paddy fields are now panicle formation stage and the harvest is coming to July.

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This newsletter No. (37) is issued both in English and Myanmar. A pilot project, with an aim at boosting the production of village's products and earning village revolving fund, constructed a village development sales centre (or) a shop selling village's products at Legaing village, Pwintbyu Township in Magway Division. In this newsletter, reported are measures taken after the village development sales centre has been opened, efforts made by the Project and village development sales centre committee members to be able to earn brisk sales for the centre; present situation and difficulties being faced with after over one year of the shop's opening; basic causes which bring about those difficulties; benefits caused by the centre to the village; measures to be taken in the days to come to overcome the difficulties being faced with; and suggestions based on questions and answers of interviews.

Let's open Village Development Sales Centre for the Progress of Rural Community (Part I)

■ Construction and Opening of Village Development Sales Centre

The Project, taking into consideration of village's well-known product such as 'Ma Yway' (crisp snack) and promotion of village's products, travellers' requirements, and bringing about village development, constructed a village development sales centre (or) a shop selling village products in the end of 2007. The objectives are to develop the village's cottage industry, for the travellers to take a rest comfortably at a reasonably -modernized place, to earn money from renting out shops and to spend that money for village development activities and for loans to be disbursed out as capital to the poor villagers.



Photo (1) - Village well-known product, 'Legaing Mayway' being sold on roadside to passengers of highway bus.

In February 2008, the centre with a restaurant could be opened. In reality, the Project and village responsible persons have already formed VDSC committee comprising (5) volunteers in advance to be able to supervise activities concerning VDSC. Moreover, the Project and the VDSC committee, to make sure of earning village revolving fund, rented

out half of the centre to a restaurant from which a considerable large amount of money can be earned on one part, and arranged a study tour for those who are interested in renting shops by taking them to successful roadside sales shops situated in other regions on the other. Not only that, after the opening of the sales centre, necessary construction and preparations for shopkeepers who sell village products with small investment have been made in the other half of the centre.

■ How the Restaurant is going on

In connection with renting out a restaurant for earning village revolving fund, interested villagers were got together and invited tenders for the price. There appeared (3) interested persons and the present owner of 'Aung Myint Myat Restaurant' which is now being opened offered 50,000 kyats per month and won the auction. After that, in one half of the centre, a restaurant was opened beginning from February 2008. However, six months later after the restaurant has been opened, that was in July 2008, the restaurant owner presented to the VDSC committee that she was in trouble because the rental was too high for her. Negotiation was made and the rental was reduced to 30,000 kyats. After such situation, efforts from every angle were made to make the centre develop. (Those efforts are mentioned in detail at the later part of this newsletter.) Though, there brought about world-wide business crisis at the beginning of 2009 and that added to the previous trouble. As a result, the daily sales of restaurant decreased from 15,000 - 30,000 kyats to 6,000 - 15,000 kyats. The restaurant owner found it difficult to pay the rental and she presented that she was going to re-hand over the rented space to the committee in May 2009. And it is learnt that

the committee had to reduce the rental from 30,000 to 20,000 kyats beginning from May after negotiation between the committee and the owner.

■ Condition of renting out small shops

In the other half the VDSC, necessary preparations for small shopkeepers who sell village products were completed in April 2008. Interested persons were organized by the committee and arrangement was made to let small shopkeepers open their shops at the rental rate of 5,000 kyats per month for a shop.



Photo (2) - Small shops in Village Development Sales Centre. Each shop being 8ft in width with facilities of electricity and water supply under shelter.

Although there were altogether (8) villagers who wanted to open their small shops at the centre at first, arrangement for it ended in smoke due to high rental rate. Even though the committee reduced the rental rate to 100 kyats per day for a shop, there were few persons who came to the centre. For this reason, the committee made it known that anybody who wanted to open his/her shop at the centre could do it so free of charge during an experimental period (one month). Beginning from June 2008, there appeared some shops selling village products. However, one small shop owner after another gave up and so those small shops are still not busy right up to now from February 2009 onwards.

■ Concerted Efforts to make the Centre busy

As a matter of fact, the place where the centre is situated is a little bit away from the main place of village although it is situated near village municipal market. Therefore, the Project and the committee had to make every effort to turn it into a busy place. First and foremost, the committee spent about 60,000

kyats for building approach-road for highway buses and small pilgrimage-cars and earth working up around of centre for parking. That money was spent from the rental of restaurant. Furthermore, to widen the scope of knowledge and gain general knowledge for not only own villagers but also villagers from nearby villages, 'Information-sharing Board' was erected in front of the centre. The board on which modern technologies were made known with the purpose of improving rural community, was arranged by spending more than 50,000 kyats from village revolving fund.



Photo (3) - Information-sharing Board: Anybody can mention his/her technologies which are effective for rural community on this board.

Under the leadership of the Project, a stone pillar was donated to the famous pagoda named 'Kyaung Taw Yar', which is situated near Legaing village. The objectives of the stone pillar are to gain practically-effective suggestions and ideas for the development of village from pilgrims from all parts of the country, to be able to sell village products to those who come to the centre, and to enable to donate every year to the pagoda from village fund. And it was made known that the person who could give the best technology or idea or suggestion would be selected every year by the committee, and donations would be contributed to the pagoda on behalf of that person and his/her name would be inscribed on the pillar. Anybody who was interested in it could get contact with the centre. To implement the above-mentioned activities, advertisements and letter-boxes for suggestions were made at the expense of the committee.

To be continued

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This newsletter is the 2nd instalment to the immediate previous newsletter. In the immediate-previous newsletter, activities carried out after the sales centre has been put into service and efforts made by the Project and village development sales centre committee members to make the centre a busy place have been shared to readers. In this newsletter, as the centre has been opened for over one year, present conditions and difficulties being faced with; thoughts and views of local villagers; drivers of motor-vehicles which pass through Legaing village and passengers or travellers; benefits caused by the centre to village; the ways on-wards to overcome the present-day difficulties; and suggestions will be presented to readers.

Let's open Village Development Sales Centre for the Progress of Rural Community (Part II)

■ Difficulties regarding the Sales Centre

As mentioned in the immediate-previous newsletter the Project and the committee energetically carried out activities to make the centre a busy place, though, at present there are not quite many people who are interested in the centre. In turn, there are very few ones who want to open his/her shop at the centre. To add to this trouble, few parking of highway buses and vehicles on pilgrimage caused the restaurant to earn less sales than expected.



Photo (1) - Scene of Village Development Sales Centre and its Restaurant with few customers.

And only one person emerged to give suggestions or ideas to bring about village development and so the objective of erecting a stone pillar in the pagoda precinct was not fully materialized. The objective of opening the sales centre could hardly be implemented and at the same time the work of earning village fund is gradually degrading.

■ Thoughts and Views of local villagers, drivers and passengers, etc.

The first difficulty of all is, it is learnt, that no renting income from small shop owners who sell village products in the other half of the centre. On enquiry with this difficulty to 4 - 5 shopkeepers from village municipal market which is quite close

to the centre, the following are the points learnt through them:

- (1) They, at first and foremost, thought that the centre built by the Project had nothing to do with them, and since they were of the lowest status they were afraid to deal with foreigners as well as authorities concerned;
- (2) They did not know about letting shopkeepers open their shops at the centre without having to pay any rental in a probational month;
- (3) They were worried about losing their old customers if they opened their shop at the centre;
- (4) It would be inconvenient for them if they opened new shops at the centre and kept their old ones at the market at the same time;
- (5) Out of (50) shopkeepers in the village municipal market, about (5) could open their shops at the centre, it is learnt.

Previously, there was a row of shops near the centre. Those shops had to be removed from the original area in April 2009. Nevertheless, neither of the shops came to join the centre. They only went to the new row of shops built in the village. On enquiring (3) shopkeepers of those who went to the new row of shops in the village, they said that the rental rate of 30,000 kyats per month was very expensive for them and they really did not know the facts concerning the sales centre exactly. This shows that dissemination of news and information about the centre and activities of organization were to be added with accelerated momentum.

When a 'Mohingha' seller who rented a shop at the new row of shops in the village was interviewed, he said that for this shop he had to pay 50,000 kyats as advanced money and 3,000 kyats per month. He also said that the advanced money may be expensive but it was quite convenient for him because the shop was close to video house and situated at a busy place and so daily sales could reach 15,000 to 25,000 kyats.

Again, when a highway-bus driver was interviewed, he said that the sales centre area was not so easy for drivers to park in and out and there were not many shops for passengers. Having considered these points, it is learnt that there were hardly interested shopkeepers because the sales centre was not a busy place, and it is still necessary to build a parking area at the side of a main road.

The last interview fell on to the restaurant owner. The owner replied that the shop was a bit isolated and therefore there were only a few customers; that the building was so grand that customers thought everything would be expensive and they were reluctant to visit; and that tomato jam was previously sold at the restaurant as one of the village's products but now due to high price of raw materials it could not be sold any more, resulting fewer customers.

■ Benefits caused by the Centre to Village

Despite difficulties concerning the sales centre as mentioned above, it is learnt through the sales centre committee that the centre could serve village development to a greater extent. They were:

- (1) Loans of 33,000 kyats could be disbursed out to 5 poor, landless beneficiaries of mushroom cultivation with low interest and helped increase their income;
- (2) In an attempt to try to get a better bull than the bull provided by the Project for reproduction of quality draught cattle, 30,000 kyats could be contributed;
- (3) For 9th and 10th standard students who were going to sit for the final examination of 2008 - 2009 academic year, 10,000 kyats per month could be provided for 3 months starting from December 2008 for fuel to be used for the generator for night study right up to the time when the examination was over (9th standard students passed the examination 100% and the result of 10th standard students is not yet out at the time of this newsletter.); and
- (4) At the commencement of 2009 academic year for (20) children who were going to attend kindergarten class and who were from 'Save the children' nursery school, books, compass-boxes, pencils, etc. worth of about 20,000 kyats could be provided.

■ Ways on-ward to overcome the difficulties and suggestions

According to the above-mentioned benefits accrued by the centre to village, everybody will admit that opening of the sales centre was effective for the village in one way or another. It can be assumed that it is necessary for each and everyone to work

together through weal and woe to keep the sales centre develop in the long run. The following are the ways on-ward to overcome the difficulties being faced with at present and suggestions:

- ✓ to precisely organize shopkeepers in the village municipal market and hawkers of village's products to come to understand about the sales centre (if necessary, to organize by distribution of pamphlets and sticking of advertisements)
- ✓ to make arrangements for water supply and utilization for vehicles, to have a systemic drainage system, to resurface and extend roads for car parking, and to put up signs at roadside for car parking and toilets.
- ✓ to use the sales centre building and the place of restaurant as much as possible when village-related occasions such as wedding reception, talks, etc. are to be held
- ✓ to lend money to those who sell village's products on small scale and those who produce village's products on a manageable scale from village revolving fund and instead to let them open their shops at the sales centre, and
- ✓ to get help from authorities concerned to make the centre a busy place.



Photo (2) - Scene of road extension work being carried out by the committee after getting suggestions.

In a nutshell, on the part of the sales centre committee, it has made all-out efforts with might and main to implement such suggestions as soon as possible. An example is an extension of the parking areas as shown in the above Photo-2, it is learnt. Improved changes and conditions in the near future will also be shared to readers without fail in the newsletters, we promise.

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This newsletter No. 40 is issued in both English and Myanmar. The project has been carrying out activities concerning livelihood improvement sector, one of the sectors of the pilot projects, in conjunction with health-care sector which plays an important role for everybody. Here in this newsletter, development outcomes from a building will be presented to readers. The building was constructed by the project to be used as a feeding centre for children's nutrition at Pabe (North) village, Chauk township in Magway division, and it also emerged as "Village Development Centre" which brings about other beneficial achievements in the village.

Village Development Centre, Village's Image to be proud of

■ Source of bringing about development

Livelihood improvement sector is one of the sectors being carried out by the Project. In making endeavour to uplift the standard of living of rural community, the Project, taking into consideration of health-care sector as a main role, studied health conditions of rural community of target villages by applying Body Mass Index (BMI) method in 2007-2008 fiscal year (Detailed-explanations of BMI have been presented in the newsletter No.28). According to health-care survey or results of BMI, it is learnt that villagers of Pabe(North) village (especially children) were lack of nutrition and lower in health condition than those of other target villages.



Photo(1)- Nutrition center, also works as Village Development Center crowded with Children

For this reason, the Project discussed and negotiated with responsible stakeholders from respective Ministries and local consultants about feeding nutritious food to children of Pabe (North) village and then made an arrangement to construct a building to be used as a feeding centre. The work of construction commenced on 13th August, 2008 and the building was completed at the beginning of September. In such a way, a sole centre of Pabe village tract, "Village Development Centre" came into existence.

■ Miraculous Chance for rural children appears

The programme of feeding nutritious food to children for the first time was carried out beginning from 5th

September, 2008. There included (23) children and they were provided with three nutritious meals in a week-on Monday, Wednesday and Friday. It took one month. And then during the month of October, altogether (20) children were fed with nutritious meals on Monday, Wednesday and Friday for the second time and the third time like the first ones. It took right up to January, 2009. In second time feeding, it is learnt as a special feature that five poor, old and infirm villagers were also treated with nutritious meals. No sooner had the second-time children been fed with nutritious meals than (20) children of the third-time were put under the feeding programme.

In connection with selection of children who are suffering from nutrient deficiency and who should be selected before the commencement of the feeding programme, all children between 3 and 5 years in the village were gathered and then selected with the help of BMI method. The village development committee said that they gave first priority to children who are very poor and nutrient-deficient.



Photo(2)- Scene of children having their nutritious meal

They also said that when they selected the children for the second time, they gathered children of (3-8) years age, excluding the first-time children, and then selected should-be children. It is also said that rural health centre has been giving a helping hand to the committee if and when necessary. For the first-time

and second-time children, having enough money donated and contributed by the Project Staff, responsible persons from respective Ministries, local consultants and villagers, they could be provided with nutrients effectively. However, for the third-time children, the committee was facing with a problem of getting fund (donations) to go on the programme, it is learnt.

For the first-and-second-time children, pork, chicken, bean and chicken boiled-rice could be fed for lunch and in the afternoons egg, bread, banana, etc. could be provided depending on convenience. But for the third-time children, except for the days when there were donors, they could be provided with only egg, bean, etc. for their meals. The only same thing for those (3) times is making the children take tablets containing vitamins which were donated by donors after having their lunch. In fact, when it was the time to select the third-time children, there were only a few children to be selected according to BMI method and so there included children of first-and-second-time.

■ Not only extra family income but also morality, hygienic knowledge, etc.

While the centre was being constructed, the Project arranged trainings of vegetable and mushroom cultivation for (20) households in the village. The Project arranged these things to enable beneficiaries to donate some vegetables, mushroom, etc to nutritious feeding without having much expense on one hand, and to enable them to earn extra income by selling vegetables and mushroom on the other. Not to run short of fund, the Project provided (30) goats to the committee during the month of March, 2009.

At present, due to hot and dry season as well as scarcity of water in village, they could not enjoy their fruits of labour. Therefore, there are only (7-8) households continuing vegetable cultivation left. In connection with mushroom cultivation, they will resume it in suitable season, it is said. To gain profit from goats being raised for earning fund, it will take about (7-8) months. Now, (7) kids have been born, it was found.

The Management Committee for nutrient-feeding was composed of (9) members. A group which is to give close supervision on feeding-days has been assigned to do so and there are mothers of some children on it, it is learnt. On feeding-days, children are taught of personal hygiene, behaviour and moral lessons. This arrangement is meant for children to gain hygienic knowledge, to become polite and to develop their general knowledge in addition to provision of nutritious meals. In fact, many beneficiary mothers always tell us that my children have become very polite and in good manners for eating.

■ Blessed, right place where new steps of development are conceived

The Project provided the centre (building) to be used as a 'Children's Nutrition Centre', though, it became a place where village development activities were carried out and implemented. In connection with religion, on important religious days, monks are invited to the centre and offered with alms-food and sermons are delivered by monks. As weekly performance, once a week (especially on Sabbath days) elderly persons in the village recited Buddha's teachings at the centre. It is also learnt that a non-stop recitation of 'Pahtann' (the wheel of Dhamma) was celebrated at the centre in March, 2009.

Other activities such as preventive vaccination for polio, examining of villagers' health by health group at irregular intervals, holding of departmental meetings and talks, etc were carried out at the centre. Not only the aforementioned benefits but also a small library-housing was donated by Pabe village-tract chairman (he donated 150,000 Kyats), U Mann. He said, "Long long ago, a Co-op shop was opened on this ground and things (or) goods were distributed. Other beneficial measures to village were also taken. When Co-op system was no more, nothing was done on this ground. Now, I'm very much pleased with having a 'Village Development Centre' provided by the Project. Believing it will be beneficial to village, I'll try to the best of my knowledge and ability to perpetuate the centre and to carry out village development measures." U Mann is not only a village tract chairman but also a chairman of Village Development Committee.



Photo(3)- Village Development Centre seen together with a newly-built small library

Providing a Village Development Centre to Pabe (North) village is really a correct and essential provision of the Project. In addition, owing to enthusiastic cooperation of villagers and systematic arrangements for village's future on a self-help basis, it will not be wrong to say that this activity is sure to be a long-term-fruitful part of the village development.

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One of pilot projects under living improvement sector is an introduction of improved cooking stove. This programme was initiated in FY 2008/09 in 4 villages of Magyi, Pabe North, Nga Zin Yine, and Kan Pyuu located in different divisions. Outcome from the pilot project varies from one village to another. This newsletter No.42 addresses the progress and achievement of the pilot project, and also difficulties associated with the promotion of cooking stoves.

Different Outcomes from the Introduction of Cooking Stoves !!

■ How Stoves introduced look like ?

Under the pilot project, 2 kinds of improved cooking stove were introduced as shown in the photos. Basic concept between the 2 stoves is more or less same as it is enclosed with clay soils in order to ensure energy efficiency which can contribute to reducing firewood for cooking. The stove, shown in Photo 1 is a little sophisticated one by having 2 cooking places. Advantages associated with this stove is that, of course, it can cook 2 meals simultaneously contributing more firewood saving. The inner side of this stove is structured in 2 stories and ash can drop from upper room where firewood is burnt to the down room through iron grating. This structure can facilitate even wet firewood to be burnt easily by blowing air from the downside room.



Photo 1: An improved stove having 2 cooking places and the inner room is structured in 2 stories.

The stove in Photo 2 has simpler structure than the first one, which cooks only one item at a time (smaller hole at the end of the body is chimney). The simple one is not structured in 2 stories but still has same function to some extent. Placed at the bottom is iron grating through which ash can drop

to a hole made underneath the stove though the function is not as efficient as the 2-storied one. This stove is in fact movable, so that users can move from inside of kitchen house to outside, e.g. to house compound, reducing the risk of catching fire. In fact, there are many villagers who prefer cooking outside to inside the kitchen house during summer because they want to avoid the risk of catching fire.



Photo 2: Another type of cooking stove, simpler one. Has one cooking place only.

■ No outcome in a village where abundant firewood available

In Kan Pyuu village, an improved stove same as the one shown in Photo 1 was made during the demonstration in October 2008. It was used by the family at first, but a couple months later, it was left unattended and has not been used to date. No extension to other households in the village was made. It is observed that the villagers are not interested in constructing the improved stove due mainly to following facts:

- ✓ The village has abundance of firewood in nearby areas, therefore they think no need of saving firewood,
- ✓ The area is not as hot as Magway division where there is high risk of fire, and also located just beside a lake and thus they naturally think of less risk of catching fire, and
- ✓ Poor households with big family size prefer to

use conventional stoves, as they think the improved stove consume more time for cooking.

■ Mixed outcome in a village where another useful stove is available

In Nga Zin Yine village, demonstration of making the stove shown in Photo 2 was conducted on 23rd October 2008 with total 25 participants (3M + 22 F). The sample stove was utilized at U Sein Win's house. Second time demonstration of the stove was made on 14th January 2009 with 14 interested participants. They all made improved stove during the demonstration. To date, as at end of May 2009, a total of about 20 stoves have been constructed. Since there are about 200 households, and therefore so far about 10% of the village household have been covered with the improved stove. The users are very much convinced with the advantages of the cooking stove, i.e: wood saving by at least one-third to at maximum half, reduction of heat reflection, time saving for cooking, and especially prevention from fire hazard.

However, still in this village people are not much interested in the improved stove. This is because there is a simple half-cut-pot-like cooking stove which is sold at a cost of only 300 – 350 Kyats per piece. The stove is not so durable that it can be broken in 1 year according to the villagers. However with the cheap price, now nearly about half the villagers use the pre-fabricated stove, resulting in not much interest in the stove introduced by the project.



Photo 3: Pre-fabricated half-cut-pot-like cooking stove, sold at only 300-350 Kyats per piece.

■ Now good outcome in villages where hot weather prevails and little firewood available

In North Pabe village located in Chauk TS, Magway division where very hot and dry weather prevails, 15 households had continued making improved cooking stoves during December 2008

after the demonstration. Another 5 households made the stove in January 2009, and the Construction has continued one after another.

According to the village chairman, out of total 140 households, about 70-80 households have already introduced the improved stove as shown in Photo 1 or alike including improvement of conventional mud-enclosed cooking stove. They addressed at least 1/3 to half firewood can be saved as compared to conventional stoves, and cooking time is also reduced, though, by about 20% - at maximum 1/3. Thanks to the structure enclosed with clay soils, users can leave the stove without putting out fire (though still risky). Another advantage with this stove in this area is that the villagers can now fully utilize dried pigeon pea stem as firewood which are very much abundant in this area. According to villagers, stem of pigeon pea tends to be flickering when burnt increasing the risk of catching fire. With this situation, many villagers hardly use the dried pigeon pea stems. However, the stove is well enclosed so there is very little risk of causing fire around. Villagers, especially the chairman himself as the village PDC chairman, are very pleased with the stove introduced. They are eager to install the stove to all the households.

In this village, motivated by the continuous construction of improved stove a villager erected a very nice cooking stove shown in Photo 4. The cooking place is elevated so that the user no longer needs to sit on the ground or bend deeply during cooking. She for example just sits on a chair during cooking, completely free from back ache. The husband is a farmer and also a cook. During novitiation ceremony, he cooks heavy amount of food and therefore he knew how difficult it is one cooks with conventional stove like 3-stone (brick) stove placed directly on the ground. He sometimes cooks himself in his house, and both of them are in fact very happy with the modern stove.



Photo 4: An elevated cooking stove constructed by a villager.

This newsletter is issued both in English and Myanmar. Beginning from FY2007/08, the Project has been carrying out activities concerning agriculture, livestock and cottage industry. In livestock sector, poor and landless villagers were targeted to be beneficiaries of goat-raising under a revolving system. For the whole goat-raising in FY 2007/08, the average birth rate was 69% while mortality rate was 12% (see Figure 1). In comparison with other kinds of jobs, goat-raising ensures poor, landless people to be able to earn extra income, enabling them to struggle out of poverty in a few years from the commencement of goat-raising. For these positive results, the Project decided to extend the goat-raising for FY2008/0909 too. This newsletter presents conditions of goat-raising in Legaing village which was carried out in FY2008/09, lessons learnt from it and thoughts and views of goat-raising beneficiaries, etc.

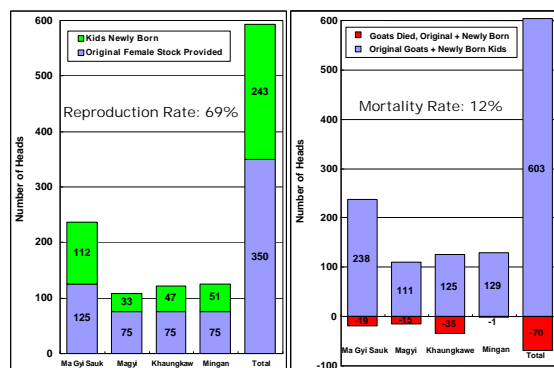


Figure 1. Results of Goat raising in FY2007/08. It can be learnt that birth rate is higher than mortality rate in any village.

Endless Revolving Goat-raising for the Poor Landless

■ Collective goat-raising in Legaing village

In FY2007/08, the Project, to make goat-raising more successful, made beneficiaries build goat-housings with raised-floors. Afterwards, the Project took follow-up measures. Through the follow-up measures, it is learnt that although the beneficiaries were happy to be provided with goats by the Project they had difficulties of constructing goat-housings with raised-floors because a goat-housing with raised-floor costs them at least 10,000 Kyats to 25,000 Kyats maximum per unit. It is also learnt that collective goat-raising or group-raising is better than individual goat-raising and system of sharing the profit from collective goat-raising equally among the beneficiaries is preferred. At a workshop held by the Project, beneficiaries of group-raising mentioned those positive results and this made beneficiaries of goat-raising in Legaing decide to carry out goat-raising collectively.

■ Present Conditions of Goat-raising

There were 10 beneficiaries for goat-raising and so they were grouped into two each comprising 5 beneficiaries. Then, goat-housing No.1 and No.2 were constructed at the cost of 80,000 Kyats each. Beginning from August 2008, with 2 male and 20 female each, two goat-housings started goat-raising. In carrying out group-raising, they all agreed to select a person out of the 5 beneficiaries whose responsibility is to look after the goats and herding, and the rest 4 beneficiaries will have to support him 5,000 Kyats each per month and at last after the goats have been revolved to the second generation beneficiaries profits are to be divided among themselves.

At present it has been almost one year since the

commencement of goat-raising. The time to hand over the goats to 2nd generation beneficiaries is drawing nearer and nearer. Under such condition, the Project visited Legaing village and studied the conditions of two goat-housings. The present-day conditions are found as follow:

Table 1. Comparison between 2 Goat Raising

Particular	Group No.1	Group No.2
Original Stock	22	22
Birth	15	28
Death	12	2
Present Stock	25	48

In housing No.1, 2 died out of 22 original stock and 10 kids died out of 15 birth and so there are only 25 heads in total at present (it is found mortality rate is higher than reproduction rate). In housing No.2, there is no death of 22 original stock and 2 kids died out of 28 birth and so the number increases right up to 48 heads.

When study is made on the parts of beneficiaries from No.1 and No.2 housings, 4 beneficiaries out of 5 from No.1 housing, thinking goat-raising a fruitless job as the growth rate of number is so low, left the group. For those who left the group had to do so because they could not hope for the profit from goat-raising any more. As for them, they had to pay 25,000 Kyats each to the care-taker beneficiary who looks after the goats for five months and 16,000 Kyats each for the cost of constructing goat-housing with raised floor. This means that they were at a loss of 41,000 Kyats each, and the objective of the Project to help lift the poor, landless people out of poverty led to opposite direction, unfortunately (For this case, negotiation is being made between village livestock committee and respective beneficiaries, it is learnt).

As for beneficiaries from No.2 housing, the number of goats increased and they could estimate their profit. Not only the beneficiary who looks after the goats but also other 4 beneficiaries felt very much encouraged. And it is found out that they could enjoy such effective results as setting up aim for continuing goat-raising, holding regular meetings and discussions concerning goat-raising, sharing information one another and enabling to help one another, etc.

■ On studying why there is much difference
According to the figures or results of two housings in the same village, one can see that outcomes are quite different. To find out the solution of why this was so, the Project enquired the background conditions of two housings. Some facts which can be assumed as main causes of bringing about difference in results of two goat-housings could be investigated and they will be presented below:

Goats in No.1 housing were bought from a remote area, about 10 miles away from Legaing village, which is of different local conditions while goats in No.2 housing from nearby villages which are of same local conditions by beneficiaries themselves. The beneficiary who looks after the goats in No.1 housing has only two children who are both under 10 years of age. When the beneficiary was out for casual labour work so that they could buy everyday food, his wife had to take responsibility to look after goats on one hand, and to take care of her children on the other. And so, the goats were not under full care (for example, herding is to be done twice a day - in the morning and in the afternoon - though, only afternoon herding could be done when the beneficiary was out for casual labour work).

The beneficiary who looks after the goats in No.2 housing has 3 children and the youngest one is 17 years old. So, any child could help the beneficiary with goat-raising. Besides, it was not necessary for the beneficiary whether he got herding fee immediately or not. Doing casual labour work makes the family able to buy everyday food while his family members could do herding instead of him. As a result, goats have been under full care.

The Project found out that there was weakness on the part of village livestock committee in connection with supervision of beneficiaries from two housings and cooperation with them as the days went by. For the rest 4 beneficiaries from No.1 housing being casual labour workers, they had to give first priority to earning money for everyday food and money for monthly-herding. They could not visit the housing and help the beneficiary who looks after the goats. But for the rest 4 beneficiaries from No.2 housing,

beneficiaries and in cases relatives of beneficiaries on behalf of them visited the housing, giving information new pastures they had found, explaining about traditional medicine and giving suggestions. What is found as a main strength is that although No.1 housing stopped feeding UMMB (Urea Mineral Molasses Block) to goats, No.2 has been continuing feeding UMMB to goats.



Photo 1 – Strong and healthy goats in No.2 housing and a UMMB dangling for them. The beneficiary, who looks after the goats in No.2 housing, has been using UMMB up to now.

■ Lessons learnt from Goat-raising

Both beneficiaries and village livestock committee of Legaing village have learned the following lessons with regard to goat-raising:

- ✓ to select and purchase goats which are appropriate with local conditions in the future,
- ✓ to select the beneficiary who will have to look after the goats for group-raising after scrutinizing each beneficiary's family structure,
- ✓ to carry on taking responsibility of looking after the goats by another beneficiary if the first-selected beneficiary cannot perform his duty,
- ✓ Most of the beneficiaries for goat-raising are from hand to mouth and so it is a burden for them to pay monthly allowance to the beneficiary who looks after the goats. If conditions permit, to make an arrangement to look after the goats alternately without having to spend any money and to let the beneficiary who keeps the housing have other benefits (e.g. to allow him to sell goat-dung to earn money), and
- ✓ to be able to help solve the difficulties faced by the beneficiaries, village development committee and respective livestock breeding and veterinary department are to work in close cooperation without ever losing sight of it.

At the present-day and age, we have already experienced positive results of goat-raising, possible difficulties, technologies concerning livestock breeding and lessons. For goat-raising under revolving system, we believe that we will be able to carry out to achieve more success based on such lessons.

This newsletter is issued both in English and Myanmar. One of the pilot activities under living improvement sector is rural electrification. In FY 2007/08, two villages were targeted for the electrification; one is Khaungkawe village, Tada-U TS, Mandalay division, the other one is Mingan village, Chauk TS, Magway division. To the first village, cow-dung biogas generation was introduced while the latter one got diesel powered generator. Now in FY 2008/09, another type of biogas generation was introduced to Mon Taw Gyi village, Pwintbyu TS, Magway division. The biogas generation uses paddy husk, a locally available material, which is quite abundant in the area because this area is blessed with very much paddy cultivation.

Local resource turned into an essential material to brighten rural life !

■ Construction and Villagers' Contribution

Location has to be carefully selected in erecting paddy husk biogas generation plant because it burns husks to get bio-gas which in turn invites a risk of catching fire. Villagers had been looking for ideal site, and finally settled in a place outside the village. The place was, however, lower than the surrounding areas easily affected by standing water each time after rainfall (in fact, this was the major reason why the area had been left unutilised for long).

Committee was established with 5 members plus 10 collectors for the O&M, and it mobilized villagers who owned bull cart. There are about 380 HHs out of whom about 150 HHs have bull cart. The cart owners were requested to bring 5 carts of soils each, and the work started on January 10, 2009. According to the committee, a total of about 450 carts of soils had been brought into the place and compacted in order to raise the ground so that the power plant can be erected.



Photo 1: Committee members chattering with the project members about how good the electricity is. This is the staff house constructed at their own expense.

The villagers had carried out the above earth work voluntarily as a precondition of erecting the generation plant by the Project. Not only that but also additional works were volunteered by the villagers since the Project had asked their maximum participation in the construction. What they have done was, for example, digging of holes

for fencing around the compound, digging of holes for lamp posts, etc. For this work, villagers were mobilised and about 20 persons each per day had participated alternately for one week.

In addition to the above labour works, the committee had to spend on ancillary facilities such as storage for paddy husk, toilet for staff and staff house. The Project was in fact to provide the major part of the plant only, e.g. erecting of the power plant, wiring and provision of 2-ft fluorescent tubes to all the households, one each per household. To establish the ancillary facilities, they bought about 900 bamboo poles, 700 thatches for roofing, 13 wooden poles, etc on credit. Including labour charges of weaving bamboo sheet, the committee had to spend as much as about 700,000 Kyats which was availed by credit. The committee has been settling the credit by paying monthly instalment out of the income from electricity charge.



Photo 2: Construction of the husk biogas power generation now under way. The project constructed the main part only while ancillaries were done by the villagers.

■ How they operate the rural electrification

The operation was commenced on February 20, 2009. Committee members the Team interviewed remembered that day very clearly. All the villagers were very much surprised with the 2-ft long fluorescent light brightness. The light brought about not only visual brightness but also psychological brightness. Villagers enjoyed

chattering under the light, children enjoyed studying, some villagers continued working, and some are no longer feared of catching fire from candle with the help of the electricity. In fact, this village is located far away from centre of the township, making difficult to extend the national grid to the village. No villagers had therefore expected to have electricity before.

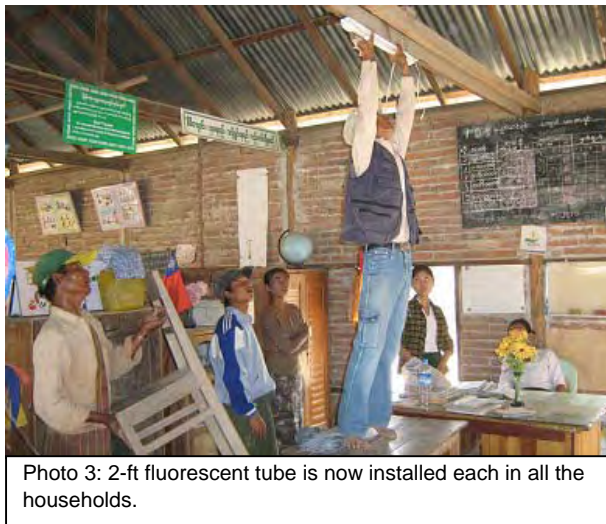


Photo 3: 2-ft fluorescent tube is now installed each in all the households.

The plant requires 6 baskets of paddy husk (equivalent to about 9.8 Kg) per hour to run 75HP engine and 20 KVA dynamo. If an acre of paddy field produces 100 baskets of paddy (equivalent to 1,274 viss per acre or to about 5.2 tons per ha), about 191 baskets (382 viss) of paddy husk can be produced based on the assumption of 30% of paddy being husk in weight and 2 viss per one basket of husk. It means that 100 baskets of paddy harvest per acre can run the system about 32 hours (191/6). The system provides electricity about 3 hours per day, and therefore one cannot be afraid of material shortage since the village is surrounded by a huge area of paddy production. Burnt husk, after extracting biogas from the husk, are also used to paddy nursery, contributing to growing healthy seedlings.

The electricity is now provided to all the 380 HHs, 2 monasteries (3 tubes x 2 places = 6), the rural health centre (2 tubes) and the primary school (4 tubes). The charge was set at 1,000 Kyats per month per household. First collection date was March 20, 2009, one month later than the commencement of the operation. The committee members had to visit around the villagers 4 times altogether and came up with a total of 320,000 Kyats. If all the 380 HHs had paid 1,000 Kyats each, there should have been 380,000 Kyats in March. It means there is a gap of 60,000 Kyats. This was because of exemption from the payment for 10 elder households who do not have children, 10 collectors who are also committee members,

and unfortunately those who do not pay due to several reasons including poverty, just excuse, etc. Collections in April and May were around 300,000 Kyats each, lower than that of the 1st month.

Now have a look at their expenditures. The committee has to spend 90,000 Kyats per month for the 3 staff (30,000 x 3), 30,000Kyats for engine oil, 60,000 Kyats for husk transportation, and another 20,000 Kyats for supplementary usages. Total expenditure is therefore estimated at about 200,000 Kyats. With the income of about 300,000 Kyats, they have a positive balance of 100,000 Kyats out of which credit is now being settled. After settling the credit, the committee has a future plan of renovating the current rural health centre from bamboo thatched one to brick made one and putting up of village library.

■ Villagers' expenditure for electrification

The charge for the fluorescent light electricity is 1,000 Kyats per month per household. This is now compared with what they used to spend on lighting with candle. Following table summarizes the simple interview results to some villagers who:

Table 1. Comparison of lighting charge, Ks

HH	Before, Candle	After, Candle	Before, Ks	After, Ks
A	3	1	4500	1000+1500
B	2	1	3000	1000+1500
C	3	1	4500	1000+1500
D	5	1	7500	1000+1500
E	5	2	7500	1000+3000
F	5	1	7500	1000+1500
G	3	1	4500	1000+1500

Remark: Children for HH-E wake up early morning and do studying, consuming additional candle.

One candle costs them 50 Kyats per piece. Small family may use only 2 candles per night as exemplified by HH-B, but in most cases they use 3 candles per night and if there are school children they need addition 2 for their studying. With this consumption of candle, they usually had to spend 3,000 to as much as 7,500 Kyats per month per household.

With the biogas generated rural electrification, however, they are now paying 1,000 Kyats for the charge and plus 1,000-1,500 Kyats for 1-2 candles. Biogas electrification can therefore reduce the cost for lighting by at least 500 Kyats per month (case of HH-B) to at maximum 5,000 Kyats per month (cases of HH-D & HH-F). The former case brought about 17% reduction (500/3,000), and the latter case brought about as much as 67% reduction (5,000/7,500).

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This newsletter No. 45 is issued in both English and Myanmar. The Project, according to experiences gained from carrying out pilot projects in target villages beginning from 2007-08 FY to date, have sometimes faced some difficulties in providing technologies to beneficiaries. Taking lessons from the past, the Project thought out a plan of carrying out activities to bring about village development and livelihood improvement by villagers themselves, on a self help basis as much as possible, without having to spend much money for that.

Livelihood improvement taking place on a self-basis !!!

■Where? How to go?

A practice was carried out in one of pilot projects, meant for improving the villagers' livelihood and living condition as well. It is Pabe (North) village, Chauk township in Magway division. A group comprising the chief counterpart and responsible persons from respective Ministries made a field trip to that village to hold discussions with villagers in December 2008. At discussions, an emphasis was laid on enabling to find out what kinds of activities could be implemented without much financial help from the outside.

■Steps of hatching from egg

The group mobilized village elders and explained them of what activities were going to be carried out and why they had to be done so on the first day. On the second day, the discussions were held at a Village Development Centre, earlier established as Children's Nutrition Improvement Centre by the Project, and almost all villagers in the village were present. After a series of discussions, with consensus of all villagers who were present, a group was formed to take a leading role in carrying out village development activities and the group was named 'Village Development Committee'.

As an initial outcome of discussion, it was decided that every household in the village was to keep a dust-bin (garbage-basket) or a trench in the ground in which garbage was to put for keeping the village clean, and to repair village main road which was with uneven surface. Why dust-bin had to be kept at every household was explained to all villagers and it went to their hearts. It can be seen by the fact that villagers are now applying their systematically-discarded garbage, dead leaves and twigs as humus in their own Ya land (upland).

In 2008-2009 FY, the Project conducted a training at Pabe (North) village to disseminate technology for making energy-efficient improved stove by demonstration. Detailed description about stoves of

this kind has been presented in newsletter No. 42). According to the construction type of a stove, flames cannot spread out of the stove and so there is no need to worry about outbreak of fire when summer sets in. Not only that, consumption of firewood can also be reduced to 2/3 or about half. For these advantages, many households (about more than half of all households in the village) have been using stoves of this kind.

In May 2009, the National Project Director (the chief CP) provided over 100 young plants of 'Sein Ta Lone' mango variety which were grafted and some 'Dragon Fruit' plants to village to be planted in household compounds on trial. Specific calculation for profits which can be earned from each mango plant and each dragon fruit plant was made known to villagers and technologies for the horticulture were disseminated to villagers by planting a dragon fruit plant as demonstration in front of Village Development Centre. Villagers have already planted mango plants systematically than expected. The plants were placed at lower places where families take their bath. This arrangement can facilitate the plants to get used water very easily.



Photo 1: demonstration of Dragon fruit planting. It is planted in a hollow hole whereby easily catching water.

It is learnt that Village PDC Chairman U Mann has planned to purchase a large quantity of mango and dragon fruit plants and plant them to earn continuous

fund for the committee in the long run. He said, "Previously, we thought it would be quite difficult for us to practice horticulture since water is scarce in our village. So, we only concentrated on our conventional Ya work (upland farming). Now, we came to understand to practice horticulture due to suggestions as well as discussions with responsible persons from the Project. We now knew that dragon fruit can earn good sales and it is appropriate with our village's weather conditions. It doesn't require to be looked after very well".

■ Livelihood Improvement Structure being constructed with strengthened foundation
Village Development Committee's enthusiastic participation and active cooperation can be appreciated by the fact that the Committee, no sooner had it been formed than the capital could be collected. At present (as of mid June 2009), the capital has been collected to the amount of about 5 lakh (500,000 kyats) and it is learnt that the capital will be used in carrying out profitable activities with an eye to contributing towards bringing about village development. Although the Committee aimed at doing so for the long term, there are, at present, many poor villagers who are in badly-needed of money and so the Committee has been lending money to them without interest or with a little interest and spending some amount of money for village sanitation activities.

■ Marching towards the Goal

The Project provided the centre (building) to be used as a 'Children's Nutrition Improvement Centre', though, it became a place where village development activities were planned and put into practices. In connection with religion, on important religious days, monks are invited to the centre and offered with alms-food and sermons are delivered by the monks. As weekly performance, once a week (especially on Sabbath days) elderly persons in the village recite Buddha's teachings at the centre. It is also learnt that a non-stop recitation of 'Pahtann' (the wheel of Dhamma) was celebrated at the centre in March, 2009. Thus, the Committee, in carrying out livelihood improvement activities, aimed at not only physical development but also mental and moral improvement.

In the compound of Village Development Centre, a small rural library for villagers was constructed and on feeding-day of nutritious meals to children, the children are trained to become and grow up into good and able persons. Ko Kyaw Moe, the Committee's treasurer, said, "Most villagers didn't want to do such village development activities when I was young.

Those who wanted to do such things did so disharmoniously that they didn't meet with success as they wished for. Now, I'm very pleased with villagers' united-cooperation after the emergence of VDC".



Photo 2: On important religious days, monks are invited to the centre and offered with alms-food and sermons are delivered by the monks.

The village PDC Chairman U Mann said, "We aim at not only physical development but also mental and moral improvement. We wish youths had wider thoughts and views. Rural youths who have poor relationship with urban community like us, need to read a lot. Only then will they be able to perform good things for village, at least. I believe so. Therefore, I donated this small library."

The Committee has been making continuous efforts to make headway in social and economic sectors without ever losing sight of religious activities. For religious sector, the Committee has been, taking a leading role, celebrating recitation of Buddha's teachings ceremony once a week at the Centre, sermon-delivering by monks and non-stop recitation of 'Pa Htann' (the Wheel of Dhamma) on important religious days, etc.

U Kyaw Tin, one of the Committee members, said, "As far as I know, if material life is to the height, mental and moral qualities are degraded. Especially I mean youngsters. They'll become rude and greedy. For rural youths, not to fall into such conditions, we have to get them accustomed to Buddha's teachings".

The Project aimed at livelihood improvement of Pabe (North) village which was implemented by villagers themselves on a self-help basis. And on the part of villagers, they are under the leadership of the Village Development Committee towards the goal in accordance with the aim set by the Project.

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This newsletter No.46 is issued both in English and Myanmar. In this newsletter, a night school for primary pupils in Khaungkwe village, Tada-U township, is reported. This night school was set up by a beneficiary of livestock pilot project on self-reliance after the whole village had been provided with Cow-dung-used Bio-gas Power Plant. This newsletter is for sharing information about electrification-related positive outcome and its budding situation without having any assistance provided by the Project for educational sector.

Electrification in the whole village was commenced on 1st February 2008 (it has already been reported in the newsletter No.2 issued in June, 2008). And, the Village Electrification Committee had to face with various difficulties concerning power-supply managerial activities and they unitedly tried to overcome those difficulties on their own (this was also mentioned in the newsletter No.25 issued in November, 2008). In other words, the night school could only appear when there was no more voltage-fluctuation problem and also when all the villagers were able to enjoy electricity regularly.

Electrification which brings about step by step progress!!!

■Emergence of a night school

Ko Mg Mg Lwin, a livestock beneficiary and also a group leader of livestock in Khaungkwe village lived together with his brothers and sisters-in-law in the same compound but in different houses totalling four in number. He is 41 years old and his wife, Ma Thin Thin is 36 years old. They got married ten years ago but they had, unfortunately, no children.

One day he happened to notice that his niece from his wife's side who had been in Kindergarten for two years was very slow in learning. So, he taught her how to read and write Myanmar alphabet and English alphabet at night when he was free from his work. Then another next-door child was put under his charge by his parents. In this way, the news of his teaching young children spread in the village. Parents came to his home and requested him to accept their children under his charge for teaching in the evenings. He started teaching in the manner of a small night school with six kindergarten pupils and five 2nd standard pupils in the mid of May, 2009 (when he was interviewed on June 24.6, 2009, the school has been opened for 1 month and 7 days.)

■Growing number of pupils

Ko Mg Mg Lwin, a night school teacher, taught his pupils with fullest 'cetana'(good will) without taking any tuition fees from the parents of pupils. Teaching period is from 6:30pm to 9:30pm when there is electricity. He laid emphasis on teaching Myanmar and English for Kindergarten pupils and Myanmar and Mathematics for 2nd, 3rd and 4th standards pupils. In fact, only subjects which pupils found it difficult were taught at night school. Sometimes, his wife helps him with his teaching (because he and his wife both passed 7th standard). At the time of interview, the number of pupils grew than that of the school's inception - from 11 to as many as 32 pupils. To describe in detail -

Kindergarten	- 16 pupils
2 nd standard	- 7 pupils
3 rd standard	- 6 pupils
4 th standard	- 3 pupils

Why the number of pupils grew larger and larger was that he always taught his pupils one lesson ahead of the lesson taught at day-school (State Primary School) and this made the pupils more understand the lesson when they were taught at day-school. Not only that, he was very patient with his pupils and so he was loved by all the pupils.

■Conditions of a make-shift school

There are altogether four houses in his mother-in-law's compound including his house. The pupils were divided into 3 groups such as Kindergarten and 1st standard, 2nd and 3rd standards, and 4th standard respectively.



Ko Mg Mg Lwin, a night school teacher, taught his pupils with fullest 'cetana'(good will) without taking any tuition fees from the parents of pupils.

Ko Mg Mg Lwin, except for his mother-in-law's house, made 3 houses into 3 classrooms each house having a fluorescent tube. Kindergarten pupils were taught at his house where he uses a village-owned old blackboard of 6 x 4ft. On the ground spread empty plastic bags to serve as mats or carpets or groundsheet.

In fact, there is only one blackboard for 3 classrooms and no desks at all. However, to make teaching more convenient for him, starting from 27th July 2009, he gathered all his pupils in one group and taught them in front of his house which was built on stilts with no walls for the ground floor. Kindergarten and 1st standard pupils were placed in the front rows and 4th standard pupils in the last row with 2nd and 3rd standard pupils in the middle.

As the pupils were gathered in one group, only one fluorescent tube was not enough for them. So, he had to buy a curved-tube and wire (800 Kyats +1050 Kyats) on credit from a village-store for his pupils (fortunately the debt for the tube was paid by one of the village-monks and the village PDC allowed him not to pay electricity charge for that tube). A drinking water-pot is kept in front of the class with a toddy-palm trunk as a stand.

School-hour is from 6:30pm to 9:30pm. School opened daily at the commencement except for rainy days. However, during the Buddhist Lent (from about mid of July to mid of October) the school will be closed on Sabbath-days on which his mother-in-law always keeps Sabbath (observe Buddha's precepts). He does not want to cause disturbance to her and so the school is closed on every Sabbath day. As his pupils drink about two water pots every evening on school days, he or his wife has to go to fetch rain water from the nearest monastery where rain water is stored in concrete tanks (Abbot allows him to use rain water from the monastery for pupils). He and his wife have to clean the teaching-space every day. In addition to school lessons, he also teaches his pupils moral lessons to become good and able persons. He always tells stories to his pupils whenever he finds time for just pleasure. There is no time for him to have dinner together with his wife because she has to control the class while he is having dinner.



He is continuously teaching his pupils, so that there is no time for him to have dinner together with his wife

■Ambitious Teacher

He lays emphasis on teaching Kindergarten and 1st standard, lower classes of primary level. Knowing

that some students, although they had completed the primary level, could not read and write even Myanmar very well, he put more his strength in teaching of how to read and write Myanmar and English. According to him, it was learnt that he wanted to nurture primary pupils from his village to become well-taught pupils at the primary level in accord with the saying 'Well-begun is half-done'. If he is dutiful with conscientiousness from his side, there will be more and more pupils who will be able to catch up with their higher education, and his ambition to try to emerge successful persons from his village will be fulfilled one day. He wants to be proud of his village. During an interview, he frankly said that he did not pass the eighth standard examination and failed twice because he was weak in English. In fact, now, he is learning English to be able to teach his 3rd and 4th standard pupils. Being never too late to learn, we should also follow!! He wants to put his pupils onto the right path of becoming successful persons in their lives.

■Future Prospects of the School

Naturally, it is not quite easy for Ko Mg Mg Lwin to go on teaching without taking any tuition fees in the long run. Being an ordinary villager, he is unable to improve his night school. And on the part of parents of his pupils, most of them are not well-off enough to support him. For its sustainability, any kind of help from within or outside the village is actually needed. In other words, this situation calls for efforts to make the night school sustainable. The larger the number of pupils is growing day by day, the more efforts for sustainability are needed. A united effort is required ever before, to be contributed by the villagers themselves. Efforts from here and there were learnt during interviews with Ko Mg Mg Lwin. There are 3 monasteries and 3 Abbots (head-monks) in the village.

One of the Abbots let him use the monastery for teaching (as monastic school) but he did not accept it because its situation was farther than his house for the pupils. There are altogether 9 household leaders assigned for 9 parts of the village divided by village's situation. Village PDC Chairman and some household leaders appreciate Ko Mg Mg Lwin's night school and they are interested in it. They are ready to help him in any way they can, it is learnt. In short, there is no parent who does not want to see his/her children educated. Therefore, it will not be wrong to say that there will be, gradually or steadily, united efforts made by the villagers themselves to bring about development and progress within the village in one way or another by making use of Cow-dung-used Bio-gas Power Plant provided by the Project.

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This newsletter No.47 is issued both in English and Myanmar. JICA Study Team, beginning from 2007-08 fiscal year, has been carrying out the activity of providing new-variety seeds of chickpea to some target villages under the Project in connection with agricultural sector. New-variety seeds of chickpea were produced by Department of Agricultural Research (DAR) and seed-farms of Myanma Agriculture Service (MAS). Accordingly in 2008-09 fiscal year, that activity has been carried out in villages including new ones.

The activity was targeted for some villages situated in Mandalay and Sagaing Divisions. Now, it was learnt that there were different outcome due to different region, cultural practice, weather condition, etc. In this newsletter, therefore, the activity of providing chickpea new-variety seeds to Ar La Ka Pa village in Myinmu township, Sagaing division in 2008-09 fiscal year will be presented and how the activity was carried out in other villages will also be compared, and presented to the readers in this newsletters.

Introduction of Chickpea New-variety Seeds and its Revolving System !!!

■ Provision of chickpea seeds & its revolving

In 2008-09 FY, 3 villages which have been growing chickpea on a large scale were provided with chickpea new variety. A new variety of chickpea named Yezin 6 (ICCV 92944) was ordered from Tutkone seed-farm under Yezin DAR and provided to Nga Zin Yine village in Tada-U township, Mandalay division, and Ar La Ka Pa and Htee Saung villages in Myinmu township, Sagaing division. In conjunction with provision of seeds, arrangement has been made for revolving system to hand over the same amount of seeds after harvest from the first generation beneficiaries to the second generation beneficiaries through responsible persons who are working in co-operation with the Project.

For Ar La Ka Pa village, 28 baskets of chickpea new-variety were provided by the Project and then 19 beneficiaries of the first generation group were provided with chickpea seed through the management of Village Committee Members. Not only that, the Project also provided 13 bags of compound chemical fertilizer to Ar La Ka Pa village. One basket of chickpea seed was delivered together with 0.5 bag of compound chemical fertilizer among beneficiaries.

In connection with which beneficiaries should be provided with how much seed, the Committee made the decision based on such conditions as a beneficiary's request, his owned-acreage, and his capacity to take responsibility, it was learnt.

■ Introduction followed by better yield

Most of Ya lands (upland) in the village are of sandy soil and most farmers used seeders. It was learnt that all farmers cultivated the new variety with great care because it was the first time or experience for them in connection with Yezin 6 variety. According to beneficiaries, it was also learnt that the new variety had a longer life period than the old variety, it was more drought-resistant, and the yield was more, either. The name of the old variety which farmers used to grow is Yezin 3 (ICV 2).

Table 1 Comparative Yields of Beneficiaries in 2008-09

No	Category	Seed Usage (bsk)	Type of land	Fertilizer (kg)	Yield
1	Under Project	1	Ya	50.275	11
	Outside Project	1.25	Ya	0.275	15
	Average Year	1.25	Ya	0.275	10
2	Under Project	1	Ya	37.500	11
	Outside Project	0.75	Ya	12.500	5
	Average Year	1.25	Ya	31.290	10
3	Under Project	1	Ya	0.325	8
	Outside Project	1.25	Ya	17.825	12
	Average Year	1.25	Ya	17.825	15
4	Under Project	1	Ya	25.225	18
	Outside Project	1.25	Ya	0.225	9
	Average Year	1.3	Ya	Almost Nil	13
5	Under Project	1	Kai	25.300	15
	Outside Project	1.5	Kai	0.300	12
	Average Year	1.5	Kai	Almost Nil	12
6	Under Project	1.3	Ya	0.600	14
	Outside Project	2	Ya	0.240	8
	Average Year	2	Ya	0.240	10

Note; For Nos. (1) and (3) of the table mentioned above, Yezin 6 variety was cultivated on lands which are situated at lower parts and so some young plants were destroyed by water.

This above table was extracted from the data collected by the Project at the time of cultivation and after chickpea had been harvested. According to the table, it can be seen that No.4 is the best yield for the new variety provided by the Project and No.1 is the best yield for the old variety. On the contrary, No.3 is the lowest yield for the new variety and No.2 is the lowest yields for the old variety. It can also be seen that there are different rates of seed-use.

However, it is clear that the best and the lowest yields of new variety are 3 baskets each higher than those of old variety. It can be assumed that one of the causes of why the old variety is lower than the new variety, Yezin 6 in yield is due to plant degeneration caused by disease and unfavourable weather and since they are not as weather and disease - resistant as the new variety.

Considerably-higher yield of new variety, Yezin 6, than that of old variety, Yezin 3, can clearly be seen at No.4. According to No.4 of the table, it can be learnt that using the same variety for long without any regeneration caused lower and lower yield per acre from 13 baskets of yield per acre (average) to 9 baskets of yield per acre last year. Although there was almost no application of chemical fertilizer previously, farmer began to apply it for the old variety, it can also be learnt from No.4 of the table. By adding a little more chemical fertilizer, better yield was obtained from Yezin 6 variety than the old variety Yezin 3 - the former's yield was 18 baskets while the latter's yield was 9 baskets. This means that the quality of Yezin 6 variety plays an important role to get high yield.



Photo- One of chickpea fields (Yezin-6) variety provided by Project in (2008-2009) FY

One of the beneficiaries said. "It's no good using one variety of seed for more than 3-4 years. But I don't know exactly why. All I know is the yield gradually gets lower and lower. Now the new variety provided by the Project gets better yield because it's been carefully researched by Myanmar Agriculture Service', expressing his opinion on the new variety.

■ Outcome of regeneration

In Ar La Ka Pa village and its surrounding area. Yezin 6 variety provided by the Project is well-known as 'Japan chickpea' and there are many farmers who want to get seeds and so it is on brisk-sales. Due to good yield of last year, the first generation beneficiaries are sure to grow Yezin 6 variety this year either after they have handed over the same amount of seeds they received to the second generation beneficiaries, it is learnt.

According to No.2 of the table, yield per acre (average) for Yezin 6 variety is 12.8 baskets and that for Yezin 3 variety (old variety) is 10.2 baskets respectively. If rough calculation is made based on the price of chickpea (average) from March to July in 2009 and yield per acre (average), the net profits of two varieties can be learnt as follow.

Gross profit (Yezin-6)	179200 Kyats
Gross profit (Old variety)	127500 Kyats
Expenditure for input (Yezin -6)	3159 Kyats
Expenditure for input (Old variety)	676 Kyats
Net Profit (Yezin -6)	176041 Kyats
Net Profit (Old variety)	126824 Kyats
Difference between Yezin-6 & Old	49217 Kyats

In calculating cost per acre for chickpea cultivation, one farmer's cost is different from another farmer's because they apply different amount of chemical fertilizer, herbicide, pesticide, etc. So, the calculation was made based on their actual expense. Farm-labour charges which are almost the same for every farmer, was not included in the calculation. For the above-mentioned calculation, farm-labour charges have been extracted from the profit for both varieties and the net profit of new variety was about (50,000) Kyats more than that of old variety.

■ Future programmes for revolving system

Although there has been an arrangement for revolving system for Ar La Ka Pa village made by the Project, the Village Committee is making efforts to be able to carry out an improved revolving system.

Table 2 An improved revolving system of Ar La Ka Pa

FY	Beneficiary Group	Received (A) and hand over to (B)	
		(A)	(B)
2008-09	1st	28	50
2009-10	1st	25	25
	2nd	25	25
20010-11	3rd	50	50

Note; When the first generation beneficiaries hand over the seeds to the second generation beneficiaries, 3 baskets of chickpea seed destroyed by rain and 3 baskets of interest - total in 6 baskets - will be exempted.

According to an improved revolving system the first generation beneficiaries are, since they were provided with not only seeds but also compound chemical fertilizer, to hand over the Village Committee not only original amount of seeds but also seeds of original amount as 'interest' for compound chemical fertilizer. However, a few beneficiaries got low yield and when they hand over the seeds to the Village Committee with interest, there will be no enough seeds for them. To avoid this, the Village Committee will, in 2009-10 fiscal year, provide seeds to the first generation beneficiaries, it has been arranged.

By so doing, beginning from the third generation beneficiaries 50 baskets of chickpea seed will be provided to the next, next generation beneficiaries year after year.

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This newsletter No. 48 is issued in both English and Myanmar. In 2007-08 and 2008-09 fiscal years, knitting promotion was carried out as a pilot project in one of the villages in Sagaing division; that is Ma Gyi Sauk village. That activity has been smoothly progressing till the end of 2008, and then started staggering and became dormant almost since March 2009. Now an alternative way of revitalising the activity was devised. We can evaluate how effective their activities in Ma Gyi Sauk village are:

Understanding the real situation and Outcomes from alternative ways !!!

■ Predicament of knitting groups

The Project provided 6 knitting machines and 180 lbs of wool to Ma Gyi Sauk village and on the part of villagers they formed 5 knitting groups with 50 members. In 2007, they started their knitting activities with 5 machines and then in 2008 one additional machine was provided. The activity could, under prevailing circumstances, go on very much well up to December, 2008. In fact, there came very smart women; one of the examples is a woman fetching as much as one million Kyats in just 9 months. In addition, technical transfer on knitting among the members had been taking place. 13 members have reached to a semi-trainer level through peer-to-peer learning.

However, their monthly subscription to the Village Main Committee for rental fee of knitting machines came to an almost stop beginning from early 2009. There were also disunity and lack of cooperation among those 5 groups because there was no united subscription for rental fee to the Main Committee. Previously, knitting group members could directly sell their products at the retail market. However, beginning from the end of 2008, their retail market could not exist any more due to the world's business depression and imported woollen-products from China at cheaper price. Brokers and traders from Ayeyarwady division, Bago division, etc. used to come to their village to buy their products, but after Nargis Storm, no brokers or traders were seen.

So, they tried to get contact with brokers from 'Kaw Linn' and 'Moe Hnyin' towns which are situated in Upper Myanmar and sold their products on credit (their agreed credit system was to settle the debt when the next trip was made to collect the money). In reality, knitting group members found it difficult to collect the money and they had to wait for about 4-5 months to receive the money. Another problem for them was they needed capital to keep their products in hand for 2-3 months unsold until winter when woollen-products are on great demand. Unfortunately, there was no one rich enough to invest that much. Thus, knitting activity became very dormant and there were no more monthly subscriptions for rental fee to the Main Committee.



Knitting machines provided by the Project seen in Ma Gyi Sauk. The Project also provided raw materials (wool)

■ First Stage - Understanding the situation

The Project Director (the chief counterpart), on 13 June 2009, made a field-trip to that village and studied the activities there, and learnt knitting-groups' inability to proceed their activities. He suggested beneficiaries to think out plans collectively for the revitalization. Afterwards, on 25 June 2009, a meeting was held in the village attended by the Project Director, Main Committee Members, and knitting beneficiaries. Through interactive discussions, all came to understand the real situations as follow:

- ✓ On the part of beneficiaries, since machines and raw materials were provided by the Project they may not have made all-out efforts when they encountered difficulties and they were in a state of predicament in carrying out their activities (In fact, they can earn money in a very short period by serving as farm casual labours or casual workers for their everyday meal).
- ✓ Beneficiaries may have experiences of such knitting activity provided by the Project individually, but they were rather weak in taking responsibilities and cooperation.
- ✓ Including Main Committee members most beneficiaries have been struggling to be able to earn their everyday meal and so it is difficult to hold regular meetings to move forward collectively in the village.
- ✓ Including some leaders, most beneficiaries do not have a burning desire to be in service of bringing about village development.

■ Second Stage - Mental Power ready

Within the month July, 2009 discussions were held in the village attended by all beneficiaries and Cottage

Industry Counterpart from Myanmar side. The following were decided after those discussions:

- ✓ In carrying out their activities, each beneficiary had to negotiate with the other or with the group-leader and so the work was delayed. Moreover, the group-leaders could not supervise their groups very well. For these reasons, once to liquidate the groups was decided.
- ✓ The wools provided to each group were to be repaid to the Main Committee, and the Main Committee was to use those wools for knitting-learners.
- ✓ Under the present situation, renting out machines to private industry was better than serving as common industry in taking responsibilities and extracting efforts. So, the machines were to rent out to private industrialists in terms of piecework system.

Had leading committees been formed to perform a certain activity in society, it were difficult to liquidate or to reform those committees according to Myanmar traditions and customs. However, in Ma Gyi Sauk village, they brought their groups to a close with an aim at improving knitting industry. Now, anybody who is interested in knitting industry can hire or rent the machines not only for self-interest but also for village development. On the part of the Main Committee, monthly income of 36,000 kyats from 6 knitting machines could be earned (6,000 kyats per machine), beginning from August 2009.

■ Improved technology dissemination

On origin knitting groups there were two cousins, namely Ma Zin Min Khaing (24yrs) and Ma Su Su Nge (17yrs). They had knitting experiences of 7yrs and 3yrs respectively. Previously when they were members, they could not use machines as they wished, because they had to use them alternately due to the many memberships. Ma Zin Min Khaing, when she has no knitting job, has to live depending on her sister's business of buying and selling things. As for Ma Su Su Nge, when she has no knitting job, has to help her parents' Ya cultivation because there are 9 family members. They are really crazy about knitting and both learned knitting when they were young.

When the machines were rented out to interested persons, Ma Zin Min Khaing's father who lives in other village rented 2 machines for his daughter and niece for a 6-month-period agreement. Her father knows the knitting-products market can perform well because he lives in Ngwe Twin village more developed in knitting industry. For his daughter and niece to be able to produce thin-knitted products which have demand all seasons, he hired a trainer from Pyin-oo-lwin by spending 50,000 kyats.

When the Project made a field-trip to Ma Gyi Sauk, the trainer was teaching them how to knit by using computerized cards. It is learnt that this is the first time that kind of technology was introduced to the

village. By means of that technology, woollen-products having demand all the year round can be produced and daily income of a knitter can increase to about 750 kyats in average (150 kyats x 5 products). According to Ma Zin Min Khaing and Ma Su Su Nge, they are going to disseminate that technology to any interested persons in the village without taking any fees. Aside from the them already contracted for rental agreement, the rest of the 4 machines were also contracted as at August 14, 2009. Since the end of August all the knitting machines became operation.



Ma Zin Min Khaing and Ma Su Su Nge being trained how to knit by using computerized card

■ Experience is the Best Teacher

In Ma Gyi Sauk village, knitting industry was commenced as a group-work. But it had to be transformed into a private-run industry under existing circumstances. As a group-work, each and every member can enjoy the profit equally, and that is an advantage. But when they encounter some difficulties and if they are not united there will be a problem and the work will have to come to a stop.

On the contrary, for a private-run industry, the work completely depends on the owner's competence. In case one is down and out, another person imbued with improved ideas, better management, etc. can appear, it can be expected. U Thet, one of the Main Committee Members said that they intended to start a private-run industry with such efficient persons and to create job-opportunities for others by spending the profit gained from rental fees. The Committee's arrangements are to rent out machines to private knitters, to buy more machines by spending the profit from rental fees, and to rent out them to groups of villagers who cannot afford to hire or rent machines individually.

By so doing, it will be beneficial not only to individuals but also to groups, the Committee expected so. On the whole, beneficiaries in Ma Gyi Sauk were, taking lessons from what they had experienced in the past, able to find the way to revitalize their knitting industry provided by the Project.

This newsletter No. 49 is issued both in English and Myanmar. In 2007/08 and 2008/09 fiscal years, JICA Study Team had provided seeds of chickpea new variety to some target villages and established a revolving system. The revolving system is to require the beneficiaries to hand over new variety seeds from the first generation group to the second generation group, and then to the third, the fourth, etc. continuously. This has been presented in the newsletters issued in the past. Here in this newsletter, activities of chickpea seeds provided by the Project in Nga Zin Yine village in Tada-U township and Htee Saung village in Myinmu township will be presented to readers:

New Experiences Learnt from Distribution of Chickpea New Variety Seeds !!!

■ Target Villages

Minchi village in Ngazun township and Magyisauk village in Ayardaw township were provided with chickpea new variety seeds in 2007/08 FY and Nga Zin Yine village in Tada-U township and Ar La Ka Pa and Htee Saung villages in Myinmu township in 2008/09 FY respectively.

For the target villages in 2008/09 FY, chickpea new variety Yezin (6) (ICCV 92944) was ordered from Tut Kone Seed Farm which is under DAR (Yezin) and provided to beneficiaries together with compound fertilizer and seeders.

The Project studied the implementation of chickpea new variety cultivation and its revolving being carried out in those target villages and it was learnt that there were different results depending on their different cultural practices, soil types, weather conditions, etc. As seeds were provided in different fiscal years, and so were different periods of revolving - some have already handed over the harvest seeds to the second generation group, some are still doing, and some are making arrangements to do, it is learnt.

■ Implementation in Nga Zin Yine Village

For Nga Zin Yine village, the Project provided 20 baskets of chickpea new variety, bags of compound fertilizers and ten seeders. Altogether 20 farmers were selected as the first generation beneficiaries and each beneficiary was provided with 1 basket of chickpea and half a bag of compound fertilizer. For seeders all beneficiaries used them alternately, and there was no problem for using seeders in turns because Nga Zin Yine villagers have been using their village-made seeders for years.

Beneficiaries cultivated Yezin (6) new variety intercropping with sunflower (In this village, villagers are in the habit of intercropping chickpea with sunflower). The best yield per acre of chickpea in that village was, when compared with yield per acre of other villages, just at fair level. All beneficiaries cultivated chickpea of old and new

varieties on their Ya-lands which were used for chickpea cultivation every year, it was learnt.

According to beneficiaries, although new variety Yezin (6) has a longer life period than an old one (ICCV2) it is more resistant to pests/insects and diseases than the old one. Not only that, the yields were better either. For these reasons, after handing over the same amount of seeds as they received to the second generation group, they will cultivate this Yezin (6) new variety next year, it is learnt.

Another reason of why beneficiaries want to cultivate this new variety is that it earns higher price than the old one at market. When the Project made a field trip to Nga Zin Yine village after chickpea had been harvested, beneficiaries said that the market price of new variety was 36,000 Kyats per bag and that of old variety was 33,000 Kyats per bag (1 bag = 3 baskets).

Yield per acre of beneficiaries (except for some beneficiaries whose some chickpea plants were ruined by unwanted rain) in Nga Zin Yine village were 2.5 - 5 baskets more than those of old variety. According to a study of difference between new variety and old one, it is learnt that average yield per acre of new variety was 11.6 baskets and that of old variety was 8.2 baskets.

Table 1. Comparative Study on yields of lowest and highest

Sr.	Activity	Seed (basket)	Chemical Fertilizer(kg)	Yield (basket)	Remark
Lower side	Yezin (6)	1.0	26.00	7.5	Sample no. 3
	Old variety	1.3	0.000	5.0	
	Average year	1.3	0.000	5.0	
Higher side	Yezin (6)	1.0	26.35	20	Sample no. 3
	Old variety	1.0	0.300	15	
	Average year	1.0	0.000	15	

Source: JICA Study Team

According to the above-mentioned table, although farmers applied chemical fertilizer for new Yezin (6), they still could earn more profit due to the better yield. The price of fertilizer varies from 8,000 Kyats to 40,000 Kyats per 50kg bag depending on 'brand name'.

Beneficiaries of second generation group, although there was no provision of chemical fertilizer this year, willingly asked for new variety seeds. And beneficiaries of first generation group have already

made up their mind to cultivate the new variety as well. It can be seen by these facts that farmers are interested in regeneration of chickpea and revolving farmer-to-farmer to implement the objective of the Project.

■ Different Outcome in Htee Saung Village

In carrying out regeneration of chickpea in Htee Saung Village, there were some difficulties. Most farmers did not dare to cultivate a new variety on one hand, and they just wanted to cultivate onion on the other hand. As a result, there was difficulty to select the first generation beneficiaries for chickpea new variety provided by the Project.

According to the Village PDC Chairman who is carrying out the activity in cooperation with the Project, there were only 2 farmers who willingly asked for the new variety. Therefore, he asked for help from 3 farmers who own many acres. At last, 20 baskets of chickpea new variety provided by the Project were cultivated by 6 beneficiaries including the Village PDC Chairman.

Trouble upon trouble, yield of new variety Yezin (6) in Htee Saung village was markedly low in comparison with that of old variety. Only yields of two beneficiaries who willingly asked for the new variety could compete with the yield of old variety. It is learnt that those two beneficiaries started crop cultivation only last year, that is to say, they started crop cultivation by chickpea new variety provided by the Project.

Based on a study through a field trip to Htee Saung village, it can be assumed that those 3 farmers, whom Village PDC Chairman asked for help, seemed to have cultivated old variety chickpea on their regular Ya-lands and new variety chickpea on other lands, unfertile or almost abandoned lands. Since the first generation beneficiaries did not get good yield it was difficult for them to hand over seeds to the second generation group.

Beneficiaries in Htee Saung village were explained about the good results of other villages such as good yields, better price than old variety and about farmers who were successful in new variety cultivation and discussions were made. In a nutshell, farmers in Htee Saung village came to take interest in the new variety Yezin (6).

As for the village committee, if there were no beneficiaries of second generation group, they will select the first generation beneficiaries again and good and pure seeds from the harvest will be selected for next cultivation. Such matters could be discussed and decided roughly.

By so doing, other farmers will come to know the good yield of Yezin (6) variety and at the same

time they will become interested in cultivation of it and they will ask for seeds. The prices of chickpea in Htee Saung Village were the same as those of other villages: 12,000 Kyats per basket of old variety and 13,000 Kyats per basket of new variety.

■ Present Situations of Target Villages

Revolving of chickpea new variety seeds is being carried out in respective villages under the leadership of village committees which are working in cooperation with the Project. About 100 baskets of chickpea new variety were provided to Magyi village in 2007/08 FY, and now in 2009/2010 FY, the whole village has been provided with new variety under revolving system. Village Committee of Magyi is making arrangements to revolve the new variety to a neighbour village, Kan Ma village. Kan Ma is adjacent to Magyi village and they are under the same village tract.



Photo: Chickpea Plantation of Yezin (6) seed in one of target villages in 2009/09 FY.

Village Committee of Magyi asked help from the Project to get contact with seed-selling centre because they are going to use another new chickpea variety in the years to come. By helping them to be able to do so, villagers will enable to use one new variety after another in the future without the help of the Project, and revolving will be continued.

In Ma Gyi Sauk village, the third generation beneficiaries will be provided with new variety this year. After the third generation group have been provided, 40% of all farmers in the village will have been provided with new variety. They can expect another new variety in coming years, to be provided by MAS township office.

In 2008/09 FY, regeneration of chickpea was extended to some target villages. Among them, Ar La Ka Pa village committee has made an arrangement to hand over seeds to the second generation beneficiaries with their own idea (that idea had been presented in the No. (47) newsletter).

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This newsletter No. 50 is issued in both English and Myanmar. In connection with Village Development Sales Centre at Legaing village in Pwintbyu township, Magway Division, previous newsletters (No. 37 and 38) with a title 'Let's open Village Development Sales Centre for rural community development' presented: the commencement of the village development sales centre with the help of the Project to earn village revolving fund and to promote village-products production; difficulties facing them concerned after over 1 year of its commencement because of difficulty to open small shops at the centre; investigation of causes which brought about those difficulties; the centre's effective help to village; and measures to be carried out to overcome those difficulties. Now this newsletter talks about how the Sales Centre Committee implemented the programmes step by step and the present situation of the Sales Centre which has overcome the difficulties.

Let's open Village Development Sales Centre for Rural Community Development: Part 3 !

■ Efforts by the Sales Centre Committee

Village Development Sales Centre Committee previously had waited for over one year for monitoring the situations of small shops at the Sales Centre. However, there was little progress. Therefore, in cooperation with responsible persons from the Project, the Sales Centre Committee made various efforts to make the Sales Centre developed one. First of all, the Committee joining hand-in-hand with the Project, built approach motor-way to the Centre for highway buses and pilgrimage vehicles, did earth work for resurfacing the ground around the Centre for car-parking, and made signs which direct the Sales Centre. Afterwards, those who wanted to open small shops at the Sales Centre were organized.

Although they were offered to open their shops at the Sales Centre free of charge on an experimental period, most of them were reluctant to start business at a new place. For that reason, the Committee had to make an announcement to the village that the Committee would provide necessary help to those who open their shops at the Centre. After that announcement, 7 women who were going to open their shops were explained that opening shops at the Centre was the same as carrying out village development activities because rental fee obtained from them would be spent for village development activities and it would also be beneficial to them because they could earn profit from their shops. After agreement had been made between the Committee and them, the Committee disbursed out loans to the shopkeepers as a part of capital for them according to their products, connected them the places where they could buy their things at cheaper prices, and guaranteed for them to let them buy things under the agreement of settling the debt after the things had been sold.



Photo (1) After the phone had been fixed at the Centre, a responsible person from Magway Division Tele-communication Centre teaching an auxiliary worker how to maintain the phone.

In addition, to make the Sales Centre more developed, an attempt was made to be able to fix a Public Call Office (PCO) phone at the Centre, with the help of Magway Division MAS Office, getting contact with Magway Division Tele-communication Centre. During July 2009, a CDMA phone could be fixed at the Centre with the help of the Tele-communication Centre. Then, the Committee could help the husband of one of the shopkeepers to get a job as an auxiliary worker of the Tele-communication responsible for the phone.

■ Present Situation

Due to above-mentioned efforts, a telephone-office, (1) Legaing Crisp Snack shop, (1) noodle and snack shop, (1) plastic/steel ware shop, (1) sandstone product shop, and (3) kitchen-items shop could be opened at the Sales Centre beginning from July 2009. Moreover, owing to the cooperation of authorities concerned, village committee members and villagers, there were shoppers for the shops at the Centre and the place began to have regular shoppers.

As for the restaurant at the Centre, some highway buses began frequently to halt at the Centre and so from 20/6/2009 to 26/7/2009, from the date of starting to organize highway bus drivers to halt at the Centre to the date of end of organizational work, average daily sales income of the restaurant rose from 7,000 Kyats to 15,000 Kyats within the one month. Since the centre began to have regular shoppers, passers-by were fascinated by the Centre and there were more customers for the restaurant.

When the study was made after small shops had been opened for about 3 months, except for 2 kitchen-items shops, all the rest shops were in comfortable situation earning about 1,000 Kyats of average net profit daily, it is learnt. When shops of good sales and poor sales were compared, shops of good sales sell products which cannot be bought at the village municipal market, shopkeepers pay full heed to their shops, and they take trouble to go to the places where they can buy their things at cheaper price, it is found out.

■ With added benefits

It has been mentioned in the previous newsletters that the Village Development Sales Centre Committee spent the fund obtained from the rental fees of restaurant in village development activities on social and educational affairs of villagers. Now, due to the Committee's help for small shopkeepers to be able to open shops at the Centre, shopkeepers have been enjoying benefits. Out of 7 shopkeepers, two were previously shopkeepers at the village municipal market and the rest 5 were new shopkeepers who got jobs by opening their small shops at the Sales Centre.

After those small shops have been opened for about 2 months, the Project made a field-trip to Legaing village and interviewed them. Ma Nwe, one of the shopkeepers, said, "Our couple has a son who is going to a primary school. Previously, I had to rely on my husband's income alone from radio and cassette repairing service. Now, due to the Committee's help to be able to buy things on credit from a big store in Magway and sell those things at the Sales Centre, I can also earn some income on my own apart from my husband's. I get about average profit 800-1,000 Kyats from my shop. I spent my husband's income for our family's daily expenditure and saved the profit from my shop. Then, within about 2 months, I could save about 20,000 Kyats and could buy the first bicycle for my family. We had to use other people's bicycle because we did not have any of our own. Now, we came to possess a bicycle and so we're very happy. We can use this bicycle for our business, so I hope

I will be able to earn more profit from my shop".

Afterwards, another shopkeeper Daw Thin Thin, who is selling sandstone products from Mingan village at the Sale Centre, was interviewed. She said, 'Everything is going well. Since my husband is a Magway-Mandalay Highway Bus Terminus in-charge and so he has to live in Mandalay. Here, I live together with my son. I opened a shop at the village municipal market together with my sisters previously. Now, with the help of the Committee, I can sell sandstone products from Mingan here, at the Sales Centre. Quite beneficial to me. Because I got sandstone products directly from the main source at the cheapest prices (about 100% cheaper than the market price). Since I can sell them at cheaper prices to my villagers, they can buy easily. Sandstone products of good quality like this cannot be obtained easily. At the time of pagoda festivals, there are sandstone ware sellers, but the prices are about over double more than what I sell them here. They are expensive. For thanakha-grinding slabs, I had to place orders for them many times. To date, over 120 slabs have been sold. As for me, there is almost no transportation charge for sandstone products because I made an arrangement to carry them by Ko Aye Lwin's (her husband) line-buses. Profit? Yes, I get much profit but it's difficult for me to say how much it is. I saved the profit. My daily meal is OK by spending my husband's remittance. I consider spending my saving for my son's education if and when necessary. And I'd like to extend my business if there are people who want to sell sandstone products by buying from me.



Photo (2) Daw Thin Thin seen happily selling sandstone products to her shoppers

Not only above-mentioned benefits, but also benefits of bringing about collective co-operation for making the Sales Centre developed-one, contribution of voluntary service for sanitation work, donations for construction of travellers' lounge, and reciprocal helping each other were learnt through the interviews.

This newsletter is issued in both English and Myanmar. The Project, with an aim at bringing about high-yielding paddy cultivation and rice production in the Central Dry Zone, conducted 'Improved Paddy Cultivation Training at State Agricultural Institute in Patheingyi township from 19 to 24 January 2009. The training was attended by 42 MAS staff from 12 townships in 3 divisions (this has been presented in the newsletter Nos.33 and 34). Now, here in this newsletter we will present readers about 'the Second Training Course' conducted as a refresher course for the 'Improved Paddy Cultivation based on Integrated Crop Management (ICM) at the Conference room of Mandalay Division MAS Office in Mandalay from 3 to 5 August 2009. This second training course was aimed at following up and reviewing action plans according to the outcome from the extension activities in the participants' service areas.

Ensuring High-yielding Paddy Cultivation and Rice Production in CDZ !!!

■ Participants and Objectives of the Training

The participants of the second training were basically the same as those who attended the first training, but some participants were different as a result of personnel transfer. In addition to MAS Extension staff, altogether 5 advanced farmers from 3 divisions (3 from Mandalay, 1 from Sagaing and 1 from Magway) were invited to the training so that more stimulated discussions on the real situations encountered by the participants could be held with much effect. Accordingly, the participants were expected to achieve the following objectives of the training as:

- 1) To sum up experiences of the participants on the improvement of agriculture in CDZ;
- 2) To share the skills and attitude to solve the problems encountered during the extension;
- 3) To gain collective insights on what needs to be further improved for agriculture development;
- 4) To review, and modify if needed, the action plans prepared during the first training;
- 5) To prepare extension materials which fit in the context of the beneficiaries of CDZ; and
- 6) To discuss way-forward for agriculture development in the CDZ.

■ Participants' Experiences on Extension

A preliminary questionnaire survey was applied prior to the commencement of the training. The items surveyed in the questionnaire are given below:

- 1) Issues in extension/demonstration activities
- 2) Method/ways of solving issues
- 3) The most proud experience in one's activities
- 4) With/ without provision of extension manual
- 5) What kind of manual provided
- 6) Activity inhabitants pleased/ interested in, and
- 7) Why inhabitants pleased/ interested in the above listed activities.

In this questionnaire, question Nos. 1 and 2 were focused on problems which the participants had

encountered during their extension periods and how they had tried to overcome them. As the most frequently issue, the MAS staff experienced that farmers could not easily carry out the activities such as *Bokashi* making and rice husk vinegar making. Their solution mostly tried to these issues/problems was to cooperate with farmers to get necessary materials and MAS staff carried out several demonstrations. The second issue arisen is that farmers were not interested in what they tried to disseminate. Dealing with these issues, they tried extension with a help of pamphlets made by township-wise and demonstration after monthly Township PDC meeting participating Village PDC Chairmen.

Response to the question asking the most proud performance among their extension activities, included *Dapog*, early and sparse transplanting which have been extended since Organic Farming Training, systematic application of fertilizer, and reduced-area wet-bed nursery. These were because the farmers could reduce the cost for agriculture inputs such as purchasing seeds and fertilizer.

For question No.6 'activity inhabitants were pleased with/ interested in', it was learnt that farmers were pleased with/ interested in the following activities as shown in the Table below.

Table 1. Activities the farmers were most interested in

Activities which the villagers were most interested in	Nr.
Systematic application of chemical fertilizer	12
Making IMO <i>Bokashi</i> compost	9
Selection of good seeds by soaking in salt water	8
Early transplanting of young seedlings	7
Making reduced area wet-bed nursery	4
Application of chemical fertilizer and compost mixed	3

Farmers were most interested in the above-mentioned activities because:

- ✓ They could reduce the amount of chemical fertilizer and its cost by systematic application;
- ✓ They could make *Bokashi* compost by themselves and apply it to improve soil condition;

- ✓ They could select good seeds easily and hope for better germination;
- ✓ They could get large and strong tillers by transplanting young seedlings;
- ✓ They could make nursery preparation in a small area; and
- ✓ They were pleased with considerable effectiveness of soil improvement.

- 3) Township MAS offices are to make necessary arrangements to keep seeds to be able to distribute them to farmers;
- 4) To encourage farmers and to reduce the costs by using locally available materials; and
- 5) To hire farm-labours from other villages and to weigh in mind the sowing time not to coincide with one another.

■ Common Problems, Interactive Discussions

As afore-mentioned, the participants had experienced their respective problems and solved them on their own. At this second training, thanks to advanced farmers from 3 divisions, interactive discussions became more stimulated than previous ones, and common problems could be summarized into 5 such as; 1) the farmers do not follow the extension provided, 2) it is difficult for farmers to do water management and land preparation, 3) farmers cannot keep good seeds in hand for long, 4) farmers cannot afford to try new techniques for lack of money, and 5) farm-labours and agricultural machines are not enough for farmers.

Summarized of the issues/ problems which the participants encountered, all participants discussed the problems and their solutions. Extension staff thought that the farmers caused every problem, for example, '1) the farmers do not follow the extension provided' because they have no motivation to try. However, according to the chief counterpart, the problems do not depend on their motivation because there is weakness in extension by MAS staff or their extension ways were not clear enough for farmers, so problems have happened, he pointed out.

Besides, one of the advanced farmers suggested based on his own experiences that the locally adaptable technique such as shorter life period paddy variety was to be cultivated if regular sowing time was late due to unavoidable circumstances, instead of sowing long life period paddy variety. Only then would it be possible to produce paddy regularly. Therefore, it is necessary for MAS staff to give extension services more clearly and flexible to farmers.

All participants sought for possible ways and means to solve those problems through interactive discussions mainly based on the side of farmers. Outcomes of those discussions could be achieved with a unanimous voice as follow:

- 1) For MAS extension staff, to review their extension ways to know whether they were clear enough for farmers to understand or not;
- 2) To apply alternative suitable method for farmers to be able to do water management and land preparation (e.g. to apply shorter life period paddy variety);



■ Extension Materials

Extension staff had already prepared extension materials of their original ideas for their extension. These are for example pamphlets provided by folding sheets of the size A4 in thirds, crop calendar which mentions necessary matters according to paddy life stage by using an A1 size plastic sheet.

A next picture shows examples of the extension materials that Kyaukse TS actually uses in its extension sites. The background of the picture shows a crop calendar which mentions necessary matters according to paddy life stage by using an A1 size plastic sheet.



In the picture, we can observe a CD which records extension staff's activities in digital pictures, and clockwise from the CD, a large vinyl sheet describing a method of providing paddy husk charcoal with kinds of material and their required quantities, a MP4 player, a book of pictures, a technical hand book distributed in the last training, a crop calendar in A4 size, and a leaflet. According to extension staff of Kyaukse TS, they considered that as much as farmers can be interested in their extension services and they made those materials. For example, the extension staff talked about how to make *Bokashi* to farmers by using a MP4 player to show a movie of the *Bokashi* making. These are only a part of what they have done. We very much appreciate.

For more, please wait for the next Newsletter!!!

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This newsletter is the second instalment for 'Improved paddy cultivation based on Integrated Crop Management (ICM) training' conducted at the conference room of Mandalay Division MAS Office from 3 to 5 August 2009. In this newsletter, presentation by extension staff, state of progress in extension activities, cultivation improvement by good practices and achievement of the training objectives will be shared to readers in order to cope with the latest information of the Project's attempt to further improve agricultural sector in the CDZ.

MAS Extension Staff hand-in-hand with the Project towards Target Goal !

■ Presentations by Extension Staff

Representatives of each township presented their extension materials at the training and they made presentations by using them. Advanced farmers, counterparts and the Study Team also joined in identifying and evaluating the materials on whether sufficient contents were included and presented or not. Considering good extension services for farmers, the participants were given 5 - minute- presentation time. Because it is thought that the farmers are so busy that they will be unable to listen to extension explanation for a long time. It is the point that the extension staff need simple and understandable presentation skill.

Therefore, the presentation time has to be limited. It is suggested that farmers may have problems because of poor extension way. Including advanced farmers, the participants discussed the relevance for their extension. In conclusion, it is learnt that extension materials should be made with many pictures to make farmers easily understand their extension. However, it needs not only the quality of extension materials but also skill to convey the point in their extension and to express it simply and clearly so that farmers can understand accordingly.



Presentation by Extension Staff (Salin TS)

■ State of progress in extension activities

At the first training, the participants formulated their action plans by township for their extension activities to be carried out for summer paddy cultivation after

the training beginning from January 2009. The following table shows the number of target villages set for extension activities and the number of villages where extension activities have been done as of August 2009.

Table 1. Nr. of Target and Accomplishment

Activity	Target (Nr. of Villages)		Accomplishment (Nr. of Villages)		Accomplishment (%)	
	Ext	+ Demo	Ext	+ Demo.	Ext	+ Demo
1 ICM-Paddy Demonstration	111	20	177	26	159	130
2 IMO Seed Extraction	151	68	165	71	109	104
3 IMO Bokashi Making	141	57	143	55	101	96
4 Seed Selection	158	59	173	53	109	90
5 Proper Land Preparation Practice	145	41	169	34	117	83
6 Reduced Area Wet-bed Nursery	160	35	169	33	106	94
7 Early Transplanting	162	35	170	32	105	91
8 Proper Fertilizer Application Practice	142	38	177	42	125	111
9 Proper Water Management	138	34	157	39	114	115
10 Dapog Method	124	16	115	17	39	106
11 Rice Husk Charcoal Making	136	19	102	21	75	111
12 Weeding Practice	155	36	166	45	107	125
13 Harvesting with Minimum Waste	156	33	174	33	112	100

As to the state of progress during the period from January 2009 until end of July, most activities except for nursery preparation by *Dapog* method, and rice husk charcoal making, were over-fulfilled beyond 100% in terms of demonstration. Especially, extension concerning ICM paddy demonstration reached 159% achievement because explanation and pamphlet distribution of ICM towards representative -villagers in village-tract have been carried out through monthly TS PDC meeting.

Accomplishment rate of proper fertilizer application practice (extension) is 125% and the rate of weeding practice (demonstration) is 125%. These two accomplishment rates are the biggest in the activities. According to extension staff, it is learnt that these activities are easier for farmers to carry out than other activities.

The participants carried out their extension activities according to their action plans by township for summer paddy cultivation and there were villagers who actually followed the extension activities and put them into practice. The number of villages was 94, and the number of villagers was 458 in total. And the number of villagers who actually put the technique of 'harvesting with minimum waste' into practice shows an outstanding number in comparison with other activities. This is related to the fact that farmers (for example, from Ayardaw and Wetlet townships) hired threshing machines, learnt the technique voluntarily,

and tried to use the machines. Aside from harvesting with 'minimum waste', it is learnt that there were villages as many as 44 and villagers as many as 335 for the activity of seed selection. The following table shows how many villages and villagers actually tried against target of extension/ demonstration.

Table 2. Nr. of Villages & Villagers Actually Tried (Summer)

Activity	Accomplishment to Date		of which how many villagers actually tried (After Demon)	
	Nr. of Villages		Ext. Demon.	
	Ext.	Demo	Ext.	Demon.
1 ICM-Paddy Demonstration	177	26	33	41
2 IMO Seed extraction	165	71	37	46
3 IMO Bokashi Making	143	55	32	35
4 Seed Selection	173	53	44	335
5 Proper Land Preparation Practice	169	34	45	225
6 Reduced Area Wet-bed Nursery	169	33	44	137
7 Early Transplanting	170	32	46	127
8 Proper Fertilizer Application Practice	177	42	48	255
9 Proper Water Management	157	39	40	147
10 Dapog Method	11	17	18	45
11 Rice Husk Charcoal Making	102	21	26	7
12 Weeding Practice	166	45	60	278
13 Harvesting with minimum Waste	174	33	46	344
Nr. of Villages/ Villagers	190	190	94	458

■ Cultivation Improvement by Good Practice

Figure 1. shows cost carried out by good practice such as *Dapog* nursery, sparse transplanting, and systematic land preparation as compared to conventional method. Concerning cost in nursery, the average cost arrives at 15,237 Kyats/acre by good practice, and at 26,508 Kyats/acre by conventional method. This indicates good practice can reduce the nursery preparation cost by about 11,000 Kyats/acre.

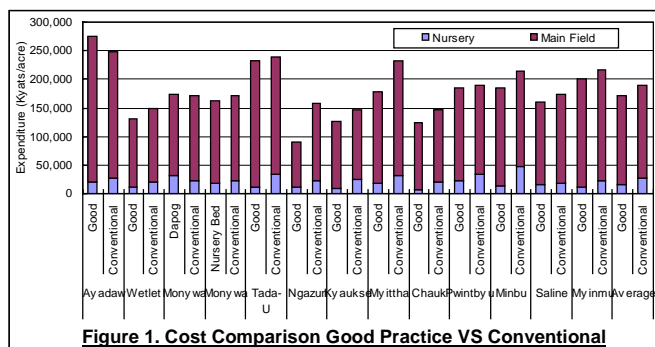


Figure 2. shows difference of yield between good practice and conventional one by townships, and the yield by good practice was increased by about 10 baskets/acre in Ayardaw, Wetlet, Tada-U, Kyaukse, Myittha, Pwintbyu, Salin and Myinmu townships.

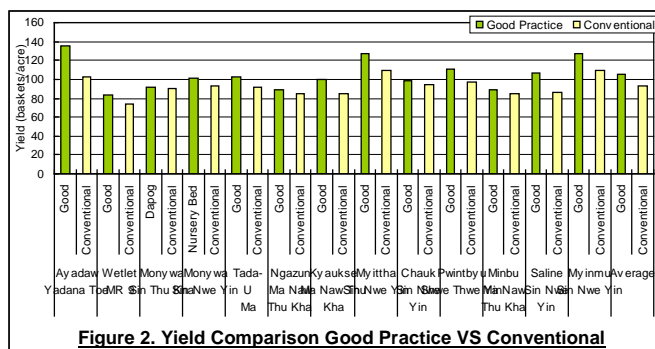
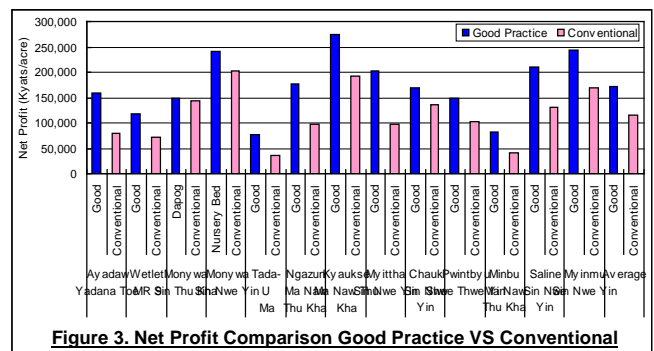


Figure 3. shows difference of net benefit between good practice and conventional method. Concerning an average of net profit, good practice gained 173,076

Kyats/acre, and conventional one gained 115,507 Kyats/acre respectively. The achievement of good practice is to increase 57,570 kkyat/acre net profit balance.



■ Good Practice vs. Conventional One

Good practice includes *Dapog*, early and sparse transplanting, and other practices based on ICM while conventional ones are what nearby farmers have tried in the vicinity. Note is that since this trial was not carried out in any research farms but in farmers' actual fields, no condition in terms of, e.g. fertilizer application, is same. Items compared are; life period; seed applied per acre; seedling period; spacing, plant per hill; plant height; length of panicle; number of tillers with panicle, matured seeds per panicle; 1,000 seeds weight; etc. though some were not recorded. Seed applied amount is less than 10 pyi on the practice including *Dapog* method or reduced area wet-bed nursery while (32-40) pyi are used in the conventional method. In case of early transplanting tried, 20 days seedlings period is the longest and others are (15-17) days. On the contrary, conventional method used seedlings of about (1-1.5) months age. Spacing applied under sparse transplanting with 30 days seedling is narrower than good practice. Spacing applied should be adaptable to soil condition, judging from whether the condition is poor or not. For poor soil, recommendable sparse transplanting is 6" x 6" or 9" x 4" while in fertile soil it can be 8" x 8" or 9" x 9".

■ Achievement of the Training Objectives

You may recall objectives for this training as was mentioned in the last newsletter No.51. Last session of the training was to ask the participants' degree of fulfilment by training objectives. Covering from the objective (1) to the objective (6), each of the participants evaluated his/her achievement by 5-level ranking. The participants marked high-ranked evaluation for the objectives (1) to (4) ranging 4-5. Particularly, concerning the objectives (3) 'to gain collective insights on what needs to be further improved for agriculture development', the number of participants giving Level-5 reached 40%. Therefore, it is thought that a lot of participants acquired necessary matters for better extension through this training.



This newsletter is issued in both English and Myanmar. Pilot Projects have been carried out since 2007-08 FY covering (4) sectors such as agriculture, livestock, cottage industry and living improvement. (6) villages in 2007-08 FY, and the activities were extended to (22) villages in 2008-09 FY. A lot of knowledge and experiences and lessons have been obtained through the implementation of pilot projects. Now, it is time for the Study Team to finalize the Action Plan of this Development Study. So, in this newsletter, Monitoring Tour/Workshop for concerted evaluation of Pilot Projects sponsored by JICA Myanmar Office inviting government personnel, those from INGOs, NGOs and journalists, will be shared to readers.

Unprecedented Tour/Workshop that will broaden the horizons of rural people in CDZ !!!

Objectives of the Tour/ Workshop

There are organizations which are engaged in similar projects and development activities. Lessons and experiences obtained by those organizations will also provide good references for the finalization of the Action Plan of this Development Study. A joint-monitoring tour/ workshop was therefore planned to share achievements, lessons and experiences between the said organizations and the Study Team in the month of August. Although overall objective of this monitoring tour/ workshop is to share lessons and experiences of the pilot projects between the JICA Study Team and participating organizations, specifically, by the end of the tour/ workshop all the participants are expected to achieve following as the objectives of this tour:

- (1) To share the experiences, achievements and lessons of the pilot projects being carried out under the said pilot project;
- (2) To familiarize development constraints and opportunities related to the development of the CDZ;
- (3) To exchange own experiences and ideas with JICA Team and thereby the participants enrich modality of the development activities; and
- (4) To facilitate concerted efforts towards the development of the CDZ based on the feedback from the participants.

Tour/ Workshop Mechanics

In cooperation with JICA Myanmar Office, the first announcement for invitation was sent to concerned organizations at the end of July 2009 and the second one at the mid August 2009 to confirm the number of the participants. In parallel with those issuances, logistic arrangements for lodging, transportation, meals and advance notification to the concerned township offices and ministries as well as arrangement for the villages to be visited were made. In the pilot villages, beneficiaries prepared summary of each pilot project by themselves for the presentation. In addition, inquiries were also prepared by the JICA Team to ask all the participants to collect their views and recommendations or proposals for further improvement of the projects.

The tour/workshop was implemented as net 3 days tour including wrap-up workshop. The villages

visited are: Mingan and North Pabe in Chauk township and Legaing and Mon Taw Gyi in Pwintbyu township, all of which are located in Magway division. Chauk township falls under Type (I) category while Pwintbyu township in Type (V) category according to typology set up under this study in relation to action plan formulation. Type (I) represents the harshest environmental condition while Type (V) represents the best environmental condition in terms of agricultural production. Therefore, the participants could compare both environmental conditions.

The contents of the tour/ workshop are: 1) study tour to the villages where pilot projects were implemented; 2) presentation by beneficiaries in each village; 3) evaluation (impression) of each pilot project and achievement of the tour/ workshop objectives by the participants; 4) collection of their comments for further improvement; 5) presentation of the outline of the Development Study and pilot projects along with interactive discussions, presentation of the evaluation results of each pilot project (session (1) of the workshop), and discussion on necessary activities/ projects to further improve livelihood of the people in the CDZ (session (2) of the workshop).

Participants to the Tour/ Workshop and their Project Experiences in CDZ

Table 1. Participants to the Monitoring Tour/ Workshop

Organization	Number	Remarks
Government (Agriculture)	15	
Government (Livestock)	2	
Government (Cooperative)	5	
International NGOs	5	Save the Children, AMDA, etc.
International Organizations	3	FAO, WFP, etc.
JICA related project	16	
JICA Study Team	8	Including counterparts
Others	5	(Journalist, freelance, local consultants)
Total	59	

Source: JICA Study Team

Participants to the tour/workshop reached as many as (59) members including JICA Team and

counterparts. They are mainly composed of :1) concerned government officers; 2) international NGOs and organization; and 3) officers from other JICA related projects as shown in the Table above.

Experience if the participants have ever been engaged in any project carried out in CDZ was asked. Out of (43) replies, (21) participants (49%) reported that they have experiences of working in CDZ, and in fact (8) of (21) replies are concerned to the JICA's Development Study. The types of activities/projects can be summarized as below (most of their experiences are related to agricultural sector).

Table 2. Project Experiences in CDZ

Type	No.	Remarks
Agriculture/livestock	11	UNDP, FAO, JICA
Food supply/food security	4	
Health care	3	
Community development	3	
Micro finance	3	
Forestry	2	
Water supply	1	
Poverty reduction	1	
Child care/education	1	
Cottage industry	1	

Source: Pre-tour/workshop inventory questionnaire, JICA team

■ Years in Service of the Participants

The years of service of the participants were summarized as mentioned below. The result is roughly divided into two strata of 1 - to several years and over (26) years. If considering age structure, it can be said that this tour/workshop provided them, especially for young generation, with good opportunity to see various types of pilot projects targeting not only farm household but also landless farm workers.

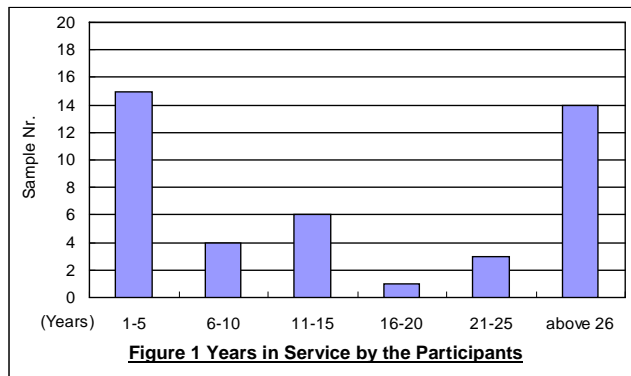


Figure 1 Years in Service by the Participants

■ Expectation to the Tour/ Workshop

The inventory inquiry asked the participants what they expect from the tour/workshop. The following are the summary of their expectations.1)To share experiences/ information, 2) To know farmers'/ people's situations and needs, 3) To learn current development activities, 4) Methods of how to reduce poverty, 5) To get ideas from this Workshop, 6) Outcomes/ impacts from this Project, 7) Response of beneficiaries, 8) To understand the real situation of

the Project, 9) Problems and Solutions, 10) To use suitable activities for our Project, 11) Participants' impression on CDZ Project, 12) The Project System, 13) Success stories of beneficiaries, 14) To know key points of development of CDZ, 15) To get the experience for future project, 16) The effective way of livelihood improvement especially in bad weather like this year, 17) To meet future co-workers for new projects, 18) To get new activities with agro-forestry, 19) To know the situation of livestock in the area, 20)To provide loans to the poor as microfinance like Gov. Bank, 21) To gain Human Resources Development (HRD) knowledge, 22) To enhance food security at government level, 23) To observe water sanitation and health, 24) Long-term development of sustainability, 25) To get networking with other INGOs, NGOs and related government departments.

■ Start with Monitoring Tour

All the participants gathered in Nyaung-U and brief explanation of the monitoring workshop was made at a hotel conference room, then moved to Chauk township by five vehicles, and visited North Pabe village first. A representative of the beneficiaries presented summary of each pilot project. The participants studied rural development centre (lunch supply for the children), livelihood improvement (improved cooking stove, vegetable and fruit production). Then, the participants proceeded to Mingan village and studied goat raising revolving, primary school, diesel power generator and trollogy for sandstone processing. In both villages, a representative of the beneficiaries presented summary of each pilot project and exchange of views was conducted with the participants. All participants were required to fill out the inquiry format for evaluation for Day 1.



Photo(1) - A representative of North Pabe villagers presents their achievements to the tour participants.

For more, please wait for the next Newsletter!!!

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This newsletter is the second instalment for 'Monitoring Tour/ Workshop for concerted evaluation of the pilot projects'. In this newsletter, shared with the readers are the participants' evaluation (impression), comments, suggestions and recommendations, achievement relating to the objectives of the Tour/Workshop, recommended projects other than the pilot projects, etc. Please enjoy the following:

Let's Lay Our Heads Together for the Betterment of CDZ !!!

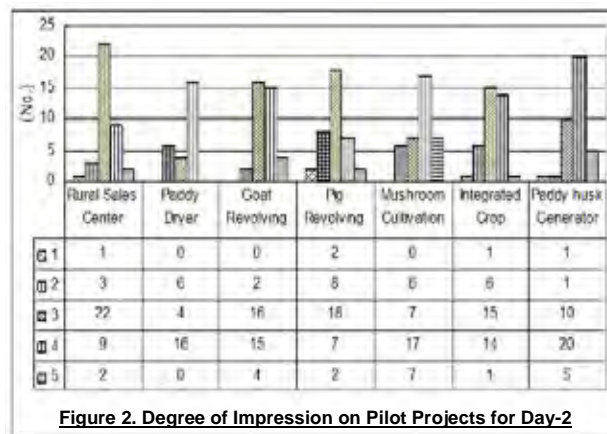
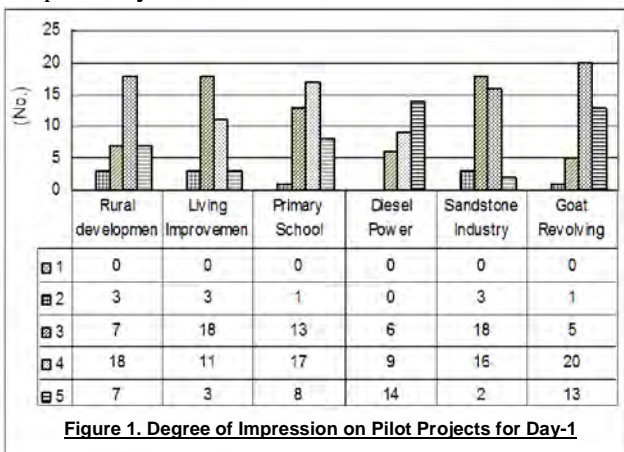
■ Participants' Evaluation by Impression

The participants visited North Pabe village, Mingan village on Day-1, and Legaing and Mon Taw Gyi village on Day-2. At each of the pilot project, a beneficiary representative presented summary of their activities. One of the examples is shown in the photo below, Rural Development Centre project in Legaing village where all the participants took lunch.



A beneficiary leader explains their achievement, difficulties they had faced, and how they have overcome the difficulties, etc. at Rural Dev. Centre where the participants took lunch as well we bought some souvenirs.

The participants were asked to present the degree of their impression on each of the pilot projects that they had visited in those villages. By giving impression, each pilot project was evaluated with scoring 1 to 5 where 1 is the least while 5 is the highest. The results of evaluation on Day-1 and Day-2 are shown in Figure 1 and Figure 2 respectively:



■ Participants' Comments on Pilot Projects

Upon ranking their impression by pilot project, any comments were asked. Some comments were related to pilot projects, giving some ideas to further improve the project performance and some comments were of overall. Here some of the comments are shared as follows:

- ✓ Apart from feeding nutritious food to children, there should be an arrangement for their parents to increase family income, and fund should be spent for stipend for outstanding students who cannot proceed their education,
- ✓ Instead of tractors (provided to Ar La Ka Pa village), two-wheeled power tillers and rotary cultivators could be provided because they are cheaper and easier to handle and maintain,
- ✓ It is required to set up a monitoring system in the centre committee to solve the problems/ issues and overcome the limitations of projects,
- ✓ Soil conservation and soil fertility management should be initiated in specific areas of CDZ, and
- ✓ Revolving fund for community should be applied in all the CDZ.

■ Wrap-up Workshop

The wrap-up workshop was commenced by the presentation by Team Leader of the JICA Study Team. In the presentation, socio-economy, environmental conditions comparing with those of other areas, typology of 51 townships, poverty

lines, etc. were briefed. This briefing must have contributed to facilitating the participants able to familiar to the situation of the CDZ. Then, a session of the wrap up workshop requested the participants to come up with such projects which can further improve the livelihood of the CDZ population by interactive way. Following are the projects or development activities that the participants recommended, and the recommendations will be incorporated in the development plan of the CDZ:

Table 1. Recommended Projects

Sr.	Title	Target
1.	Native chicken farming	village level
2.	Slaughter house	village level
3.	Marketing system for all products	CDZ
4.	Integrated village development project	small scale farmer, landless
5.	Farm product processing	rural women
6.	Tourism attractive area development	villages such as Mingan
7.	Livelihood improvement of CDZ through integration of rural development activities	CDZ
8.	Rural electrification	North Pabe
9.	Small-scale seed/grain business	village level
10.	Village network establishment	villagers, VPDC
11.	Membership-type self standing farmer organization	farmers
12.	Committee-based cottage industry development activities	villagers
13.	Technology transfer school for farm household	all farmers
14.	Integrated soil management	farmers
15.	Revolving fund system for all sectors	villages

Source: Wrap up Workshop held on Day-3



A session of the wrap up WS; Participants are presenting their ideas in terms of projects, which can further improve the livelihood of the CDZ population.

■ Achievement on the WS Objectives

Participants evaluated about achievement related to the objectives of the monitoring workshop by scoring 1 to 5. Regarding objectives of 'exchange own experiences and ideas with the Study Team' and 'facilitate concerted efforts towards the

development of CDZ' were given higher marks than the others which themselves were not low either. Figure 3 summarizes the results:

1. To share the experiences, achievements, and lessons of the pilot projects being carried out under the said pilot project,
2. To familiarize development constraints and opportunities related to the development of the CDZ,
3. To exchange own experiences and ideas with the JICA team and thereby the participants enrich modality of the development activities, and
4. To facilitate concerted efforts towards the development of the CDZ based on the feedback from the participants.

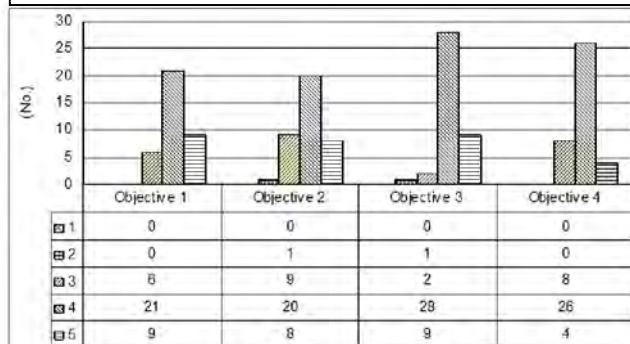


Figure 3. Achievement of the Objectives by Participants

■ Monitoring Programme Overall Evaluation

Participants evaluated satisfaction related to the monitoring workshop on the final day by also scoring 1 to 5. The contents of 'satisfaction' are: 1) satisfaction as a whole; 2) satisfaction about logistics; and 3) satisfaction about their expectation what they had expected at the beginning of the workshop. As to satisfaction as a whole, 98% of the participants gave 4 to 5 marks, 85% of them satisfied logistics in the level of 4-5, and 84% also considered their expectations were met in the level of 4-5. Figure 4 summarizes the results of the degree of their satisfaction:



Figure 4. Degree of Satisfaction by Participants

■ Acknowledgement

Now, it is about to be time for JICA Study Team to finalize the Development Plan for the CDZ. All the comments, suggestions, ideas given to us will be incorporated in the Plan. The Team and the CPs express sincere gratitude to all those participated officers and of course to all the concerned villagers who accepted us.

This newsletter No.55 is issued both in English and Myanmar. In this newsletter, provision of a tractor to Arlakapa village in Myinmu township, Sagaing division, as one of the pilot projects for improvement of agriculture sector, will be shared to the readers. Of all the target villages, Arlakapa village is the biggest and has the largest number of households which mainly depend on agriculture. The Project provided tractor to improve their agriculture sector and beside, it was aimed to establish a village revolving fund by using the rental fee for the tractor. You can find the present status of the tractor as well as the progress of village revolving fund.

A Helping Hand to further improve Agricultural Sector!!!

■ The Project's prime proposal

After JICA Study Team had selected target villages, discussions and negotiations were held among JICA Study Team and respective villagers to find out the real needs for their villages. In so doing, for Arlakapa village, one of the target villages, all decided to provide a Road Shop, a highway roadside sales shop, for its cottage industry sector. Why the Road Shop for Arlakapa villages was selected was that it is situated beside the motor highway between Mandalay and Monwya and so selling village products at that shop will actually be able to raise village production and family income will also be increased in the long run.

■ Difficulties encountered by villagers

In implementing the pilot project for appearance of Road Shop, village elders including village PDC chairman worked in cooperation with local consultants for activities such as submitting an application form to authorities concerned to grant a site for building the Road Shop, drawing a building design, and forming a Road Shop Committee, in a systematic manner. However hard they tried, they found it difficult to find a place at roadside. According to the village situation, there have been a state primary school, a monastery, a pagoda precinct, a rural health centre, government departmental buildings, etc. on either side of the road and so a site for Road Shop could be granted not at the roadside but at a place a little bit far from roadside. In this way, the implementation of a pilot project for Road Shop faced with difficulties until the 2007/08 fiscal year was over.

■ Discussions to find real needs of village

At the commencement of 2008/09 fiscal year, JICA Study Team and village responsible persons held discussions to find out real needs of village apart from the proposed pilot project, Road Shop. Villagers were asked to hold discussions among themselves under the supervision of village responsible persons. At that time, the Project had already allotted the budget proposed for Road Shop. The Project made villagers hold discussions among themselves because the

Project wanted to get the final decision concerning with their village real need, made by the villagers themselves. After the village real need had been found out, JICA Study Team and village responsible persons held discussions and negotiations and finally to provide a tractor to Arlakapa village was confirmed.

■ Village agricultural sector

Arlakapa village has a population of 6,401 persons and 1,263 households. Of all the households, 690 own farmland {including farmers owing under 5 acres} and 573 households are farmers. Main crops cultivated in Arlakapa village are paddy, groundnut, cotton and sesame in rainy season and wheat, groundnut and chickpea in winter. About half the total households earn their living depending on agriculture. So, villages' request to provide a tractor was reasonable and it could be a helping hand to improve agricultural sector. It can be assumed that villagers made a right decision. It is quite sure that the tractor will be able to serve in one way or another for total arable land of 6,837 acres {lowland (le) 1,916 acres, upland (Ya) 4,174 acres and Kaing Kyun 747 acres}.

■ Joint-effort by the Project & villagers

Tractor purchasing group from Arlakapa village, who are keen to find a good-quality tractor, made strong efforts to be able to purchase a tractor to their heart's content. The Project made known the amount of money which would be provided for purchasing a tractor to villagers and gave necessary assistance to



The tractor and its accessories provided to Arlakapa Village by the Project.

villagers. It is clear that villagers were very eager to buy a tractor of good quality. It can be seen by the fact that they had already saved 1,000,000 Kyats as village fund to be able to buy a good tractor, on their side. A tractor worth of 8,600,000 Kyats could be successfully bought due to villagers' eagerness and the project's guidance. The tractor was Zector 67/11 made in Chekoslovakia. It was of 65HP. Together with a tractor were a 3-teeth plough, a 16-tooth harrow, and a E-50 rotary, it was learnt.

■ Tractor Committee

Tractor Committee was formed with 17 members. They were 1 group leader, 1 accountant, 1 auditor, 1 for tractor maintenance, 1 tractor operator, 1 treasurer and 11 members. The Committee was formed with such members for sustainability of tractor and for being able to refund the prescribed instalment for the cost of tractor to the Main Committee. The Main Committee was to keep the profits gained from tractor rental so that village revolving fund could be established.

The prime aim of Tractor Committee was to purchase one more Tractor after saving the profits gained from tractor rental. By so doing, they aimed to save more fund for village development activities. JICA Study Team Leader reminded the tractor committee to consider about the current price of tractor when it was purchased not to exceed than the limited budget. And then he also advised the committee to refund the instalments for the cost of tractor equivalent to the price of farm-gate rice so that the instalments would be consistent with the inflation of different years. As the years went by, the price of rice would become higher and so would the price of tractor.

■ Emergence of Village Revolving Fund

When the Main Committee kept those funds gained from the tractor refundment, they arranged to carry out a double-effective plan for villagers in the village who were really in need of help for some money. That plan was;

- ✓ 60% of income from tractor rental would be spent for maintenance, diesel, engine oil, etc by the tractor committee and the rest 40% has to be submitted to the Main Committee.
- ✓ a responsible person from township co-operative and a village PDC Chairman and other members will be included in the Main Committee.
- ✓ the Main Committee would keep the refundment submitted by the tractor committee and during that period, the Main Committee would disburse out loans to villagers who were really in need of help (with 2% to 5% interest).
- ✓ the villager would have to repay the loans within the limited period and by so doing village fund was

planned to increase more and more. Such decisions were made.

- ✓ village fund was made increase and villagers could borrow money from the Main Committee with low interest.

In this way, village revolving fund could be established.



Co-operative Counterpart of the Project explains necessary things to members of Tractor Committee of how to keep financial statistics and rules and regulations of co-operative.

■ Outcomes from the tractor

The Tractor Committee, in according with the teaching of Co-operative Counterpart, kept the financial accounts of tractor rental such as income and expense according to the rules and regulations of co-operative. The following is the up-to-date record of income and expense of a tractor.

Table 1. Balance Sheet of Tractor from Nov 2008 to Sep 2009

No	Item	Income (Kyats)	Expans (Kyats)	Net Profit (Kyats)
1.	(93)acre Hollowing	844,000		
2.	(94)acre Plough	1,368,000		
3.	Diesel		780,850	
4.	Driver		133,750	
5.	Maintenance		113,600	
	Net Profit	2,212,000	1,028,200	1,183,800

*Source: Income and expenditure record of tractor committee

■ Future Prospects of the Village

Due to having established village revolving fund, the more income from tractor can be earned, the more fund for village development activities can be carried out, no doubt. Besides, when the cost for a tractor has been refunded, the Tractor Committee will be able to start saving the entire rental fee for buying another or other necessary farm implements.

The rate of improvement of carrying out village development activities totally depends on the unity and appliance of lessons out of solving problems. The Project had sowed the seed of improvement for the village. And it is necessary for the villagers to take care of that seed which is to grow into a tree with fruits and flowers, as a whole village concern.

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This newsletter No.56 is issued both in English and Myanmar. In 2008/09 FY, as a livelihood improvement project, the Project provided paddy-husk bio-gas plant to Mon Taw Gyi village in Pwintbyu township, Magway division (Newsletter No.44 reported that how the plant was constructed, how villagers and electrification committee members made efforts, how electricity was supplied in the village and how the benefits were gained through the electrification). Now, this newsletter brings you about how villagers faced with difficulties and overcame those difficulties and how they tried to improve the paddy-husk power plant on their own. Enjoy it !

Let's Build Our Capacity by Own Experiences !!

■ The Committee and its Responsibility

The committee was formed with 10 members; 1 committee chairman and 1 secretary, 1 treasurer, 2 auditors, 2 workers for operation and maintenance, and 3 other members. In connection with committee's accountant and managerial activities, committee has been carrying out in negotiation with supervision committee headed by the VPDC chairman. When the Project made a field trip to Mon Taw Gyi village, it is learnt that electrification is being done from 5:30 PM to 10:30 PM regularly.

About 10 households are exempted from electrification charges as they are actually too poor to pay for that or otherwise they are too old to work thereby no actual income. Not only that, a village health centre, a primary school, 2 monasteries and about 80 lamp-posts are supplied with electricity free of charge. In fact, with the many lam-posts, anyone can move in the village nigh time without any fear. A bulb is charged 50 Kyats per night and so also is for TV, it is learnt.



Photo(1) - Electrification Committee members were found together with paddy-husk bio-gas producers.

■ Steps taken by the Committee

After receiving the paddy-husk bio-gas power plant, Mon Taw Gyi villagers had to encounter some difficulties. That power plant was constructed with 4-piston-engine. Committee members were

not familiar with such engine and so there occurred minor difficulties at the earlier period of running the engine every now and then. The mechanic (introduced by local consultant) only knows how to repair 2-piston-engine skillfully. Therefore, Committee thought that there can be difficulty in repairing the engine provided by the Project in the long run. In fact, the engine needed repairing about 5 months ago, and the Committee had to looked for another suitable mechanic and then got the engine repaired.

That mechanic was from Kyaung Taw Yar which is situated quite close to Mon Taw Gyi village. It is learnt that he knows how to repair 4-piston-engine skilfully and he also owns a rice mill and a lathe. He is well-acquainted with paddy-husk bio-gas power generation because he is supplying a monastery in Kyaung Taw Yar with electricity by means of his rice mill which works as power generator as well by using rice husk. It can be said that the Committee has made a right decision to bring about better conditions.

Previously, for operation and maintenance, 3 workers were appointed with the payment of 30,000 Kyats each per month. However, they could not pay full attention to the power plant as they had to carry out their bread-earning jobs on the other hand. For this reason, the Committee, beginning from May 2009, appointed 2 new workers who can pay full attention to the power plant with the payment of 30,000 Kyats each per month. This arrangement aimed at contributing towards bringing about improvement for village electrification.

Those two workers live in the power plant compound and they are, in fact, the persons who mostly keep in touch with the electrification. One of the committee members, U Khin Mg Tin, said, "we let operation and maintenance workers live in the plant compound. This made them keep in touch with the plant daily. If and when a mechanic is sent for repairing the engine, they have to help the mechanic. That's why now they know how to repair the engine if it is not a major problem. We expected such a thing happen. So we carefully chose the persons who could live in the plant

compound and who are interested in electrification.” He explained of how they had to try to improve workers for the power plant.

Electrification committee members are used to getting together in the plant compound and the compound is really a place for them where meetings are held. Things they used to discuss about were how to improve and develop the power plant in the long run with their own efforts. They occasionally get advices from experienced persons to be able to maintain the plant. Especially, the Committee members rely on the mechanic from Kyaung Taw Yar and according to his advice some parts of the machine were replaced with new ones to make the engine be in better and better conditions than ever.

By spending the fund gained from the charge of electrification, in the month of October 2009, some parts which needed to be replaced with new ones to improve quality of the engine were changed. The boiler into which paddy-husk is put to burn has an iron sieve inside it. Due to intense heat, the sieve inside the boiler expanded or contracted. So, there appeared a block to come ashes down at the place where the sieve dented. The sieve with 1.5 inches in thickness was ordered to Ye Nan Chaung Industrial Zone and fixed instead of previous one with 0.5 inches in thickness. Still, the space between the sieve and water under it was so wide that the boiler had to be lowered down. Only then could the gas be made into proper density. Such rectification was done by the Committee.

Besides, with an aim at increasing running power of engine, a bigger gas-storage container, 2 gas receivers which induce the gas more powerfully, and a 4-inches-pipe instead of 3-inches-pipe were installed by themselves. This is in fact a big outcome of unity of committee members and technicians among themselves. The Committee made earnest efforts to find a well-experienced technician if and when there was something wrong with the engine. They only buy and fix new parts of the engine when it is inevitable, it is learnt.

■ Capacity building based upon Experiences
At the commencement of electrification, electricity charge was fixed 1,000 Kyats per month. The Committee found it difficult in collecting the charges if there were nights without electrification within the month. For this reason, electrification charge was changed to 50 Kyats per night and if there were nights without electrification under various circumstances, no charge was collected. On the other hand, the O&M workers under the Committee always check the engine if it is in

running condition, not to cause inconvenience for regular electrification.

Electrification charges from households were collected at the rest house situated in the middle of the village with the help of loud-speaker, announcing the names who still do not pay the charges. If a household failed to pay the charge for over a month, electrification is temporarily stopped and only when the charge is paid will the ban be lifted, it is learnt. Since the Committee has to deal with the whole village, the members have to follow prescribed rules and regulations on one hand, and they have to keep accounts of income and expenditure and make them known to all villagers every month.

Paddy-husk can be obtained free of charge from a rice-mill which is situated neither near nor far from the village, though, the Committee has to spend for carriage and labor charge to carry paddy-husk to the plant compound. Paddy husk storage which was built by villagers' expense can store the volume of paddy-husk which can run the power plant for about 1½ months. In the future the Committee is to extend the storage building in order to store paddy-husk for the whole rainy season.



Photo(2) - A paddy-husk storage was built by under arrangement of the Committee beside the paddy-husk bio-gas' building

■ Fruitful Results

One of the Committee members, U Win Myint, expressed his sincere feeling that "Now I feel quite awkward if there's no electricity in the evenings and I feel satisfied with enjoying electricity regularly. And I'm sure the whole village will feel the same as me. You can hear overjoyed cries of villagers when electrification starts in the evenings". Based on his words, it can be assumed that the Project has filled the village's essential blank to a large extent, no doubt.

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This newsletter No.57 is issued both in English and Myanmar. In 2007/08 FY, Village Development Sales Centre (VDSC), one of the Pilot Projects was carried out in Legaing village, Pwintbyu township, Magway division. Primarily, the Project meant that VDSC to be Sales Centre of village products, though, it is now effectively used for other purposes under the management of the Committee. Here, in this newsletter, an activity that VDSC was used as a wedding reception hall and the benefits gained from holding a reception will be shared to readers.

Colourful Village Development Sales Centre !!!

■ Background of a wedding ceremony

On 16 January 2010, when responsible persons from the project arrived at Village Development Sales Centre, a wedding reception was seen being held at the Centre, unexpectedly. It was the reception that was held by Mg Aung Zaw Zaw and Ma Ei Ei Phyo. The bride was born in Legaing village, a Legaing villager, and the bridegroom was born in Kani village in Pwintbyu township, 15 miles away from Legaing.



VDSC seen as a wedding reception hall crowded with as many as 600 guests.



Mg Aung Zaw Zaw and Ma Ei Ei Phyo having a happiest moment at the village development sales centre.

The bride is, in fact, a younger sister of the girl who opens a PCO phone shop (for outgoing and incoming calls) at VDSC, selling seasonal fruits such as oranges, plums, apples at her phone shop. And before the commencement of VDSC pilot project, the bride herself took part in the study tour to learn about

successful roadside shops in other regions. That study tour was arranged for Legaing villagers by the project.

At present, the bride and the bridegroom live in Yangon since two years ago, doing their different jobs. Mg Aung Zaw Zaw has been doing aluminium glass frame business which belongs to his family and Ma Ei Ei Phyo has been working in a bakery. Mg Aung Zaw Zaw has four elder brothers and sisters and he is the youngest. Ma Ei Ei Phyo has one elder sister and one younger sister, she is the second. Both are 24 years of age, and they got Bachelor of Law degree from Magway University in 2007. Mg Aung Zaw Zaw lives together with his family in Yangon and Ma Ei Ei Phyo together with her relatives, respectively. They came back to hold a wedding ceremony in Legaing where most of the relatives live.

It is said that although they lived in different villages they had to go to State High School in Pwintbyu township when they passed their eighth Standard examinations. They fell in love with each other since they were high school students in Pwintbyu township. Both of them passed their matriculation examinations (tenth standard examination) in 2003/04 academic year. Then Mg Aung Zaw Zaw's family moved out to Yangon and each got no information about the other for 2 years. Mg Aung Zaw Zaw completed 1st and 2nd year University Courses in Yangon and he had to continue his 3rd year University Course in Magway under various circumstances. In this way they met with each other again and let their parents from both sides know about their story. This is the background story of the wedding ceremony held at VDSC.

■ VDSC's colour changed for the wedding

About 600 persons, including relatives from both sides of the bride and the bridegroom, were invited to the reception. Preparations were made in advance to entertain invited guests with food and drink such as tea, cake, Myanmar traditional pudding, etc. Not only that, rice and curry for brunch was also made ready for those who would like to have. The reception ceremony successfully came to an end attended by old friends, intimate friends and relatives from both sides of the couple.

By the way, the people from the bride's side had to

take all responsibilities to hold the reception. Ma Ei Ei Phyo, the bride, explained about making preparations for the reception saying 'Since the trayful offerings have not yet come, he (the bridegroom) could not visit us. In fact, this VDSC had to be changed into a reception hall one day ahead of time. I took a leading role to manage it. Wooden couches of shops had to be moved and the whole centre was washed and cleaned. A backdrop was hung on the wall and our names were stuck on it, and so on. A lot of things were done. Very tired, indeed. But I didn't think I was tired because it was my own reception.

For Legaing and neighbouring villagers, a wedding ceremony was used to hold either at the bride's home or at the bridegroom's home or at the monastery where monks were offered with alms-food to bless the marriage. Now, it was the wedding ceremony which was held at the VDSC for the first time and the reception was so remarkable among not only Legaing villagers but also guests from nearby villages. What she was tired was quite worth, said Ma Ei Ei Phyo.

■ How it happened to hold the reception at VDSC and the benefits gained

When the couple were interviewed of how it happened for them to hold their reception at VDSC and the benefits they gained, they replied, 'When we have decided to hold a reception, Ma Aye Mi San, my wife's elder sister, suggested us to hold it at the VDSC. If it is held at home a pavilion (booth) will have to be built. Not only cost, but also people will get busy.



The couple being interviewed after the reception is over.

At the VDSC, there's a building already, and the reception will be in a grand condition. This drew our attention and so we enquired of how much hiring charge for the VDSC for a day to the Supervision Committee. They said the charge was 10,000 Kyats. We calculated how much it will cost us if we build a booth at home. We found out that VDSC was much cheaper. This made us decide to hold a reception at the VDSC. In fact, not only cost could be saved but also reception could be held nicely. And it was also easy for us to invite our guests to come to the venue.

The VDSC is well known to all. Since it is at roadside, guests can reach easily. So, there were a lot of people at the reception. In this neighbourhood, holding a reception like this at the VDSC seems holding a reception at a hotel in a big city'.

Again, the couple gladly said that they were extremely happy to see JICA Group coincidentally on the date of their wedding reception and make them know how they started their married life at the building provided by the project. They also expressed that they assumed it was lucky for their future to receive unexpected distinguished guests during their reception period.



A newly-married couple seen together with JICA Group.

The VDSC Supervision Committee Chairman U Sein Tun Aung said, 'When VDSC was offered for wedding reception, to make sure it was held here, we decided the charge at 10,000 Kyats because they were the first couple. If the first couple could do it, there would be followers to imitate it. In fact, we would like to persuade as many next couples as possible. Then, for next receptions, VDSC may be hired with fixed charge of 15,000 Kyats. We thank the first couple to have married here. And we would also like to urge others to hold receptions at the VDSC like them'.

Through the VDSC Supervision Committee, it is learnt that the VDSC will be hired out to be used as a hall for other purposes. By so doing, the Committee will be able to earn Village Development Fund on one hand, and to the eyes of Legaing villagers they will come to notice VDSC not only as a sales centre but also as an image of village they are to be proud of on the other hand; the committee chairman explained.

■ Best wishes for all

The VDSC Committee members and villagers who have been making efforts to improve the VDSC on a self-help basis must be appreciated anyway. Moreover, Mg Aung Zaw Zaw and Ma Ei Ei Phyo who started their married life at the VDSC should also deserve best wishes to have a married life of over 100 years with peaceful mind and healthy body. Best wishes for all.

This newsletter No.58 is issued both in English and Myanmar. This newsletter talks about electrification in Mingan village. Difficulties faced by village electrification committee members 1 year after the commencement of electrification; how village committee members, villagers, and counterparts carried out in cooperation to overcome those difficulties; and conditions of electrification activity 6 months later from the establishment of a new committee will be presented in two parts to readers.

Let's unitedly solve difficulties of communal activities !!!

■ Towards interactive discussions and negotiation among villagers

When the project staff made a field-trip to Mingan village, it was learnt that there appeared difficulties in connection with electrification activity. After learning this, a meeting, attended by all villagers, to discuss and negotiate about village electrification was held on 6 June 2009 in the afternoon. Out of 110 households, members from about 75 households were present at the meeting. Afterwards, when present situations of electrification activity were discussed committee members and villagers put blames on one another reciprocally, and each and everyone opened up his chest expressing dissatisfaction and bitter feelings encountered by them.



Photo (1) - Project Counterpart and Mingan villagers seen discussing about village electrification activity

Therefore, conditions became seriously worse and the discussions could not be made any more. The meeting was postponed to the next morning. On the next morning, June 7, respective Counterparts and village PDC Chairman explained the participants (villagers) about negative results of the situation such as bringing about disunity among villagers, no more persons to lead the activities and positive result of holding interactive discussions and finding out difficulties and ways to solve them in cooperation until the villagers fully understood the real situation. However, it took a long time to make them understand so. Then, discussions were made. All participants took part in discussions with positive views, without expressing personal feelings, and discussed and negotiated about prevailing conditions until solution could be found out.

■ Common Problems. But easy to solve?

Difficulties concerning electrification activity could be found out by the participants as follow:

1) Although there is an Electrification Committee already formed, its activities are as if almost stopped. Activities are only being carried out by generator operator appointed by the Committee playing it by ear (most of the committee members assume that generator operator is completely responsible for electrification because he is appointed as a salary-earner.)

2) Due to weak cooperation of committee members, the operator could not collect electricity charges to the full and much debt was left to be collected, and so balance sheets of income and expenditure could not be made known to villagers (because he had to lay emphasis to be able to continue electrification)

3) Up to the end of May 2009, there must be saving of over 260,000 Kyats in the hand of the committee, though, over 240,000 Kyats were still left to be collected from users and a number of persons who paid electricity charges were getting fewer and fewer (if there were no re-negotiation in time, there would be no enough money to buy diesel at the time of next month and electrification activity would come to a stop).

4) When enough funds gained from electrification have been saved, they are to be used for village development activities. However, now it has been about 1.5 years and no funds have been saved.

5) For villagers who regularly pay the charges are gradually less interested to pay the charges as there are illegal electricity users (for battery-charging, TV) and villagers who do not pay the charges, and actions are not taken against them.

6) For these reasons mentioned above, though there are some households that want to get electrification yet they still do not ask for it (at the time of holding discussions there are about 30 households not yet supplied with electrification).

Above-mentioned problems are very common in activities carried out by groups or community. However, for Mingan villagers they did not have any chances to collectively solve those problems and so village electrification activity was affected. Moreover, according to villagers' habit, they never tell the persons concerned about their dissatisfaction but no more cooperation; they criticize only behind their back; for leaders they cannot tolerate being criticized because they are contributing voluntary service for social welfare activities; etc. and so chances to solve difficulties could not be obtained. Villagers learnt lessons from these conditions.

■ After overcoming difficulties

On January 2010, JICA Study Team went on an evaluation tour to Mingan village and the present situation of the village electrification activity by were learnt as follows:

A new electrification committee has 14 members - 9 old members and 5 new members. New members are educated youths. The new committee was composed of members from various social classes in the village (eg. elder - youngster, rich - poor, primary - level, degree holder, etc.) and so the committee can consider various situations thoughtfully. Therefore, the committee could win the trust of villagers. As a result, although there were only 87 households that use electricity in June 2009, the number rose up to 111 households in July 2009. At last, when balance sheet for December was issued, there were 105 households that use electricity (1 household was stopped from electrification for not paying charges regularly, and the rest 5 households themselves paused getting electrification because they were away from home and their fluorescent lamps got burnt out, it is learnt). The present charges collected by the committee are for one bulb or fluorescent lamp 50 Kyats/night, for a colour TV 70 Kyats/night and for a black-and-white TV 50 Kyats/night. As for the committee, they have already discussed and negotiated to reduce or raise the charges depending on the price of diesel, and to change the starting hour of electrification in summer depending on the hour of sunset although electrification is now being done from 6 pm to 9 pm.

Previously, generator-operating and charges-collecting were done by a committee member and he was monthly provided with 10,000 Kyats. For this, other committee members were dissatisfied and they passed their responsibilities to him. Now, only 10,000 Kyats of monthly provision for 3 persons - 1 generator-operator and 2 charges-collectors. In fact, the committee could make it clear that committee members were not working for money but doing social welfare activities with meagre amount of provision for villagers. And 2 youths from 5 new members have been compiling balance sheets in a selfless manner and this has been made known to all villagers. As a result, mutual understanding between committee and villagers could be established. It is learnt that there was only 1 person who has not paid the charges to the committee from July 2009 to December 2009, during the period of new committee. That villager was to settle 2,850 Kyats to the committee. All the other villagers paid their charges to the full. That person did not settle the charge intentionally because he temporarily had different opinions with the committee. But now he personally said that he would settle the debt as soon as possible and get electrification because he gained clear understanding with the committee.

Due to new committee's efforts, during the period of 6 months, the committee could earn average income of 164,858 Kyats/month. Previous electrification committee expected to earn monthly income 150,000

Kyats. In comparison with it, the present committee has been earning 9.9% more. To be able to collect charges to the full, electricity charges are collected once in every 10 days, based on the amount of money collected for 6 months, it is learnt that average income was 164,850 Kyats/month and average profit was 34,907 Kyats/month.

Besides, at the time when discussions were made in June 2009, there was only 5,000 Kyats in the hand of electrification committee. However, due to villagers' clear understanding on committee members' good will, they settled their debt and paid their electricity charges regularly. Therefore, over 160,000 Kyats out of over 220,000 Kyats could be collected during 6 months. Net profit of 242,700 Kyats could be earned during 6 months and 230,000 Kyats was spent for buying a new battery and overhauling the engine. At present, fund in hand of 195,100 Kyats is being spent in purchasing diesel in advance. In the future when funds become bigger, the committee's first priority is to do new wirings, second priority is to overhaul the engine, and third priority is to spend the fund for village development activities (e.g. construction of religious building, activity for availability of drinking water). The committee has planned so, it is said.

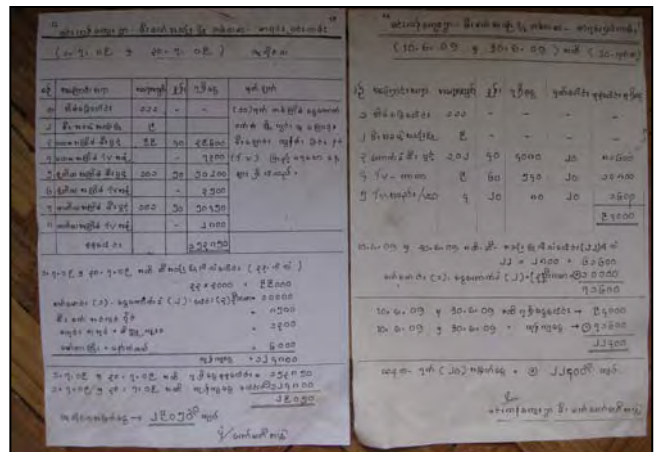


Photo (2) - Monthly balance sheets of income and expenditure stuck on the wall of VPDC Chairman's home to make known to all villagers

Not to bring about misunderstanding between the committee and villagers in connection with cash accounts, monthly balance sheets of income and expenditure are issued in the first week of next month and they are put at the house of VPDC Chairman and 10-HH leaders. In this monthly balance sheet, number of households which get electrification, charges obtained for fluorescent lamp, TV, etc, expenditure (for diesel, maintenance, provision for operator and collectors, stationery, meeting), and net profit are posted. Thanks to these sheets, villagers get the latest information about the electrification and they are helping the committee by giving necessary suggestions and service. According to advice given by the Project, the committee made an arrangement for all members to be able to do book-keeping by peer-to-peer learning among themselves.

Please wait for Part II newsletter

This newsletter No.59 is issued both in English and Myanmar. In the previous newsletter, electrification by diesel generator in Mingan village and its conditions from the commencement right up to the latest date have been presented to readers. In this newsletter Part II, how electrification committee has been carrying out activities for the interest of village and new outcomes obtained through electrification by diesel generator are to be shared with readers:

Let's unitedly solve difficulties of communal activities (Part II) !!!

■ Activities for the interest of village being carried out by new committee

Through discussions held in June 2009, a new electrification committee was formed and the new committee had been carrying out following activities for the interest of the villagers.

- 1) Allowing to use electricity free of charge for sandstone workers who work in the evenings.

Sandstone workers go to their rocky hill in the mornings to break off sandstone rock to get raw materials for their products. They make rough designs of products there. Then they bring back their rough products to village. Beginning from early afternoon, they give their rough products finishing touches. Then finished products are sent to a broker's home. Some of the sandstone workers in the village collect 1 - 2 surplus rough products daily and when rough products are of 20 - 25 in number, they get together in the evenings to collectively work overtime so as to earn extra income. Village electrification committee, as a supportive measure for those sandstone producers to be able to earn more income, allows them to use fluorescent lamps with free of charge. It is learnt that some sandstone workers work overtime like this in the evenings about 4 - 5 times in a month. Due to collective working so, monthly income of each sandstone worker increased by 16.6% than regular monthly income (see calculation on the next page).

- 2) Helping for occasions of joys, grief's, and religion

When there appeared occasions of joy and grief (e.g. novitiation, funeral) in the village, electrification was more required than limited duration. In such cases, diesel generator can be used for electrification by paying diesel charges (or with own diesel). Electrification charges for religious building in the village are exempted. Furthermore, if religious ceremonies concerning the whole village (e.g. village pagoda festival) are held outside limited electrification hours, the committee itself stands for the expense. And no charges are taken for small 20 watt bulbs that are used for offering at Buddha Image, and old people with no children and the poorest in the

village are exempted from paying charges. At present, there are altogether) households exempted by the committee, it is learnt.

■ New Outcomes

In the previous newsletters, how Mingan villagers enjoyed getting electrification and some benefits they gained through electrification have been mentioned. And so, here, only new outcomes are to be mentioned as follow:

After there had been electrification in the village, there were more TVs in the village. After getting electrification, according to surveys, there have been about 15 villagers who bought TVs. For villagers, TV programmes on health, puzzle, and international news could be watched and their scope of knowledge became wider and their general knowledge much improved, it is said. Not only that, during their leisure hours at night, they could read good books or educative books with the help of electricity light. In other words, they got chances to improve their knowledge due to electrification.



Photo 1) - Villagers watching a success story (livestock) of the Project on a new TV (in rural area, if one household has a TV, families from its neighbourhood come to watch the TV and so propagation of knowledge, general knowledge is easy).

For sandstone workers who can return home only in the evening from the rocky hill, electricity light becomes essential. Mingan villagers have been taking out sandstone raw materials from the rocky hills for years. As days, months and years went by, to get raw materials became less easy. For this reason, some

villagers have to spend the whole day to get their raw materials breaking off the sandstone rock all day long.

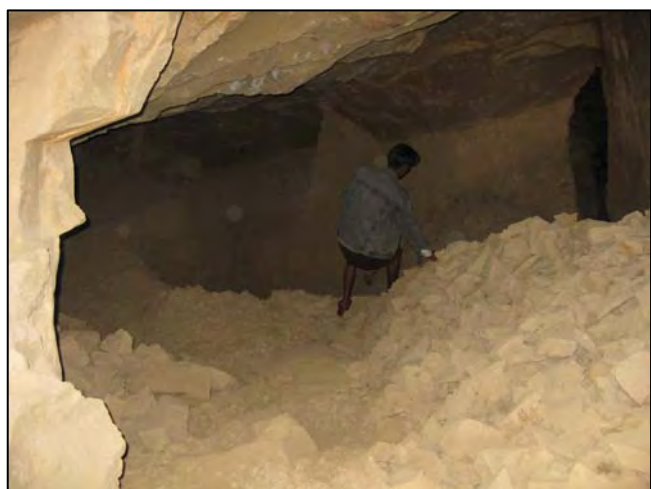


Photo (2) A sandstone worker from Mingan village going down into grotto with difficulty to extract raw materials

Such sandstone workers get back home only very late afternoon or even evening. Then they add finishing touches to their rough products to become finished products. Next, they take their finished products to a broker's home to exchange them with kitchen items (e.g. rice, cooking oil, salt, onion, etc). If they cannot produce finished products, kitchen items will not be obtained. Knowing that, they have to work hard until finished products are obtained however hungry they are. In the past, they had to produce finished products with the help of candle-light. They had to use 3 - 4 sticks of candle per night and the cost was (50 Kyats x 3-4 sticks = 150-200) - much more than electrification charge per night. Moreover, candle-light covers a small area and it is not reliable when there is wind. So, production could not be done as much as they intended. For these reasons, although they had to work hard they could not fully enjoy the fruits of their labour - only very low profits. On the contrary, after electrification, they could produce finished goods very quickly with the help of electricity light and they did not need to work late with empty stomach any

more. Now, they can have their dinner at an earlier hour. For sandstone production families that produce sandstone products until the last minute of electrification, they could have dinner in time; production cost could be reduced right up to 80%; and volume of work completion increased 50%, it is learnt.

■ Income increase of Mingan sandstone workers at the time of 2 years after being provided with electrification

1) Before electrification by individual

Average income of a sandstone worker = 84,000 Kyats/month (120 pieces)

2) After electrification by individual

Average income of sandstone worker = 126,000 Kyats/month (180 pieces), 50 % increase

4) Additional production by collective working

Average income from collective working in the evenings = 14,000 Kyats/month (20 pieces), 16.6% increase

5) After electrification, if a sandstone worker works overtime working by individual and also are engaged in collective working in the evening

Average income of a sandstone worker = 140,000 Kyats/month (200 pieces), 66.6% increase

According to interviews, there are about 80 – 90 sandstone workers, out of whom there are about 5 to 10 households who work under the fluorescent light as mentioned in this newsletter

As last of all, summarised balance sheet of income and expenditure for the diesel electrification is shown below, which is issued monthly by the committee. This suggests the project is really sustainable and thereby sandstone workers' life will also be further improved.

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Monthly facts and figures of Mingan village electrification by diesel engine (from July to December 2009)

No.	Particulars	Unit	July	Aug	Sep	Oct	Nov	Dec	Remarks
1	Households exempted from charge	No.	9	9	9	9	9	9	
2	Households for fluorescence lights	No.	101	98	93	93	95	96	
3	TVs (Color)	No.	-	6	7	10	11	11	
4	TVs (Black & White)	No.	-	2	3	2	2	3	
5	Fee of a fluorescence light	Kyats	50	50	50	50	50	50	
6	Fee of a TV (Color)	Kyats	-	100	100	70	70	70	
7	Fee of a TV (Black & White)	Kyats	-	50	50	50	50	50	
8	Income from fluorescence lights	Kyats	140,250	147,000	139,500	125,550	142,500	144,000	
9	Income from TVs	Kyats	13,600	21,000	25,500	21,600	26,100	27,600	
10	Gross income	Kyats	153,850	174,350	169,200	147,150	168,600	176,000	
11	Net Profit	Kyats	29,050	37,850	34,500	-63,450	49,100	31,700	due to the engine overhaul
12	Used amount of Diesel (GL)	litre	33	34.5	36.2	29	33	39.1	
13	Expenditure for Diesel	Kyats	99,000	103,500	112,600	87,000	108,900	129,500	
14	Expenditure for Maintenance	Kyats	14,500	23,000	11,350	113,300	-	-	overhaul of the engine
14	Expenditure for Salary & Meeting	Kyats	10,000	10,000	10,000	10,000	10,000	12,500	
15	Expenditure for Stationary	Kyats	1,300	-	750	300	600	2,300	
16	Households who did not pay the charge	No.	-	-	-	-	1	1	

Note: there was an over-hole done for the engine in October 2009, so that the maintenance had cost a lot, thereby red in net profit in October 2009



This newsletter No.61 is issued both in English and Myanmar. Beginning from 2007/08 FT, for Mingan village in Chauk township, Magway division, the Project implemented several activities such as electrification, improvement of sandstone workers, construction of a primary school with roof catchments, goats raising, etc. Here, in this newsletter, a true story of a sandstone worker who has been effectively making use of the provisions by the Project will be shared to readers:

" Making family's dreams to come true with a beneficiary's profits "

■ A beneficiary's family profile

U Kye Myint is a sandstone worker born in Mingan and grew up in Mingan. He and his wife have 4 daughters and 3 sons. The eldest daughter is, at present, living in Mandalay and working there. The rest 6 children are living together with them. It is learnt that his family has been enjoying fruits of primary school, village electrification, and goat revolving raising which were provided by the Project.

U Kye Myint is one of the beneficiaries of goat revolving raising provided on a manageable scale, and he is one of the sandstone producers who produce sandstone ware (thanakha grinding slab) every evening with the help of electricity light supplied by diesel engine established by the Project for village electrification. And his two sons are attending the primary school also constructed by the Project in second standard 3rd grade and kindergarten 1st grade classes.

■ Family's present situation under 3 pilot projects

In previous years, U Kye Myint produced only sandstone stoves. Before electrification, he produced average about 50 - 60 stoves per month. After electrification started, he could also work in the evenings and production rate of sandstone stove became higher. Average about 80 - 90 stoves could be produced per month. The more stoves he produced, the more family income he could earn.

In previous years before electrification, when it was necessary for him to work in the evenings he had to use candles or battery lamp/bulb. However, the light was not bright enough for him to produce his products. So, he could work in the evenings about 7 - 8 times only per month. He had to struggle to be able to produce the quantity ordered by his customer (broker). Later, after electrification, he could produce more than the quantity ordered by his customer (broker), it is said.

However, above-mentioned situation lasted only a short period. Sometime after the electrification, other kinds of better stove appeared in the stove market with same price. Sandstone stove producers from Mingan village could not compete with those stoves

of better quantity with same price. The sales of sandstone stoves became lower and lower. For this reason, U Kye Myint assuming production of thanakha grinding slabs will earn more profit than that of sandstone stoves, and therefore he changed his product item and started producing grinding slabs beginning from over a year ago.

U Kye Myint produced sandstone stoves for a certain period of before and after electrification. And he started producing grinding slabs only after stoves. Therefore, there can be difficulty to compare the changes of his quantitative production and his income for a period of before and after electrification. Considering this point, his present production of grinding slabs in quantity, his family income, and probable production and income before electrification (for grinding slabs production) were asked.



U Kye Myint and his wife seen in their grinding slab production process (a fluorescent lamp can be seen at the upper left corner)

According to his explanation about grinding slab production, it is learnt that, he can produce 6 - 7 slab/day in average, and if he cannot work in the evening only 3 - 4 slab/day can be produced. At present, electricity charge is 50Kyats/lamp/night. If he uses candle light, the cost will be 150 Kyats for 3 candles. It can be seen by above-mentioned facts that, due to village electrification project, U Kye Myint could produce more products on one hand, and he could avoid the cost for candles on the other hand.

He is a beneficiary of livestock sector and one of the successful beneficiaries in goat revolving raising in

Mingan village. He was provided with 5 goats. He has already handed over 5 goats to the 2nd generation beneficiary. Because of reproduction from 5 original stock, now he has after revolving, 25 goats - 17 female and 8 male. Understanding that goat raising can earn much profit in the long run, his family has been raising goats with care. Herding is done twice a day (morning and late afternoon) and goats are kept indoors at noon when the heat is intense. Herding is being done by his middle son.

In fact, he has ever raised goats before, but he had to sell them due to financial difficulty. He did not continue goat raising because he had no money to buy goats. Only when he was provided with goats, he was able to raise goats again. In connection with how he raised goats based on his experiences, he said, 'Since goats like cleanliness, they are raised with raised floor. But in rainy season if there are some waters under the raised floor or if the ground under the raised floor is wet with their slurry (waste liquid), I'm afraid goats' health will be affected. So, I always use tiny pieces of sandstone waste for flooring'.



U Kyee Myint's family seen together with their goat kids in front of goat housing

U Kyee Myint is now in debt. He took some advance money from his customer (broker) who has been doing sandstone business. Although he can settle the debt by selling some goats, he does not want to do so because he knows that reproduction will be delayed. The debt will be settled with the profit gained from sandstone production. When the number of goats reaches about 50 - 60, he will decide to sell about 20 - 30 goats in bulk so that he will get a big sum of money.

Again how his family is related to primary school is mentioned. A few rich villagers in Mingan village send their children to Gway Cho (junction of Ye Nan Chaung - Chauk - Kyauk Pa Daung) to live there and attend school. The rest households in the village had to send their children to monastic primary school, which is about 1.5 miles away from their village.

On the way to that school, students have to pass through the woods and a big village pond. Therefore, parents were always worried about their children although they had to send their children to that school. In the rainy season, the village pond is always brimming and some parents did not send their children to the school throughout the rainy season. In this way, some students missed their education the whole academic year.

The eldest daughter, the second daughter and the middle son of U Kyee Myint were sent to the school when they were young. They had to leave school because their family business was poor. Now, U Kyee Myint's younger son who is attending the primary school, had to leave school for 2 years due to poor family business and going to school was not convenient, it is said.

At present, that younger son and his younger brother are attending the primary school constructed by the Project in second standard and kindergarten classes. The sons go to school regularly and they are very happy to have the school near the village. For U Kyee Myint and his wife, they do not have to worry about as previously they had to. Now, they can work their sandstone production with full attention.

U Kyee Myint's wife said, 'In the past years we could not earn much and there were many mouths to feed. We were in uncomfortable situation. So, although we knew that education is important, for elder daughters and son, we had to consider more about everyday meals than about education. Now, elder children can help us with our work and we can earn more money from working in the evenings. So, we can consider about our 2 younger sons' education. Although we sent our sons to that monastic school, we had to worry about them. We could not work with peaceful mind. Now, thanks to the primary school, our children do not need to go to a far-away school any more. For this, we are very happy. All parents in the village thank JICA'. She expressed her sincere feeling so.

■Brighter future for his family

U Kyee Myint and his family, although they do not get any income from goat raising at present, they can raise their income from sandstone production and at the same time they can reduce their debt. They are all encouraged with the present situation. If his family is in more and more comfortable situation, he will make necessary arrangements for his eldest daughter working in Mandalay to come back to the village and live together with them. U Kyee Myint has been effectively making use of the role of beneficiary and his family members have been joining hands with him with might and main. So, his dreams for his family will, in the near future, come true, no doubt.

This newsletter No. 62 is issued both in English and Myanmar. Legaing village which is situated in Pwintbyu township Magway division, is blessed with paddy cultivation. There are about 780 households and about 230 households are farm households. There are over 3,600 acres of paddy farmlands. Therefore, for farmers in Legaing village local cattle improvement plays an important role for paddy cultivation. In this newsletter, a pilot project of bull raising for local cattle improvement (to get good and pure breed draught cattle for farming) is presented to readers.

A Golden Red Bull which Inherited the Father's Good Characteristic Features !!!

■ Initial activities for local cattle improvement
Beginning from October 2007, the Project carried out a pilot project for local cattle improvement in Legaing village, providing a bull. In reality, the implementers (villagers) were lack of experience and they had to carry out buying a bull depending on the budget provided by the Project in a short period. For these reasons, the bull they bought was not much appreciated by local farmers. For over a year after the commencement of the pilot project, there were few customers who would like to get their cows mating with that bull. In fact, JICA Study Team, before providing a bull to Legaing village, made enquiry and study about famous bulls in the region. The most famous 'Shwe Ni' (Golden red) bull was found in a village which is over 6 miles away from Legaing village. But the price of that bull was 5)times higher than the normal price, and the Study Team could not suggest them to buy it. The Team could provide to buy a bull which cost within the budget.

According to interviews, it is learnt that the bull which was bought for the first time was not liked by many villagers (farmers) because it had major weaknesses such as its reproduction rate is low, its colour is not brilliant (not the colour of golden red but much black) and its hump is not upright. No cow-owners came to get their cows mated with that bull during the period of one year. Feeding cost had to be spent without income from mating charges. So, village development committee had to decide to sell that bull and to buy a new bull, which is of local preference. Then the first bull was sold out for 400,000 Kyats in August 2008 and necessary arrangements were made to buy a new bull.

■ Efforts made by the Committee
After having unsuccessful experiences in raising a bull for the first time, for Village Development Committee concerted efforts had to be made to be able to avoid unsuccessful experiences in raising a new bull for the second time. Committee members collectively looked for a bull of local preference, and in selecting a bull keeper the Committee selected a person who is really interested in bull raising and well-experienced. Not only that, the Committee disbursed out loan from the Committee Fund in

purchasing a new bull. Beginning from June 2008, committee members started making efforts to buy a good bull of local preference. They also reached a village in which there was a person who raises the most famous 'Shwe Ni' (golden red) bull breed. At that time, that person had a young bull of one-year age which was the son of the most famous golden red bull. The owner intended to replace that young bull when the present bull becomes old. But his son was not interested in bull raising and so he found it difficult to look after that young bull. The Committee negotiated with the bull owner to buy that young bull at October 2008 and spent 30,000 Kyats from the Committee Fund (total cost was 430,000 Kyats). Then, out of 3 persons (villagers) who applied for being a bull keeper, a villager who had experiences of raising a bull and now raising cows and having interest in village development activities was selected by the Committee.



Photo (1) A new bull of golden red breed seen together with its keeper, U Khin Mg Win

■ Villager selected to be a bull keeper
U Khin Mg Win is now 56 years old and he started cow raising 35 years ago. There are 7 family members and 5 are adults who can work. His family does agricultural activities side by side with cow raising. At present, his family owns 2.5 acres of paddy land, 3 draught cattle and 2 cows. And it is learnt that the Committee selected U Khin Mg Win to be a bull keeper based on the following points:

- ✓ There are enough family members for bull keeping;

- ✓ Being a farmer owning paddy land, there is no difficulty for animal feedstuff;
- ✓ Being a person not only having experiences in bull raising but also raising cows at present; and
- ✓ He has many friends from far and near villages because he owned a horse cart and he worked as a horse cart driver previously.

U Khin Mg Win said, 'Previously, after sold my bull, I stopped bull raising because I could not buy a new bull again. In fact, I was really interested in bull raising. I decided to apply for being the bull keeper because I have cows on one hand and I can support for village development on the other hand. The present bull is the most famous golden red breed and it has characteristic features of good bull. So, I have to feed him to be strong, give him regular injection for energy, and look after him carefully. Now it has been over a year the bull was under my care. Cows mated with my bull have reproduced calves. Many villagers are interested in my bull. LBVD Staff pays a regular visit to give injection to my bull. His cow was mated with my bull too. Now a calf has been reproduced. As for me, I intend to go on bull raising in cooperation with LBVD and Village Development Committee'.

■ Bull itself can make its name

In Legaing village, the present bull was raised beginning from October 2008 and the first mating was done beginning from December 2008. As of January 2010, during a period of over one year, 57 matings have been done. Up to now 18 calves have been reproduced and all calves have characteristic features of good breed. Owners of those calves will continue their cows to be mated with the present bull. According to records, out of 57 cows mated, 22 cows were from other village and 3 cows were from other townships. So, it can be assumed that Legaing bull is making a name day by day among farmers.

In connection with the cost for bull raising (feeding nutritious food), it costs about 1,000 Kyats/day in average. And the present mating charge is 3,000 Kyats/time. Therefore, to get feeding cost for a month, there must be at least 10 times of mating (the father of this bull does mating 20 time/month in average). The present bull has been raised for 14 months. It is estimated feeding cost is 420,000 Kyats. Income from 57 times of mating is 171,000 Kyats. To recover the feeding cost, 249,000 Kyats is still needed. However, the price of the bull when it was bought was 430,000 Kyats and at present the price of the bull is about 650,000 Kyats. It can be assumed the profit is 220,000 Kyats. So, only 30,000 Kyats is needed to recover the feeding cost from the beginning up to now.

The bull will be popular with farmers more and more in the future. If feeding cost, income, and higher price of the bull are calculated, profit can be expected from bull raising. When profits are obtained from bull

raising, the Committee will allow Legaing villagers to enjoy reduced mating charge, and to share the profits to the bull keeper (agreement has been made between the Committee and the bull keeper to subtract the feeding cost from profit and net profit is to be divided (50 : 50), and when the present bull is sold the profit is also to be divided 50 : 50). The Committee has also arranged to keep a young bull as an auxiliary bull out of the reproduced ones for future replacement.



Photo (2) A calf of golden red breed (son of the present bull) seen together with its happy owner.

■ Characteristic features of a bull preferred

There are white and golden red bulls in central Myanmar. Including Legaing village, villagers from Minbu, Pwintbyu, and around Saku townships prefer golden red bull. The features of good bull are:

- ✓ A bull must have full colour of either white or golden red. The colour must not be mixed with other colour. The colour must be full on the whole body. The colour must have no spots.
- ✓ It must be a real local breed. Forehead must be broad. Chest must be broad. It must have long length. Body structure of forehead, chest and rump (animal's buttocks) must be consistent with one another.
- ✓ Ears must be small, not to be drooping. Colour of eyes must be same. Eyes and eye-balls must be big. Eye-holes must be wide.
- ✓ Horns must be same in height. It must have no horns of one is upright and other is drooping. If two horns are like this, there is a traditional belief that bull owner's business will be ruined.
- ✓ Tail must be slim. The length is not to be over the back part of knee-joint.
- ✓ Penis must be clung to belly, not to be big and not to be tangling.
- ✓ It must have no spiral prints which bring the owner harm (e.g. if there are two spiral prints of one upon another between forehead and two eyes, there is a traditional belief that wife of the owner will die soon).
- ✓ Four legs must be straight and must be in correct length. It must have no soft and short ribs.