

IIRR Myanmar

An Portfolio of Climate Smart Agriculture options in Kyaung Taung Village

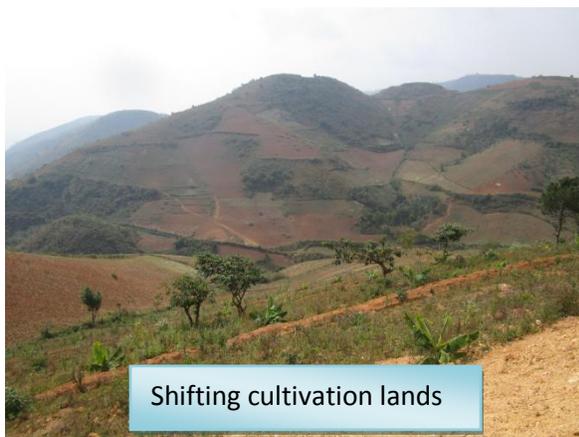
**Nyaung Shwe Township, Shan State (Southern), Upland,
Myanmar**

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An Portfolio of Climate Smart Agriculture options in KyaungTaung Village NyaungShwe Township, Shan State (Southern), Upland, Myanmar

Southern Shan Plateau is located in the Eastern part of Myanmar country of 1000 m above sea level. NyaungShwe Township is a city of ShanState famous with Inlelakewhich is the major tourist attraction of the country.

KyaungTaung village is situated at the mountains which surrounds the lake site, and is under the administration of NyaungShwe Township. The ethnic group named "TaungYoe" is living on this village. Hills dominate the topography with moderate to sloping that consist the scattered permanent vegetation. Forest trees are scare with the natural forest only remaining in small areas near the monasteries and other religious sites.



Shifting cultivation lands



VillageTaung

Farming is the major livelihood activity for both subsistence and commercial farming communities who utilize predominately sloping land. Upland rice, ginger, Lima bean and corn are main products of KyaungTaung village. Most still practice shifting cultivation. KyaungTaung village is isolated due to poor accessibility through the two main existing roads, one connecting to Heho village tract and the other to NyaungShwe Township. Water scarcity, poverty the lack of means of transport and each of information hamper access to technology and services.



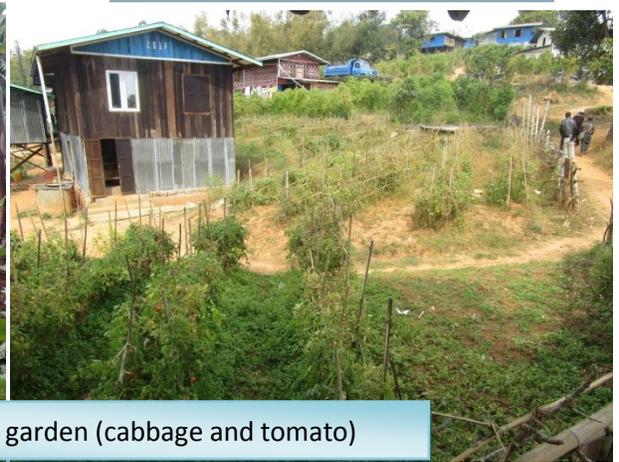
Cauliflower in Home Garden



Upland Rice Cultivation on slopes



Vegetable cultivation in home garden (cabbage and tomato)



Observed Climate Change in KyaungTaung village

NyaungShwe Township has lower temperatures compared to other parts of Myanmar. It tends to be around 27 °C – 30 °C. Rainfall in NyaungShwe Township is erratic. Rainfall intensity changes about 10 inches – 15 inches over years.

In recent years, KyaungTaung village experiences several climatic changes, such as the frequent occurrence of changes in rainfall pattern, increase in temperature variation, strong wind and drought events.

Climate change Impact on Agriculture

During Focus Group Discussions, the community explained that irregular and unpredictable rainfall is the main observed change. Irregular rainfall during the harvesting time results in the quality of the products. Sometimes they encounter crops failure because of rain shortage at the mid season time.

Another observed change is the onset of the monsoon: as a result, there is change to delay in sowing and harvesting time. Heavy and intense rainfall also damages vegetable production.

Water scarcity, poverty and the lack of means of transport also hampers access to technology, services and information in all aspects of livelihood. In recent year, water scarcity is becoming the major challenge and lasts for a longer duration (because of the frequent occurrence of drought).



Climate Change Impact on Livestock

In KyaungTaung village, buffalo and pig are the majority of livestock: and there is no poultry and goats. Water scarcity and lack of water source is major constraint for small scale livestock production. The community rears pig during the rainy season, when the foods and water are abundant.

CSA Technological Options for KyaungTaung Village

1. Participatory Varietal Selection as CSA options

Upland rice cultivation (PVS) is very important for KyaungTaung village. Production is mainly for home consumption, but it is just merely sufficient throughout the year. Under unfavorable climate conditions the community has to purchase from the market.

To find out the varieties which can be adapted well with local climate, tolerant to climate change impact, resistant to pest and insects and for better yield, conducting PVS is an appropriate method to help success farmers on-farm performance.

In KyaungTaung village, PVS trials for upland rice varieties are being conducted by farmers.



2. Introduction of New crops for Diversification

The introduction of new varieties and types of crop is aimed at enhancing plant productivity, quality, health and nutritional value and/or environmental stresses. Crop diversification refers to the addition of new crops or cropping systems farms, taking into account the returns from crops with complementary marketing opportunities. Introduction of sesame, Lab Lab and Lima bean and the corn upland rice from local research institutions are also undertaken reintroduction of groundnut and soya bean have been implementing in KyaungTaung village.



3. Intensification of Homestead production (Fruits tree plantation)

In this village home gardens are kept primarily for food provisioning services. Densely planted gardens that include trees and shrubs can bring many other benefits as well. They can benefit as shade trees across compound, sheltering the house and garden from the hot sun and winds. Tree roots draw rainwater from deeper into the ground, helping to maintain moisture and boosting resilience to drought. Multi-layered gardens with trees and shrubs can provide crucial protection during storms, buffering the impact of heavy winds and rains and it can contribute to carbon capture.

High density fruits tree cultivation in homestead garden is also a CSA option for building resiliency, because most farmers largely rely on seasonal field crops production. However, under

situation of prolonged dry season and irregular rainfall, there may be loss in crop production and crop failure. In the case of tree based perennials.



Jackfruits in home garden

Logam

Fruit trees can offer extensive benefits in the area of nutrition, poverty alleviation and biodiversity conservation and sustainable farming system. It can also offer dual contribution of food for home consumption and the potential income generation.

The beneficial aspects of microclimatic changes are extensively used are shade trees to protect heat sensitive crops from high temperatures, wind breaks and shelter belts to slow down the wind speed to reduce evaporation and physical damage to crops, mulches to reduce soil temperature and various crop tree mixes to reduce erosion and maximize resource use efficiency.

In KyaungTaung village, IIRR has supported 4 types of fruits tree (avocado, jack fruit, logam and passion fruits) to 40 HHs. Agroforestry relying on fruits, trees and vegetables and legumes is an important CSH option.



Advocado and Passion fruits seedlings for distribution

4. Soil conservation practice

Shifting cultivation areas in mountainous or upland area are susceptible to land degradation, soil fertility depletion, weed infestation and erosion. In all agro ecological zones in Myanmar, land degradation is the common problem caused mainly by wind and rain erosion. KyaungTaung is at risk because of soil erosion and land degradation.

Shifting cultivation is an agricultural land use system where land is cleared of forest and crops are raised until its fertility diminishes; after which it is abandoned and the farmer moves on to clear a new area. This kind of land use system promotes forest degradation, thus contributing to both carbon emission and biodiversity loss

Demonstration of soil conservation practices such as boundary or alley planting of *Cassia siamea* tree planting is being undertaken in this village for awareness of soil degradation. (*Cassia siamea* planted across the slope of the lands will be cut every year (at 1 m height) as source of green leaf manure to keep soil fertility and to reduce from wind and water erosion.

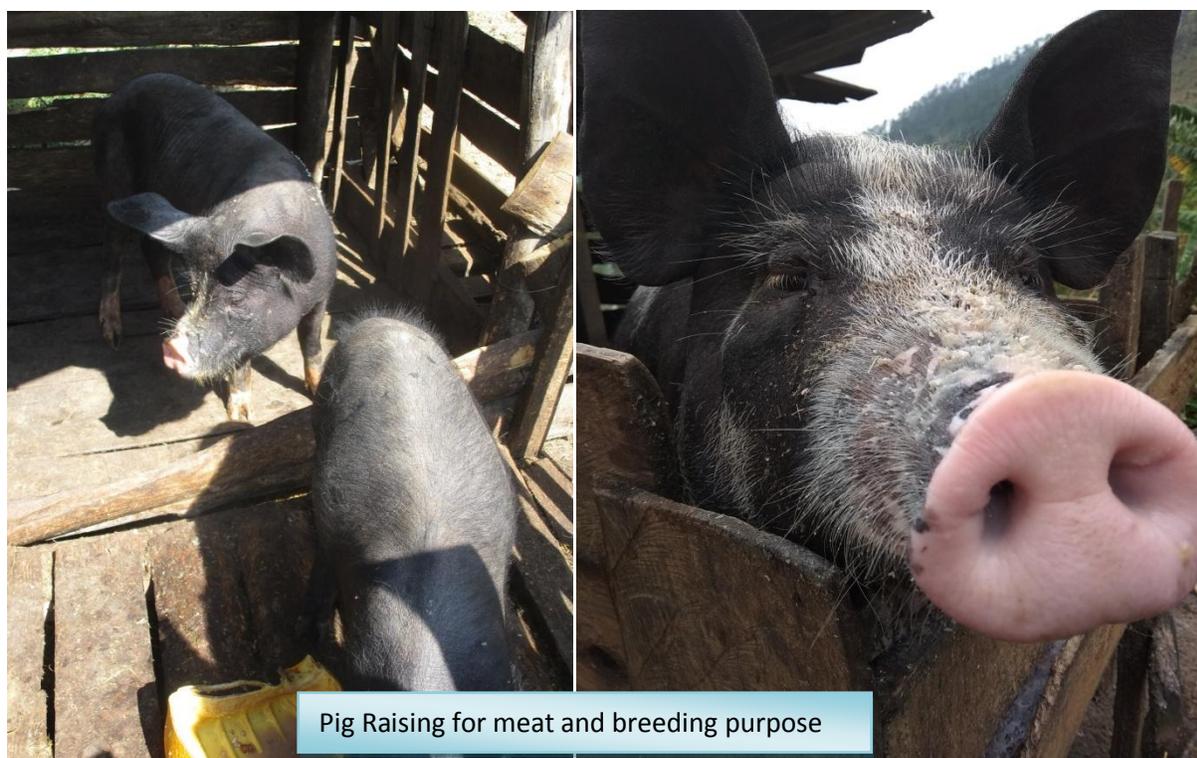


5. Intensification of pig production via pig breeding center

Livestock production is primarily seen as mechanism to provide foods on table and as supplementary income opportunity options as well. The main livestock for KyaungTaung village is buffalo while pigs are raised only on rainy season, because of the scarcity of feed sources and water availability while difficult during the dry season.

Another constraint for pig rearing in KyaungTaung village is difficult access to good breed of local native pigs. They prefer not to raise hybrid breeds, due to their high medication and feeding costs. Since pig is just seasonal in this village and no breeding practice, the community has to purchase the piglets every season. This is a major challenge for pig production enterprises.

Ten HHs from KyaungTaung village were supported with locally native pig. Two piglets breeding centers will be conducted by two households for easier access of good quality breeds. Pig breeds will be source from distant locations.



Pig Raising for meat and breeding purpose

Detail of Project inspection activities for HteePu village (2018 Crops season)

Opening Activities 2018 Cropping Season	# of HHs
Participatory Varietal Selection crop trials	10
PVS Trial of Upland Rice (4 varieties from Aungban research station, and others)	10
Introduction of intercropping soya for soil fertility and diversification	5
Intercrop practice of corn and Soya beans from Aungban research station	5
Introduction of new crops for diversification	40
Introduction of Sunflowers seed cultivation	all participants
Intensification of Lima bean cultivation and introduction of Polichos or Hyacinth or Bean	all participants
Reintroduction of groundnut cultivation	2
Intensification of pig production via Pig Breeding Center	10
<i>2 piglets for each household for breeding</i>	10
Soil conservation practice	1
Cassia Siamea tree plantation as boundary tree demonstration for Soil conservation	1
Intensification of Home Stead production (Fruits tree Plantation)	40
Fruits tree plantation (longan, Advocado, Jackfruit and passion fruits)	40



Purchasing seedlings of fruits tree for distribution in KyaungTaung Village

3



Summary and Tentative plans of CSA options for KyaungTaung village

50 HHs out of total 83 HHs in the implementing for project inception activities. Climate Smart Agriculture options are very locally specific and the options will be vary depending on agro ecological zones and culture and nature of the community. There is an element of experimentation, trial and error. There are however viewed as way to strengthen local capacities to experiment observe and assess' really thus incrementally building adaptive capacities. Overtime a more robust set of options emerge from such an approach.

Accordingly, an annual planning and reviewing workshop will be held every year during project implementation, in coordination with each partner organizations and with support agencies (Food security working group, Yezin Agricultural university, Department of Agriculture Research Stations) to develop more locally adaptive strategy and options for climate smart agriculture options for each agro-ecological zones.

The NyaungShwe ownership because of its elevation (The SU are located above 1000 meters above sea level) is promising area from such tropical fruits(Oranges, Longan, Avocado) and other fruit tress(each half) which will considerably contribute to income flows and resilience. Markets are expected to remain promising due to its being a tourist destination. For the same reason, small trees look (chickens, pigs) are promising alternatives to women. The proximity to the Aungban research station allows access to upland rice, corn, and wheat crop varieties which it grown as part of systems that include legumes(post rice or as intercrop with, corn) will enhance not only income but food security and nutrition.