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Rehabilitation of Valuable Natural Forests with Farmers Participation

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ပြုန်းတီးနေသော သစ်တောကြိုးဝိုင်းများကို ရွာသူရွာသား အကူအညီဖြင့် ပြန်လည်ထူထောင်ရန်စူးစမ်းသပ်လေ့လာခြင်း

ဦးစောရန်အောင်စိဋ္ဌ ((B.Sc. (For.) (Rgn.), M.S. (Hawaii))
ပါမောက္ခချုပ်၊ သစ်တောတက္ကသိုလ်

စာတမ်းအကျဉ်းချုပ်

ဤစာတမ်းတွင် ကျေးရွာလူထုပါဝင်ခြင်းဖြင့် ပြုန်းတီးနေသောကြိုးဝိုင်းများကိုပြန်လည်ထူထောင်ရန် စူးစမ်းလေ့လာခြင်းဖြစ်ပါသည်။ ကျေးရွာလူထုဦးရေနှင့် မိမိတို့လုပ်ကိုင်စားသောက်နေသော တောင်ယာမြေ ဧရိယာကို ကောက်ယူပါသည်။ ထို့နောက် ၎င်းရွာသူရွာသားများအားစည်းရုံးပြီး ပျက်စီးနေသော ကြိုးဝိုင်းတွင် အဖိုးတန်သစ်ပင်များနှင့် စားသီးပင်များ စိုက်ပျိုးနိုင်ရန် ပျိုးပင်များကို အခမဲ့ဝေငှပါသည်။ ၎င်းစူးစမ်းမှုမှ တွေ့ရှိချက်မှာ ဤလုပ်ငန်းမျိုးတွင် စည်းရုံးမှုအင်အား ပညာပေးဟောပြောခြင်းနှင့် ရွာသူ၊ ရွာသားများ၏ ပညာရေးနှင့်စီးပွားရေးများကိုကူညီပေးရန်လိုအပ်ပါသည်။

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Abstract

The paper includes the investigation of rehabilitation of natural forests with farmer's participation. Farmers who live closed to the reserved forests are organized. Database of their population and land used area are collected. Valuable tree and fruit seedlings for mixed planting in the degraded forests are distributed. The Result after the project indicates a need of extensive extension programme for the success of such operations.

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1. Introduction

Forests and wood lands occur approximately 650 million hectares, in Asia and the Pacific, representing 16 percent of the world's total. The region's tropical forests command special status; extending over 350 million hectares. Asia-Pacific's tropical forests constitute a quarter of the World's resources of this kind.

In Myanmar, forests cover 50% of the total land area of over 676,000 sq. km and commercially valuable tropical deciduous forests constitute the major portion of these forests. However, increased pressure on the forest lands and their resource is invariably leading to destruction of some part of the forests. The main causes of the deterioration are many.

Eventually, annual deforestation in Myanmar estimated to be 40,000 hectares (FAO 1981- 1990) i.e. - 1.3 % lost.

The problem of clearing the forest for agriculture (shifting cultivation) stems from the pressure of the poor who socially and economically has to depend largely on the forest products and forest land. In proper timber logging both by the Myanmar Timber Enterprise and private sector poses a threat to the deterioration of natural forests .

The forest Department has undertaken measures to replenish some of the poor forests by raising artificial plantation and by managing the existing natural forests for natural regeneration. However, with a vast area of the forests to be maintained and managed in the most productive way the Forest Department alone can not accomplish all the problems arising from the forest.

The trend of forest management has been changing worldwide. The most significant change is the role of people participation in rehabilitation of the forests. In this context and experiment conducted with people's participation is presented for reflection by the forests.

2. Objectives of the Experiment

- (1) Stabilizing and improvement of social and economic condition of the local landless farmers so as to minimize the annual clearing of forests for shifting cultivation.
- (2) Restoration and reforestation of the forests degraded by shifting cultivations and timber extractions .

3. Methods and Materials

In order to implement research activities a survey of the area was made database for the area of shifting cultivation, number of household and population were collected. Several meetings were held with the farmers. The discussed matter included the role of farmers in the conservation of forests, methods of cultivation, choice of species and transfer of technology in the development of Taungya Plantation.

4. Location

The area is hilly region with a complex of deciduous forest types. Two compartments No: 23 and 28 were selected in the Yezin Reserved Forest for experimental purposes. The forest is a degraded forest full of banana plantation and type allocated for rehabilitation

- (1) Banana plantation .
- (2) Ponso area where farmers discarded the area after a year of cultivation .
- (3) Newly cut Taungya plantation .



Figure(1) Deforestation caused by shifting cultivation.



Figure(2) Slash and burn Taungya practises.



Figure (3) Farmers grow Rice and Banana mixed together in Taungya.



Figure (4) Harvesting of rice in the first year of Taungya practises.

Species Selected for Planting

Teak	<i>Tectona grandis</i>
Pyinkado	<i>Xylia dolabriformis</i>
Padauk	<i>Pterocarpus macrocarpus</i>
Yemane	<i>Gmelima arborea</i>

Selected Fruit Trees for Planting

Cashew nut	<i>Anacardium occidentale</i>
Mayan	<i>Bouea burmanica</i>
Peinne	<i>Artocarpus heterophyllus</i>
Awza	<i>Annona Squamosa</i>
Malaka	<i>Psidium guajava</i>

5. Organizations

Farmers from (3) villages namely Kyauk-than-bat, Hsin-that, and Pyin-bin-aik were organized, (150) farmers from (70) household participated in the experimental area. Seedling trees and fruit trees are distributed to the farmers for planting. The farmers planted the distributed seedlings where they have banana plantations, ponzo areas and newly cut Taungyas.

The following tables indicate the overview of the work done during the first and second year of the experiment .

Table (1) Nature of household, population, and area shifting cultivation annually

Village	Household	Population	Area of Shifting cultivation (ha)
Kyauk -than-bat	60	350	30
Hsin-thawt	46	110	21
Pyinbin –Aik	20	58	15

Table (2) Distribution of tree seedlings for planting during project period.

Village	Trees species			
	Teak	Pyinkado	Yemane	Padauk
Hsin-thawt	4500	2700	1800	225
Kyauk -ta-lone (1)	2000	1200	800	100
Kyauk -ta-lone (2)	1500	900	600	75
Others	320	320	320	320
Total	8320	5120	3520	720



Figure(5) Forest produce of Charcoal, Bamboo and Rattan from the forests.



Figure(6) Banana plantations covered in most of the forested area.

Table (3) Distribution of fruit trees during the project period.

Village	Fruit trees				
	Cashew Nut	Peinne	Mayan	Awza	Malaka
Hsin-thawt	900	270	270	270	90
Kyauk -ta-lone (1)	400	120	120	120	40
Kyauk -ta-lone (2)	300	90	90	90	30
Others	1400	20	20	20	40
Total	3000	400	400	400	200

The Following tables indicate the over view of the work done during the second year of the experiment.

Table (4) Distribution of tree seedlings for planting during the second year of the project period.

Village	Tree species				
	Teak	Pyinkado	Yemane	Padauk	Acacia
Hsin-thawt	500	100	200	200	300
Kyauk -ta-lone (1)	500	100	200	200	300
Kyauk -ta-lone (2)	500	100	200	200	300
Others	500	100	200	200	300
Total	2000	400	800	800	1200

Table (5) Distribution of fruit trees during the second year of the period.

Village	Fruit trees				
	Cashew Nut	Peinne	Myan	Awza	Malaka
Hsin-thawt	300	200	300	125	50
Kyauk-ta-lone (1)	300	200	300	125	50
Kyauk-ta-lone (2)	300	200	300	125	50
Others	300	200	300	125	50
Total	1200	800	1200	500	200

Study on the effectiveness of soil conservation by various methods was also included both in the first and second year of the project period.

The methods are: -

1. Traditional Taungya method
2. Contour plantation with Taungya
3. Contour bund with Taungya



Figure(7) Seedlings of trees and fruit trees for distribution to the villagers.



Figure(8) Participated villagers together with foresters.



Figure(9) Teak planted in banana plantation.

Figure(10) Teak after two year old in banana plantation.



Table (6) To determine the erosion and run off plots the following treatments and crops and tree species are planted

Treatments	Slope	Area (acre)	Species
Traditional Taungya	26	0.65	Corn, Banana, Peanut.
Contour Plantation	27	0.65	Pyinkado, Padauk, Teak, Corn, Banana, Peanut.
Contour bund	25	0.65	Teak Corn, Banana, Peanut.

Data collected in the first year of the experiment.

Table (7) The average sediment collected per area at the experimental area. (Kgm per area)

Treatment	Replication (1)	Replication (2)	Replication (3)	Treatment Total	Treatment mean
Taungya	188.03	284.31	291.74	764.08	254.69
Taungya with Contour bund	174.56	167.65	273.82	616.03	205.34
Taungya with Contour live	157.57	174.44	219.83	551.84	183.94
Replication tital	520.16	626.40	785.39	-	-
Grand total	-	-	-	1931.95	-
Grand mean	-	-	-	-	214.66

6. Result

Table (8). The analysis of variance for sediment per area of the experimental area.

Source of variation	Df	Sum of Square	Mean Square	Computed F	Tabular 5%	F 1%
Replication	2	11879.08	5939.53	6.02	6.94	18.00
Treatment	2	7895.33	3949.17	4.00	-	-
Error	4	3945.70	986.42	-	-	-
Total	8	23723.11	2965.39	-	-	-

The study on run off plot does not show any significant different in the treatments.



Figure(11) Teak and cashew nut in banana plantation.

Figure(12) Two year old teak in Teak plantations. (photo taken before the break of Monsoon, i.e. in April.)



Table (9). Result of the activities of the people in the first year of planting season (1993).

Sr. No	Village	Population involved	Ponzo and Banana Plantation acres	Survival percent		Remark
				Trees	Fruit trees	
1.	Hsin -thawt	217	227	47.5	36.4	Trees and fruit trees planted mixed with
2.	Kyauktalone	31	73	72.0	41.2	Banana plantation

Table (10). Expected income from fruit trees after maturity

Species	Year from time of planting to harvest	Approximate income per tree (Kyats)
Cashew nut	3-5	100
Mayan	5-7	320
Peinne	5-7	300
Awza	3-5	100
Malaka	3-5	50
Total		870

The above table indicates the prospect income per fruit tree by the farmers at maturity. A Farmer planted fifty (50) per species of mixed fruit trees will earn at least Kyats 43,500. This subsidiary income will somehow help their family in schooling and medical care.

The farmers were very glad to have fruits seedlings planted together with Tree Seedling. From the very beginning, the farmers are told to enjoy the benefit from the outturn of their labour. For examples fruit trees successfully established will be their own. At first the farmers have doubt on the project leader concerning the ownership of the fruit trees. Meeting and talks finally give fruitful result in the experiment. It is to be mention that extension service play a very important role in such operation.

There are weaknesses on the farmers part because the farmers cannot give their time as they have to attend their daily routine for their survival. Here again, the farmers need the help of the organization concerned to look after the social welfare of their family.

In such operation, success depend largely on the organization and support by the local people concerned. Therefore, the foresters have to bear in mind the importance of the cooperation of local people in rehabilitation of the forests.

7. Conclusion

People's participation is a process- oriented activity. A great deal of research and experimentation is needed for the process to evolve. People based management system has to be introduced sooner or later in order to help maintain and enrich the existing natural forests.

Ultimately people's participation has to be viewed as a movement towards greater humanization with the aim of equity and sustainability. This is particularly relevant in the management and sustainable development of the forests. The time to nurture it with care and to initiate the programme is at hand. The opportunity must not be delay in the interest of the people who depend largely on the forest and also human race as a whole.

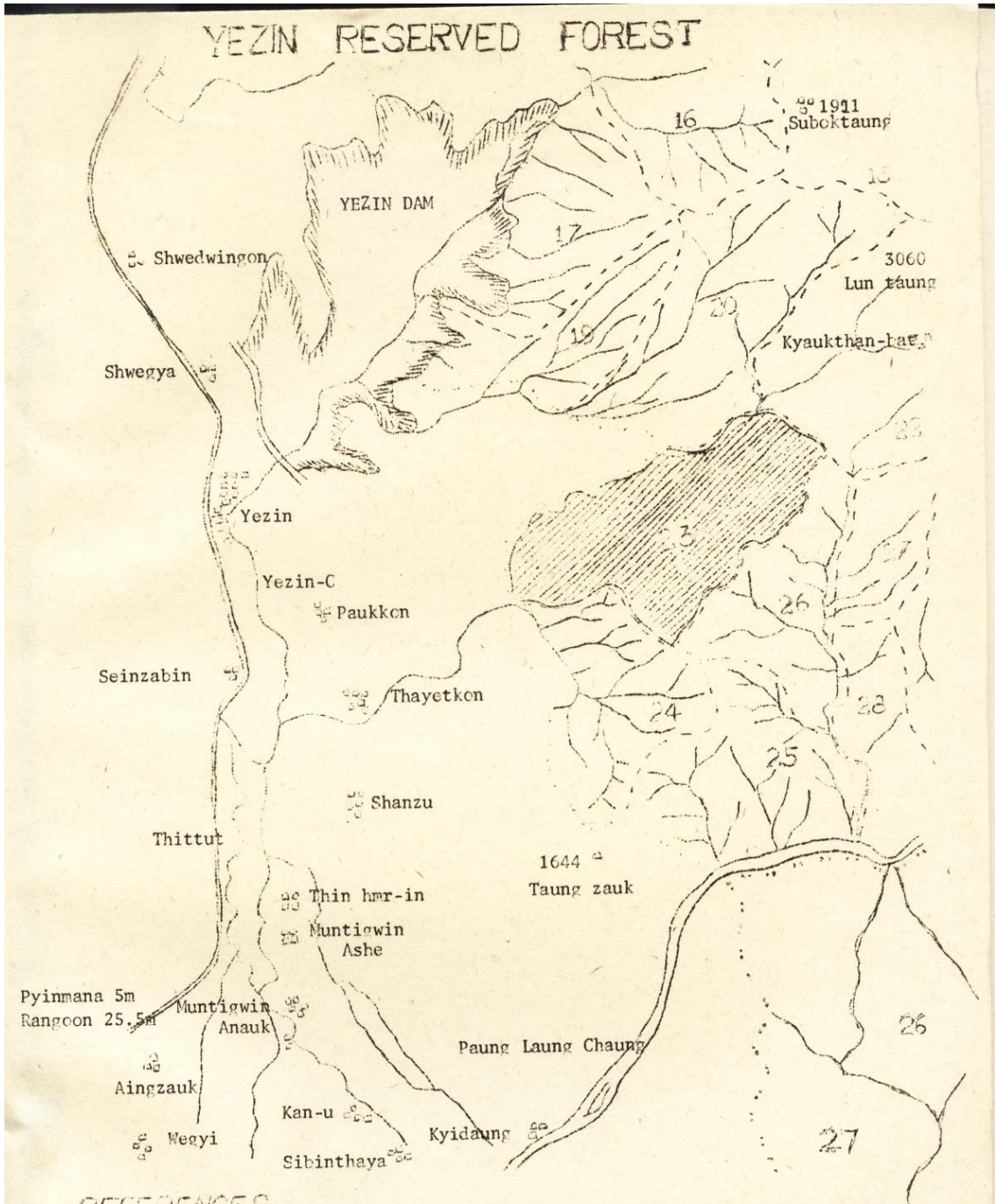


Figure(13) Cashew nut planted in degraded forest.

Figure(14) Collection of soil sediments for determination of soil erosion.



YEZIN RESERVED FOREST



REFERENCES

FOREST RESERVED BOUNDARY

RANGOON-MANDALAY CAR ROAD

FOREST COMPARTMENT AREA

Chaung

Yezin Dam

Village

Area to be Replenish

