

ミャンマー中央林業開発訓練センター計画 アフターケア調査団・短期調査員報告書

平成 11 年 3 月

国際協力事業団
森林・自然環境協力部

序 文

国際協力事業団は、ミャンマー国政府からの技術協力の要請を受け、中央林業開発訓練センター（Central Forestry Development Technical Center ; CFDTTC）において、平成2年8月1日から平成9年7月31日までフォローアップも含め7年間にわたり、ミャンマー中央林業開発訓練センター計画を実施してきました。

この度、当事業団は、協力終了後の状況や協力効果の把握を行い、アフターケア協力の必要性及び可能性について協議することを目的として、平成10年9月17日から12月18日まで、佐藤 朗氏を短期調査員として、また、平成10年12月6日から12月18日まで、林野庁管理部 村沢 勝を団長とするアフターケア調査団を同国に派遣しました。短期調査員及び調査団はミャンマー国政府関係者と協議を行うとともに、現地調査や関連資料の収集を行い、帰国後の国内作業を経て、調査結果を本報告書に取りまとめました。

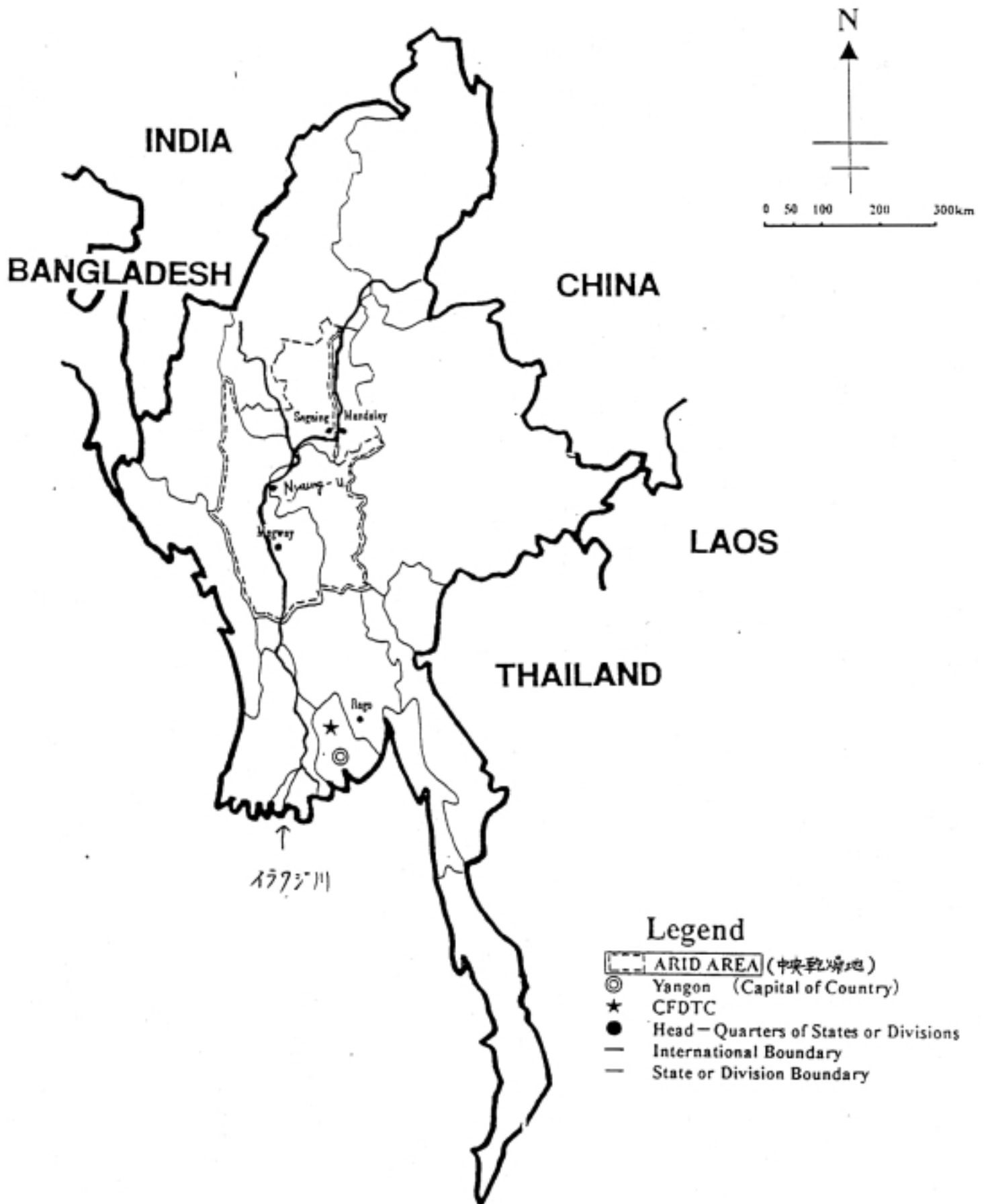
今回の調査結果が本アフターケア協力実施の指針となるとともに、アフターケア協力の実施が今後の両国の友好・親善の一層の発展に資することを期待いたします。

終わりに、本調査の実施にご協力とご支援をくださった両国関係者の皆様に、心から感謝の意を表します

平成11年3月

国際協力事業団
理事 亀 若 誠

プロジェクト位置図



中央乾燥地における荒廃地



疎林化の進む地域



中央林業開発訓練センター
(CFDTC) 外観



中央乾燥地で生活する集落



中央乾燥地での植林植え穴



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プロジェクト位置図

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5 農村調査

5. 農村調査

今回の調査においては、日程表に記したとおり4回の現地調査を行った。12月にはいつてからの4回目の調査は、アフターケア調査団に合流したものとなっている。また9月28日からの一回目の調査及び10月12日からの2回目の調査では、主に林業関連機関と森林局及び乾燥地緑化局が直営で実施する植林地の調査になっている。

1回目と2回目の調査から得られた情報を政府機関の視点ではなく、農民の視点から補う必要を感じたし、また森林局等が進めようとしている参加型植林活動というものの主体は農民であると考えられることから、乾燥地内の村落での聞き取り調査(写真14)を行うこととした。調査にあたっては家族構成、生計など数字で表されるもの以外は、質問事項だけの記載にして詳細は調査員が農民からの返答に応じて展開していくことを意図したが、カウンターパート他聞き取りにあたるミャンマー側調査員への説明が十分でなかったため、調査員と農民との会話が調査表に記載された事項から発展することなく、十分に内容のある回答とはなっていない。

調査から得られた感想としては以下の各点があげられる。

- 雇用機会としての乾燥地緑化事業があり、気候、土壌条件の厳しさから農業生産の期待できないところでは、多くの農民が植林事業に人夫として雇われ現金収入を得ている。環境緑化を目的にして、国営事業として継続することも必要であろう。
- UNDP/FAOの支援で行われている Environmentally Sustainable Food Security and Micro Income Opportunities in the Dry Zone Project では、現地にUNDP/FAOプロジェクト事務所を開設し、職員はUNDP/FAOの直雇いとなっている。森林局からも職員が出向しているが、その職員は森林局からの給料で働いている。
- 森林局職員と農民との関係は、インタビューからでは比較的良好としか理解できなかった。保護区の設定で農地を取り上げられた人もいるようだが、非難するような発言はなかった。もう少し内情に通じないと本当の意見は分からない。
- 外部からの支援があるところ以外では乾燥地でも普及活動は行われていないのが現状のようだ。乾燥地緑化局では、もっぱら直営事業による植林を行っており、数値目標の達成がより大きな目的のように感じる。Community Forestryの推進を、出来上がりの植林地をCommunity ForestとしてUsers groupに引き渡すことであると理解しているような気がする。
- 伝統的資源管理技術については、インタビューのなかでは確認できなかった。多くの人が森林局の規則に則ってと回答しているだけである。一つだ

け枯死した枝幹だけしか薪炭用としては採取しないという答えがあった。理由は持続的に利用するためというものであった。周りにまだたくさんの樹木があって利用しているという状況で、地域住民の間に何らかの取り決めがあってもいいはずなのに、今回の調査では見出すことができなかった。

- 現在造成されているCommunity Forestは薪炭採取を目的としたユーカリ林がほとんどである。1995年に植林されたところでも2000年に最初の収穫が予定されているとのこと。
- 森林局と乾燥地緑化局の業務を区別して理解している農民はほとんどいない。どちらの業務であれ薪炭が確保され、環境が保全されればいようだ。
- 概して農業生産性の低いところでは一戸当たりの家族数が多く、農業生産性の低さとあいまって貧困の度合いも厳しいようだ。

調査の目的として考えたのは、農民が森林局及び乾燥地緑化局の仕事をどのように理解しているか、農民と森林局及び乾燥地緑化局職員との関係、農民が望むサービス、であった。結果は上記のとおり。

対象地としては、乾燥地13Districtsの中から、Community Forest の経験のある村を選定してもらった。個別の村の選定は各地の森林局出先機関に依頼した。選定された村の概要は別添資料5のとおり。

個別の農民の選定にあたっては、村と森林局出先機関に選定を依頼した。サンプルとして妥当なものであるかとの疑問は残る。

質問表は、村全体の情報収集するための質問表と農民個別の情報収集のための質問表の2種類を用意した。別添資料6のとおり。

回答の集計は別添資料7のとおり。

Thabyaesan village

Date: 10/11/98

Interviewer: U Soe Naing

Interviewee: U Kyaw Soe

1. Name of village: Thabyaesan
2. Name of village leader: U Kyaw Soe, Chairman, SPDC
3. Village tract: Thabyaesan
4. Township: Magwe
5. District: Magwe
6. Number of household: 340
7. Population
 - a.Total: 1,700
 - b.Male: 680
 - c:Female: 1,020
8. Total area: 4,000 acres (Agriculture area is 2,400 acres)
9. Community forest
yes/no: yes
year of establishment: 1995
acres: 250 (all 340 households are member of users group)
purpose: fuel wood, building, erosion, nature conserve
tree species : Eucalyptus, Acacia auriculformus

10.Other information

history: Established long time ago, native

Village organization: women, youth, fire fighter, religious committee

Selection of chairperson: 540 village tract households, ten households select one tenth leader, 54 tenth leaders select 6 hundred leaders, 6 hundred leaders select 3 executive committee, from 3 executive committee select chairperson of village

there is no dispensary but one grade II health assistant home visiting

palm jagery production, palm leaf stem chair making

candle making cottage industry for village fund

one primary school and attached middle school

Plan: electricity supply, water

a tube well was dug since 1981 by UNICEF and the availability of water becoming small and increase of population. the tube well is 700 feet deep. other water source is 3 miles away from village

Daung Nai village

Date: 10/11/98

Interviewer: U Soe Naing

Interviewee: U Poe Sein

1. Name of village: Daung Nai
2. Name of village leader: U Poe Sein
3. Village tract: Indaing Gyi
4. Township: Magwe
5. District: Magwe
6. Number of household: 238
7. Population
 - a.Total: 1,180
 - b.Male: 582
 - c:Female: 598
8. Total area: 2,500 acres, (farming land is 177 acres)

9. Community forest

yes/no: yes

year of establishment: 1995 1996 1997 1998 1999

acres: 50 30 40 90 130

house hold 120 30 88 all all

purpose: fuel wood, nature conservation

tree species: Eucalyptus

10.Other information

history: native

Village organization: income generating, women group, pig farm group, firefighter

Selection of chairperson: there are 997 households in this village tract. same procedure to select chairperson as Thabyaesin village.

there is one government dispensary with one health assistant and 3 nurses

there is one primary school with attached middle school

livestock are pigs and cows

problem: lack of work opportunity, lack of farming land, lack of soil fertility

Yar Gyi Taw (East)

Date: 11/11/98

Interviewer: Daw khin Htay

Interviewee: U Aung Kyaw Khin

1. Name of village: Yar Gyi Taw east

2. Name of village leader: U win Aung

3. Village tract: Sue Phyu Kone

4. Township: Kyaukpadaung

5. District: Myingyan

6. Number of household: 73

7. Population

a.Total: 736

b.Male: 300

c:Female: 436

8. Total area: 780 acres

9. Community forest

yes/no: yes

year of establishment: 1997

acres: 60 acres

purpose: fuel wood, domestic use, nature conservation

tree species: Azadirachta indica, Leucaena leucocephala, Ziziphus jujuba, Acacia catechu,

Chukrasia tapularis

10.Other information

history: native

Village organization: maternally and child care association, income generating group, soil conservation group, efficient stove income generating group, live stock breeding

Selection of chairperson: mass meeting for the whole village and free vote to select

Yar Gyi Taw (West)

Date: 11/11/98

Interviewer: U Than Htay

Interviewee: U Kyarr

1. Name of village: Yar Gyi Taw west

2. Name of village leader: U Kyarr

3. Village tract: Su Phyu Khone

4. Township: Kyaukpadaung

5. District: Myingyan

6. Number of household: 45

7. Population

a.Total: 245

b.Male: 105

c:Female: 140

8. Total area: 4 sq. mile

9. Community forest

yes/no: yes

year of establishment: 1997 1998

acres: 10 10

purpose: fuel wood, better environment

tree species: Eucalyptus, Acacia catechu, Chukrasia tubularis, Ziziphus jujuba

10.Other information

history: native ?

Village organization: village resources management committee, farmers income generating group, livestock income generating group, women income generating group, village saving credit group, vsda

Selection of chairperson: by the villagers

Ngapaing

Date: 12/11/98

Interviewer: U Soe Naing

Interviewee: U Shwe Aunge

1. Name of village: Ngapaing

2. Name of village leader: U Shwe Aung

3. Village tract: Ngamintmae

4. Township: Nyaung U

5. District: Nyaung U

6. Number of household: 130

7. Population

a.Total: 1,207

b.Male: 500

c:Female: 707

8. Total area: 350 acres

9. Community forest

yes/no: yes

year of establishment: 1996

acres: 150

purpose: fuel wood, nature conservation

tree species: Eucalyptus, Cassia siamea

10.Other information

history: native

Village organization: fire fighting, red cross

Selection of chairperson: according to the mass meeting (whole village) and chair person
come from free vote

there was some villagers taken their farming land by fd and dzgd for protected area.

area covered by the Myanmar Yomiuri Afforestation Project

Village information

Date	
Interviewer	
Interviewee	
1. Name of village	
2. Name of village leader	
3. Village tract	
4. Township	
5. District	
6. Number of household	
7. Population	
a.Total	
b.Male	
c:Female	
8. Total area	
9. Community forest	<p>yes/no</p> <p>year of establishment</p> <p>acres</p> <p>purpose</p> <p>tree species</p>
10.Other information	<p>history</p> <p>Village organization</p> <p>Selection of chairperson</p>

Individual information

Date:

Interviewer:

Interviewee: name _____ age _____ sex _____

ethnic group _____

General information**1. Family composition**

No	Name	Relation	M/F	Age	Education	Occupation
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

2. Household history: when did you settle here, how,

3. Land tenure: do you own land, household, farm, any other

4. Main source of income: employee or farmer

a. Agriculture: crop, area, harvest, income

No	Crop	Area	Ownership	Harvest	Income	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

b.Live stock: each kind and numbers, if it was sold or not

c.Employed work: who, what work and income

d.Other: manufacture,business,etc

5.Expenditure: ranking top ten with amount per year

No	Item	Amount	No.	Item	Amount
1			6		
2			7		
3			8		
4			9		
5			10		
Total			Total		

6.Major problems you have: top ten

Forestry related questions

1.Use of forest resources: what, from where, how much, how far, by who, howoften, etc.

2.Rules and management of forest resources you use

3.Energy source and consumption: fuel wood, other source same as 1.

4.Tree planting activities:experience yes (detail information) or not (reason)

5.Species preferences and reason

6.Difficulties of tree planting activities

7.Idea of solving those difficulties

Community forest related questions

1. Do you know Community Forest?

2..Do you participate? yes or not

3.Reason?

4.Members responsibility and contribution

5.What do you expect from the community forest?

6.Other remarks

Forest Department

1. Please state your understanding about Forest Department.

2. Relationship with FD staff: do you see often

3. What kind of service do you expect from FD?

Dry Zone Greening Department

1. Please state your understanding about Dry Zone Greening Department.

2. Relationship with DZGD staff: do you see often

3. What kind of service do you expect from DZGD?

Central Forestry Development and Training Center

1. Do you know CFDTC

Any other comment and remarks

資料7 - 1

village no.	Thabyaesan										
	1	2	3	4	5	6	7	8	9	10	
Name	U Ayi	U Kyi	U Ayi	U Kyi	U Ma	U Thri	U Hti	U Bo	U Tei	U Tint	
Age	31	36	42	57	49	47	40	40	53	57	
Sex	m	m	m	m	m	m	m	m	m	m	
Education	6th	4th		7th	4th	4th	4th	4th	4th	4th	
Occupation	farmer	1	1	1	1	1	1	1	1	1	
	farm labourer					2				1	
	Business				2						
Family	father	0	0	1	0	0	0	0	0	0	
	mother	0	0	0	0	0	0	0	0	0	
	husband	0	0	0	0	0	0	0	0	0	
	wife	1	1	0	1	1	1	1	1	1	
	child male	2	1	0	2	3	0	2	0	0	
	child female	0	2	0	0	0	3	1	2	4	
	brother	0	0	2	0	0	0	0	0	0	
	sister	0	0	1	0	0	0	0	0	0	
	other	0	0	0	0	1	0	0	0	0	
History	n	n	n	n	n	n	n	n	n	n	
Land	6	0	30	20	16	15	0	8	0	0	
Agriculture	sesami	6	5	18	10	14.5	9	5	5	0	7
	ground nut	2	0	12	10	2.5	4	4	3	0	0
	green pea	4	0	18	0	2	6	0	5	0	0
	corn	2	2	0	0	4	0	0	0	0	0
	bean	0	3	0	0	0	0	4	0	0	7
Live stock	cow	1	0	0	10	5	0	0	0	0	
	chicken	0	0	0	10	0	0	4	2	10	
Other income	work	0	0	0	1	1	0	0	0	1	
	business	0	0	0	1	0	0	0	0	0	
Expenditure	food	1	1	1	1	1	1	1	1	1	
	investment	2									
	education	3	5	4	2	2	5	4	4		
	health	4		3	3	6	3	2	2	3	
	water	5									
	donation	6	4	5	5	5	4	6	6	5	
	social	7	3		4	3		5	5	4	
	clothing		2	2	7	7	2	3	3	2	
	house repair				6	4					
Major problem	water	1	1	1	1	1	1	1	1	3	
	fertilizer	2			6	3					
	fuel wood	3	2	2	3	2	2	2	2	2	
	investment	4								4	
	electricity			3	2	5		3			
	health				4		3				
	gasoline				5						
	storage of crop				7						
	pest and diseases					4					
	agriculture technique							4			
	tree planting technique							5			
	farm land									1	
Forest resour from											
wast land boundary	1	1		1	1		1		1		
			1				1		1		

資料 7 - 3

village no.	Daung Nai						
	1	2	3	4	5	6	
Name	U Kya	U Mg	U Hla	U Hta	U Pau	U Thaug Tin	
Age	25	27	38	30	52	62	
Sex	m	m	m	m	m	m	
Education			4th		2nd	monk	
Occupation	farmer		1		1	1	
	farm labourer/labourer	1	2	1	1		
	Business						
Family	father	0	1	0	1	0	0
	mother	1	1	0	1	0	0
	husband	0	0	0	0	0	0
	wife	0	0	1	0	1	1
	child male	0	0	1	0	0	3
	child female	0	0	3	0	1	1
	brother	1	1	0	2	0	0
	sister	1	2	0	0	0	0
	other	0	0	0	0	0	1
History	n	n	n	n	n	n	
Land	0	3	0	0	16	10	
Agriculture	sesami	0	3	0	3	14.5	9
	ground nut	0	0	0	0	1.5	1
	green pea	0	3	0	0	0	5
	corn	0	0	0	0	0	5
	bean	0	0	0	3	0	0
	onion	0	0	0	0	0	0.5
	Live stock	cow	0	0	0	0	3
chicken		0	6	0	7	7	0
pig		1	0	1	1	0	1
Other income	work	1	1	1	1	0	0
	business	0	0	0	0	0	0
Expenditure	food	1	1	1	1	1	1
	education			3	4		
	health		3	4	3	5	2
	donation	3	2		5	3	
	social			2	6	4	3
	clothing	2			2	2	
	house repair						
Major problem	fertilizer			4		2	3
	fuel wood				1	1	2
	electricity			1		4	1
	health		1				
	pest and diseases					3	7
	agriculture technique						6
	farm land			2			
	working opportunity	1					
	cattle			3			5
	climate						4
Forest resource from	boundary natural forest	1	1		1		
	own land					1	
	what	1	1	1	1	1	1
	bamboo seeds			2			2
	how much	2					
	on bullock cart						

資料 7 - 4

rule		0	0	0	0	0	0	
fuel source	wood	1	1	1	1	1	1	
	agriculture residue	0	2	0	2	2	2	
tree planting	yes/no	1	1	1	1	1	1	
	community forest				1	1		
	road side					1	1	
	plantation			1	1			
Species prefer species	own wood plot						1	
	Eucalyptus	1			1		1	
	Acacia auriculif	2						
	Acacia catechu		1			1		
	Albizia lebbeck			1				
	Azadirachta indica			2	2			
	reason	growth					1	1 coping
		pole					2	
		fuelwood	1			1		
		shade			1	2		
Difficulty	filling gap		1					
	Water/rain		2	1	1	1	1	
	hard soil	1						
	low survival		1					
Idea to solve	soil fertility			2				
	choice of species		1					
	to protect from animal						1	
	climate			1				
Community fore do you know	fire protection						2	
	soil work						3	
	participation	1	1	0	1	1	1	
	reason	0	0	0	1	1	1	
	fuel wood	good forest				1		
		from own experience						1
		no access			1			
	members work	planting					1	
		weeding					1	
	expectiation	fuel wood			1		1	1
post and pole							3	
timber				2				
climate change		1						
handle for tools							2	
other	income				1			
		0	0	1	0	0	1	

village no.	Name	Yar Gyi Taw East				
		1	2	3	4	5
Age		U Aur	U Tin	U Tin	U Soe	U Win Aung
Sex		39	30	37	36	42
Education		m	m	m	m	m
Occupation			4th		6th	Pr
	farmer	1	1	1	1	1
	farm labourer/labourer	2	2	2	2	2
	Business			3	3	3
Family	father	0	0	0	0	0
	mother	0	0	0	0	0
	husband	0	0	0	0	0
	wife	1	1	1	1	1
	child male	3	2	2	1	0
	child female	6	1	4	2	0
	brother	0	0	0	0	0
	sister	0	0	0	0	0
	other	0	0	0	1	0
History		n	n	n	n	n
Land		5	6	4	4	4
Agriculture	sesami	0	1	1	1	2
	green pea	1	1.5	0.7	0	0
	corn	1	1	1	2	1
	sorghum	0.2	0	0.5	0	0
	cotton	0.5	1.5	0	1	0
	gram pea	0	1	0	0	0
	sunflower	0	0.5	0.8	0	0
	pigeon pea	0	0	0	1	2
	mung bean	0	0	0	1	1
Live stock	cow	1	2	2	3	1
	chicken	12	24	2	20	0
	pig	1	0	1	1	1
Other income	work	1	1	1	1	1
	business	0	0	0	1	0
	jeggery production	1	0	1	0	1
Expenditure	food	1	1	1	1	1
	education	4	7	6	5	
	health	3	6	5	3	2
	donation	6	4	4	6	
	social	5	2	3	4	3
	clothing	2	3	2	2	4
	house repair		5			
	fuel wood					5
Major problem	water	3	2	2	1	2
	rain					6
	health	6	1	4		3
	pest and diseases	5			2	5
	agriculture technique				8	
	cow	1		1		
	education	2				
	road/transportation	4	3	3	6	7
	house		1			
	low yield of crop				3	9
	fodder				4	4
	work opportunity				5	

	livestock technique				9	
	low income				7	1
	marketing of crops					8
Forest resource	from					2
	seller					
	natural forest	2	2	2		
	reserved area	1	1	1	1	
	farm land				2	1
	what					
	fuel wood	1	1	1	3	1
	pole and post	2	2	2	1	2
	fodder				2	
	handle for tools				4	3
	how much					
	on bullock cart	4	2	10		25
rule		0	0	0	0	0
fuel source	wood	1	1	1	1	1
	agriculture residue	1	1	1	0	
	palm residue	1	1	0	0	
	candle	0	0	0	1	1
	diesel/kerosine	0	0	0	1	1
tree planting	yes/no	0	1	1	1	1
	community forest				1	1
	plantation		1	1	1	
Species prefer	species					
	Eucalyptus	4	3	1	3	
	Acacia catechu	1	1	2		
	Cassia siamea	3				
	Leucaena leucosephal	2	2	3		
	Chukrasia tabularis	5			1	1
	Azadirachta inidca					2
	reason					
	pole				2	1
	fuelwood				3	
	multipurpose				1	
	handle for tools					3
Difficulty	Water/rain					1
	cattle					1
	seedling transportation				1	
	soil condition					1
	fire					1
Idea to solve	Water supply					1
	improve road				1	
	soil improvement					1
	fine to offence					1
	fire brake					1
	demarkation					1
	weeding					1
Community fore	do you know	1	1	1	1	1
	participation	0	1	1	1	1
	reason					
	busy with other	1				
	attractive incentives from project				1	
	job opportunity					1
	products					1
	members work					
	weeding		1	1		
	protect from grazing		1			
	fire line		1	1		
	protection					1
	labour					1
	expectiation					
	fuel wood	1	1	1		

資料 7 - 7

	post and pole	2	2	2		
	conservatoin	3	3	3		3
	easy supply				1	
	income				2	
	land tenure					1
	forest products					2
other		1	1	1	1	0

village no.		Yar Gyi	Taw West	
Name		1	2	3
Age		U Hla	U Khin	U Kyai
Sex		36	35	45
Education		m	m	m
Occupation		5th	6th	Pr
	farmer	1	1	1
	farm labourer/labourer	2	2	0
	Business	0	0	2
Family	father	0	0	0
	mother	0	0	0
	husband	0	0	0
	wife	1	1	0
	child male	0	2	0
	child female	1	3	0
	brother	0	0	1
	sister	0	0	1
	other	0	0	7
History		n	n	n
Land		2	4	7.5
Agriculture	sesami	2	1	5
	corn	0	1	3
	cotton	1	1	2
	sunflower	0	0	1
	pigeon pea	1	0.5	2
	mung bean	0	0.5	1
	chick pea	0	0	0.5
Live stock	cow	0	2	2
	chicken	0	2	1
	pig	1	1	0
Other income	work	1	1	0
	jeggery production	0	0	1
Expenditure	food	1	1	1
	education	4	4	
	health	3	3	3
	donation	5	6	
	social	6	5	2
	clothing	2	2	4
Major problem	water	4	1	3
	rain			6
	fuel wood	3		
	electricity	5		
	health			10
	pest and diseases		2	5
	agriculture technique	1	8	
	road/transportation	2	6	7
	low yield of crop		3	9
	fodder		4	4
	work opportunity		5	
	low income		7	1
	marketing of crops			8
	big family size			2
Forest resource	from boundary	1		
	reserved area		1	1
	farm land			2

	what	fuel wood	1	1	1
		pole and post		2	2
		handle for tools		3	3
	how much	on bullock cart			12
rule			1	0	0
fuel source	wood		1	1	1
	candle				2
	diesel/kerosine				3
tree planting	yes/no		1	1	1
	community forest			1	1
Species preferred species	Eucalyptus		3	2	2
	Acacia catechu		1	3	3
	Leucaena leucc		2	4	
	Chukrasia tabul		4	1	1
	Ziziphus jujuba		5		
	reason	pole		2	
	fuelwood		1		3
	multipurpose			1	
	handle for tools				4
	fodder		3		1
	fruit		4		
Difficulty		seedling transp	1	1	1
Idea to solve		improve road	1	1	1
Community forest do you know			1	1	1
	participation		1	1	1
reason	climate change		2		
	attractive incentives f			2	
	products				1
	good forest		1		
	environment			1	2
members work	protection				1
	labour				2
expectation	fuel wood			1	1
	post and pole				2
	timber			3	
	conservatoin		2		3
	forest products		1		
	farm implements			2	
	fodder and forage				
other			0	1	0

資料 7 - 10

village no.	Ngapaing									
	1	2	3	4	5	6	7	8	9	10
Name	U Sh	U Ma	U My	U Th	U Sa	Daw	Daw	U Ma	U Mg	U Pu
Age	53	57	33	24	61	35	46	24	32	70
Sex	m	m	m	m	m	f	f	m	m	m
Education	4th	4th	4th	8th			4th	8th	4th	
Occupation	farmer	1	1	1	1	1	1	1	1	1
	farm labourer/labourer	0	0	2	2	0	1	2	2	0
	Business	2	1	3	0	1	0	0	0	0
Family	father	0	0	1	1	0	0	0	1	0
	mother	0	0	1	1	0	0	0	1	0
	husband	0	0	0	0	0	1	1	0	0
	wife	1	1	0	0	1	0	0	0	1
	child male	3	1	0	0	1	1	1	0	5
	child female	2	2	0	0	1	1	2	0	2
	brother	0	0	4	1	0	0	0	2	0
	sister	0	0	1	1	0	0	0	1	0
	other	0	0	0	0	0	0	0	0	0
	History	n	n	n	n	n	n	n	n	n
Land	0	0	8	6	6	5	0	4	own	own
Agriculture	sesami	5	8	0	0	0	0	1	1	1
	ground nut	1.5	0	4	0	0	2	0	0	1
	green pea	2	0	4	1.5	0	0	2	2	1
	corn	0	2	3	0	4	0	0	0	1
	bean	0	6	0	0	0	0	0	0	0
	pigeon pea	1.5	0	0	3.5	2	1	1	1	0
	tomato	0	0	2	2	0	2	2	0	1
	toddy palm	0	0	0	0	40	0	0	0	0
Live stock	cow	0	0	2	0	2	0	0	2	2
	chicken	0	7	30	0	10	10	10	30	0
	goat	0	0	0	40	0	0	0	40	0
Other income	work	0	0	1	1	0	0	1	1	0
	business	0	0	2	0	0	0	0	0	0
	jeggery production	1	1	0	0	1	1	0	0	0
Expenditure	food	1	1	1	1	1	1	1	1	2
	education	3	3	5		4	6		3	4
	health		4	4	3	2	3		5	5
	water			6	5	6				
	donation		5	7	8	7	4		6	
	social	4	6	2	7	5	2	2	7	3
	clothing	2	2	3	2	3	5		2	2
	house repair								4	
	fuel wood				6					
	labourer				4					
Major problem	water	1	2	4	2	2	2	1	1	3
	rain		3					3		1
	fertilizer								2	
	fuel wood	2	1	2	3	1	3	2		2
	health			3	4					
	storage of crop									2

資料 7 - 12

members work	planting hole				1				2		
	planting								1		
	weeding				1						
	watering					1				1	1
	tending				1						
expectiation	fuel wood	2			1	1	1	1	2		
	post and pole	1			2		2				1
	timber										2
	farm implements				3				1		
other		0	0	0	0	0	0	0	1	0	0

Village survey
understanding

Forest department

Plant the tree for fuel wood and good environment
Protect natural forest
Establish fuelwood plantation
Village nursery
To plant trees
Environmental conservation inn dry zone with plantation and natural forest
Law inforcement and policy maker
Conservation of forest
Afraid to FD rules
Conserve with strict rule
To care development

DZGD

Plant the tree for nature conservation
To establish plantation
Environmental conservation inn dry zone with plantation and natural forest
Law inforcement and policy maker
To change climate in dry zone
Survey
Soil improvement
Protect natural forest
Plant trees

Village survey
Relationship

FD

Often
Seedling supply
Employer
Discuss protection of forest and plant tree
Not often
Very friendly

DZGD

Often
Employer
Not often
No relation

Village survey
Services

FD

Supply fuel wood and post
Establish fuelwood plantation
Fuel wood and Timber
Water supply and fertilizer
Supply tree seedlings
Training about tree planting and income generation
Protect natural forest
Extension service
Plant more tree
Employment
Supply of bamboo
Systematic supply of forest products

DZGD

Plant more tree for fuelwood and post and other building material
Plant more tree for better environment
To get fuel wood
To become good climate
Fuel, timber and greening
Water supply and fertilizer
Supply tree seedlings
Support for establish forest
Employment
Plant tree and protect forest
To reduce illegal cutting
Supply of fodder

6 要請内容の確認

6. 要請内容の確認

ミャンマー国からのアフターケア協力にかかる正式要請は、1997年10月20日付けで在ミャンマー日本国大使館あてに提出されている。その内容は、乾燥地緑化のための訓練機能の強化と施設及び機材の維持管理の2点を目的として、乾燥地緑化事業のため訓練計画の見直し、乾燥地緑化造林技術と社会林業技術の訓練コースへの導入、そして施設及び機材の維持管理の3点を活動項目としている。協力期間としては2年間を計画しており、長期専門家の派遣要請は訓練手法と機材管理の分野になっている。詳細は別添資料8：アフターケア要請書のとおり。

まず目的について検討すると、機材の維持管理については機材の使用方法の問題ではなく、森林局の予算不足（外貨支出に対して）による交換部品の不足による管理状態の悪化に対する対応といった面が主で、技術支援というよりは資金援助あるいは機材供与による交換部品の調達という対応が妥当であろうと考えられる。アフターケアによる技術協力では、乾燥地緑化のための訓練機能の強化に重点をおいて考えるのが妥当であると判断される。

次に以上の前提で活動を考えると、アフターケア協力のもとに乾燥地緑化のための訓練機能を強化するという1点に焦点が絞られる。乾燥地緑化は、事業的に進められる部分と、林業普及の成果として住民参加の形で進められる植林活動の二つが考えられる。事業的に進められる植林については、林業省内に乾燥地緑化局が新たに設置され重点的に進められていることから、これは予算の問題であって、技術的には若干の試験研究は必要であろうが、これまで森林局に蓄積されてきた技術と関連機関における試験研究の成果で対応できるものと考えられる。林業普及については、これまでミャンマーには林業普及はなかったといっても過言ではないくらいで、今後の取り組みのため人材養成と普及組織作りが重要な課題となっている。また参加型による農民自身による薪炭林造成と植林活動がこれまでのセミナー及びワークショップで取り上げられているが、林業普及のない現状で林業省がどのように参加型普及を進めていくのか大きな課題となっている。

このような状況でアフターケアの活動を考えると、参加型普及手法と社会林業の分野での協力が中心になるものと考えられる。検討結果として作成したのが別添資料9 PDM案である。

**GOVERNMENT OF THE UNION OF MYANMAR
MINISTRY OF FORESTRY
FOREST DEPARTMENT**

**Proposal and Request
for
THE AFTERCARE PROGRAMME
of
CENTRAL FORESTRY DEVELOPMENT TRAINING CENTRE**

September, 1997

**Proposal and Request
for
The Aftercare Programme
of
The Central Forestry Development Training Centre**

1. Background

The technical cooperation scheme between JICA and the Forest Department(FD), Ministry of Forestry, Union of Myanmar had been carried out with remarkable achievements for the Central Forestry Development Training Centre (CFDTC) project. The project was first implemented as a 5-year Technical Cooperation Programme from 1 August, 1990 to 31 July, 1995 and later extended in the form of a 2-year Follow-up Programme from 1 August, 1995 to 31 July, 1997.

During the 7-year period the CFDTC project had successfully accomplished its objectives through the close cooperation between JICA and FD with full support from the Governments of Japan and the Union of Myanmar. In its effort to build up the capacity of the human resources, the project had established, developed and strengthened the technical skill and extension capabilities of in-service personnel as well as those of local people through training schemes in the various fields of forestry with the application of advanced technologies and modern equipments. Furthermore, the project had contributed richly to the socio-economic development of the rural communities through the extension activities of the trained personnel and the local people as indicated by the results of the follow-up field surveys conducted on the ex-trainees during the period of the Follow-up Programme.

2. Current Status

After seven years of technical and financial assistance from and close cooperation with JICA, Myanmar side has gained a great deal of invaluable experience and has built up enough self-confidence to manage the CFDTC and implement the training programmes established and developed at the training centre during the technical cooperation period. Up to the end of July, 1997 150 training courses had been conducted and more than 4000 forestry

personnel and forestry related rural people had been trained with satisfactory results. The CFDTC has added new training courses to the existing ones and currently is conducting 14 types of training courses 29 times for about 800 trainees annually. The CFDTC is peculiar in that, while the other forestry training institutes, have longer training periods with more rigidly fixed curriculum which are focused on basic bio-physical science and technical forestry, the training centre with its excellent facilities has short and varied training courses which are adaptable to fulfil the immediate training needs in the various fields including those of participatory forestry.

The various training courses, tailored to suit their specific purposes, are readily applicable to meet one or the other of the training needs in the various fields, or are versatile enough to be modified to satisfy the immediate and ever changing requirements in the forestry sector. The short nature of the courses, together with results from the after-course evaluations, enables a quick and timely revision and improvement of the curricula. Furthermore, with guidance from the Head Office of FD, CFDTC, to a certain extent is flexible enough to organize new training courses at relatively short notice.

Since participatory forestry courses are included in the ambit of the CFDTC, it is, so far, the only training institute which is conducting training and extensional education to the public in forestry.

3. Future Requirements

Due to its current status and capabilities to meet the immediate training needs in the forestry sector more demands can be expected of the CFDTC to organize and conduct training courses in the future. To fulfil the tasks, the machineries, equipments and other facilities will be used more frequently necessitating a higher input and heavier responsibility to maintain, upkeep and even supplement or replace the existing assets as some of them are approaching the end of their serviceable life. However, due to financial constraints, especially in the acquisition of foreign exchange, some problems and difficulties can be anticipated without continued support from Japan.

Another factor which is of paramount importance is that instead of being static the CFDTC must be a dynamic concern to keep pace with the developments in the forestry sector. One of the most

prominent development in the forestry sector is the greening of the Central Dry Zone which has gained top national priority and is the focal point for the proposed CFDTC phase II project. The programme essentially focuses on community participation in forestry. Its main objectives are to solve the fuelwood problem, restore ecosystem and ensure environmental security, thereby improving the standard of living of the rural poor and making the Arid Zone green and pleasant. Currently, about 30 percent of inservice and one-third of the public trainees at the CFDTC are from the dry zone areas.

The Ministry of Forestry, in its all-out effort to make the Dry Zone greening programme a success, has established a new department in its organization. The Dry Zone Greening Department will take full responsibility in the greening and reforestation programmes and CFDTC will be expected to accept more trainees, both inservice and public, from the Dry Zone. To meet the increased demands and cater for the training needs it is, therefore, essential for the CFDTC not only to maintain and upkeep its facilities but also to promote its technical proficiency in the various fields of forestry, especially forest management for social forestry, forest protection and silviculture.

To fulfil the immediate requirements and also bridge the gap between the completed project and the proposed phase II project the CFDTC is now in urgent and immediate need of financial and technical assistance to properly maintain and upkeep its facilities and also to upgrade and strengthen its technical functions. It is, therefore, requested and proposed that the Government of Japan, as an interim, would consider the resumption of the CFDTC project in the form of the "Aftercare" Programme so as to supplement the activities of the Training Centre and formulate the training curricula to meet the current requirements, especially of the rehabilitation of the Central Dry Zone.

4. Objectives of The Programme.

The main objectives of the Aftercare Programme are to-

- (I) Strengthen and promote the training functions of the CFDTC to meet the immediate needs in the forestry sector, especially of the greening and development of the Central Dry Zone.

- (ii) Properly and efficiently maintain and upkeep the machineries, equipments and facilities of the CFDTC to meet the current and future demands.

5. Proposed Activities

To meet the objectives of the programme the following activities are proposed.

5.1 Training Methods

To satisfy the requirements, especially of the afforestation scheme in the Central Dry Zone, the training programmes must be tailored to suit their specific purposes. It is, therefore, necessary to revise and formulate the curricula of the concerned training courses to be implemented for in-service personnel and the local people.

5.2 Training Courses and Subjects.

Special emphasis will be placed on training courses which are suitable for dry zone reforestation purposes, and will include technical subjects such as forest management, forest protection and silviculture for degraded areas whereas the ambit of social forestry will include subjects like forestry extension, community forestry and people's participation.

5.3 Maintenance of Equipments and Machineries

Equipments and machineries provided during the past project period to facilitate the training programmes will be maintained and supplemented while appropriate new items are provided for the Aftercare Programme.

6. Implementing Organization

The Forest Department, Ministry of Forestry, Union of Myanmar will be responsible for the implementation of the Aftercare Programme while JICA provides the necessary technical and financial assistance.

7. Project Site

The Central Forestry Development Training Centre (CFDTC) at Hmawbi, Yangon Division will continue to be the centre of all activities.

8. Period of the Aftercare Programme

The period of the Aftercare programme will be 2 years starting from the fiscal year 1998-99.

9. Requested Assistance from the Government of Japan

Under the cooperation scheme between the Governments of Myanmar and Japan financial and technical assistances are requested for the following implementation items of the Aftercare Programme.

9.1 Dispatch of Experts

- (i) Two long-term experts, each in the fields of "Training Methods" and "Maintenance of Equipments and Machineries" will be necessary.
- (ii) Two short-term experts each year, to assist in the training programme and conduct the transfer of technology in the fields of forestry extension, social forestry, forest management, protection and silviculture for community forestry.

9.2 Provision of Equipments and Machineries

The appropriate equipments, machineries, accessories and spare parts will be provided for the smooth implementation of the Aftercare Programme.

9.3 Acceptance of Counterparts for Training

Acceptance of three Counterparts for training in Japan each year would be appropriate, and it would be most appreciative if observation tours of related JICA projects in third countries can be arranged to share the experiences.

10. Input by the Government of Myanmar

- 10.1 The former project offices at CFDTTC will be reserved for the Aftercare Programme and a liaison branch office will be arranged by FD in Yangon.
- 10.2 One Project Director and Counterparts for each field of expertise together with the required administrative and supporting staff will be assigned by FD.
- 10.3 Budgetary allocation and expenditure for the maintenance of the CFDTTC premises and running costs for electricity, water supply, fuel, telecommunication, transportation and others required for the smooth implementation of the Aftercare Programme will be arranged by FD.

11. Conclusion and Recommendation

Considering the urgent need to reforest the degraded Central Dry Zone and some technical and financial difficulties to maintain and upkeep the machineries and equipments provided for CFDTTC, it is desired that the Government of Japan would positively consider the proposal for the CFDTTC phase II project as early as situation permits. However, if there are some unpredictable causes that might delay the timely materialization of this project it would be most appreciative if the Government of Japan would alternatively consider the resumption of the CFDTTC project in the form of the Aftercare Programme so as to supplement existing facilities and strengthen the training programmes for the rehabilitation of Central Dry Zone before the Commencement of phase II project.

スーパードール：森林局、乾燥地緑化局、及び一般住民により社会林業活動が行われることにより、森林資源が持続的に管理運営され、住民の生活と環境保全に寄与する

プロジェクト要約	指標	指標入手手段	外部条件
<p>上位目標</p> <p>CFDTCが、国内の林業活動に必要な人材を持続的に養成する。</p>	<p>植林面積 天然林面積 共有林等の数</p>	<p>モニタリング報告書 森林局統計資料</p>	
<p>プロジェクト目標</p> <p>CFDTCの中央乾燥地を対象とした社会林業訓練能力が強化される。</p>	<p>CFDTC職員 CFDTC予算 外部講師</p>	<p>CFDTC年次計画 CFDTC年次報告 森林局予算書</p>	<p>CFDTCの活動が持続的に行われる。</p>
<p>成果</p> <p>1.現場で普及を行う森林局職員及び乾燥地緑化局職員（普及エージェント）に対する社会林業訓練の実施体制がCFDTCに備わる。</p> <p>2.普及エージェントの育成を通してCFDTCの訓練実施能力の有効性が確認される。</p>	<p>1-1.訓練コース 1-2.教材 1-3.稼働機材と施設の状態 1-4.講師の質 2-1.訓練修了者 2-2.訓練修了者のモニタリング結果</p>	<p>1-1.CFDTC年次報告 CFDTC研修計画 1-2.教材 1-3.上記1-1.に同じ 1-4.研修員による事後評価、講師のレポート、専門家によるモニタリングのモニタリング報告 2-1.上記1-1.に同じ 2-2. モニタリング報告書</p>	
<p>活動</p> <p>1-1.現場での情報収集や長期計画との整合性を図りながら訓練ニーズを把握する。</p> <p>1-2.ニーズ把握及び評価結果をもとに訓練計画及びカリキュラムを作成する。</p> <p>1-3.訓練教材を開発・作成する。</p> <p>1-4.社会林業訓練に必要な施設及び機材を適切に維持・管理する。</p> <p>1-5.社会林業を教授する講師の育成のためセミナー・ワークショップ・研修旅行・授業研究を行う。</p> <p>2-1.普及エージェントに対する訓練を実施する。</p> <p>2-2.訓練終了直後に訓練内容を評価し、また訓練修了者のフォローアップ調査を行い、訓練成果をモニタリングすることにより、その結果を訓練計画及びカリキュラムの改訂にフィードバックする。</p>	<p>投入 ミヤンマー側 1.CFDTC職員 2.CFDTC予算 3.他機関からの情報 日本側 1.専門家の派遣 2.研修員受入れ 3.機材及び交換部品の供与 4.一部コストの負担（中堅技術者養成対策費、技術交換費、啓蒙普及活動費）</p>	<p>a.CFDTCへの電気及び車両燃料の供給が確保される。 b.専門家の現場での活動に支障が生じない。</p>	<p>前提条件 中央乾燥地緑化事業に参加型手法が取り入れられる</p>

後書き

調査実施中には、国際協力事業団ミャンマー事務所、在ミャンマー日本国大使館関係機関のみなさまより、ご協力とご支援をいただき、無事調査を終了することができました。またいろいろな情報を提供していただいた、読売新聞造林プロジェクト、日本製紙ヤンゴン事務所、AMDAミャンマー事務所、BAJミャンマー事務所ほか皆様に厚く御礼申し上げます。

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