

The first collaborative project between Ministry of Environmental Conservation and Forestry (MOECAF) represented by the Forest Department and International Corporate (Corporate Social Responsibility) namely, the Moattama Gas Transportation Company Limited (MGTC) representing Total E&P Myanmar (TEPM) and Taninthayi Pipeline Company LLC (TPC) representing PETRONAS Carigali along with Myanmar Oil and Gas Enterprise (MOGE) representing Ministry of Energy (MOE) by using funds derived from the operation of MGTC and TPC gas production facilities to support the establishment and long-term operation of Taninthayi Nature Reserve.

FINAL EVALUATION REPORT- TANINTHAYI NATURE RESERVE

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Acronyms

CAS	California Academy of Sciences
CF	Community Forest
CFDTC	Central Forestry Development Training Centre
EEC	Environmental Education Centre
FD	Forest Department
FEC	Foreign Exchanged Currency
GPS	Global Positioning System
HSE	Health, Safety and Environment
IUCN	International Union for Conservation of Nature
LFA	Logical Framework Approach
LOU	Local Operating Unit
METT	Management Effectiveness Tracking Tool
MGTC	Motamma Gas Transportation Company
MIST	Management Information System
MMK	Myanmar Kyat
MOE	Ministry of Energy
MOECAP	Ministry of Environmental Conservation And Forestry
MOGE	Myanmar Oil and Gas Enterprise
MP	Management Plan
NC	National Consultants
NTFP	Non Timber Forest Products
NWCD	Nature and Wildlife Conservation Division
PA	Protected Area
PAS	Protected Area System
PCC	Project Coordinating Committee

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

PD	Project Director
PPSCS	Parks in Peril Consolidation Scorecard
PQPR	Project Quarterly Progress Report
PTTEP	PTT Exploration and Production Public Company Limited
PW	Park Warden
RAPPAM	Rapid Assessment and Prioritization of Protected Area Management
RMT	Reserve Management Team
TA	Technical Advisor
TC	Technical Committee
TEMP	Total Exploration And Production
TNRP	Taninthayi Nature Reserve Project
TOR	Terms of Reference
TPC	Taninthayi Pipeline Company
UE	United Engineering
USD	United State Dollar
USG	User Group
VCP	Village Consultation Process
VUZ	Village Use Zone
VZP	Village Zonation Process
WCPA	World Commission on Protected Area
WCS	Wildlife Conservation Society

Table of Contents

Acronyms	ii
1 PROJECT DESIGN AND STRATEGY.....	1
1.1 LOCATION	1
1.2 AREA EXTENT	3
1.3 IUCN RED LIST (2012).....	5
1.3.1 IUCN RED LIST CATEGORIES AND CRITERIA	6
1.3.2 IUCN RED LIST Data for TNR.....	6
2 PROJECT EVALUATION STRATEGY FOR TANINTHAYI NATURE RESERVE	10
2.1 PROJECT GOAL	10
2.2 MANAGEMENT OBJECTIVES OF TNR	10
2.3 EVALUATING EFFECTIVE MANAGEMENT OF PROTECTED AREAS	10
2.3.1 Table1. Elements of Evaluation and Criteria	11
2.4 EVALUATION METHODS.....	13
2.4.1 Table 2. Comparison with Management Effectiveness Tracking Tools and Various Evaluation Methods	14
2.5 PERFORMANCE ASSESSMENT.....	16
2.5.1 Table3. Assessment Scores (Management Effectiveness Tracking Tool) ...	16
2.6 EVALUATION RATING.....	17
2.6.1 Table 4. Evaluation Rating	17
2.7 CLARITY AND FEASIBILITY OF OBJECTIVES.....	18
2.7.1 Management Objectives of TNR	18
2.7.2 CONSERVATION ACTIVITIES	19
2.7.3 LAW ENFORCEMENT.....	20
2.8 SUSTAINABILITY QUALITY AND ADEQUACY OF PROJECT STRATEGY	21
3 PHYSICAL PROGRESS, EFFICIENCY AND ADEQUANCY IN TERMS OF DELIVERY OF INPUTS AND OUTPUTS	23

3.1	CONVERSION OF SHIFTING CULTIVATION THROUGH COMMUNITY FORESTRY	23
3.2	VILLAGE USE ZONE FORMATIONS.....	25
3.3	CONTROL HUNTING AND ILLEGAL LOGGING	26
3.4	CONTROL VILLAGE ENCROACHMENTS	27
3.5	CONTROL FOREST FIRE.....	29
3.6	CONDUCT RESEARCH STUDIES BY NATIONAL CONSULTANTS.....	30
3.7	CONDUCT BOUNDARY DEMARCATION	31
3.8	STRENGTHEN CAPACITY BUILDING FOR RESERVE MANAGEMENT TEAM.....	32
3.8.1	TECHNICAL ADVISORS (WCS)	32
3.8.2	TRAINING.....	33
3.8.3	STUDY TOURS.....	35
3.9	UPGRADE INFRASTRUCTURE DEVELOPMENT	36
3.9.1	BUILDINGS.....	36
3.9.2	FIELD EQUIPMENTS	37
3.9.3	VEHICLE, MOTORCYCLE AND BOAT	38
3.10	MONITORING AND EVALUATION.....	38
3.11	LIVING COSTS OF PROJECT STAFF.....	39
4	FINANCIAL ANALYSIS AND PROGRESS	41
4.1	Budget Allocation for 2009-10 to 2012-2013 at TNR.....	41
4.2	YEARLY EXPENDITURE	42
4.3	INVESTMENTS	43
4.4	OPERATION COSTS	45
4.5	MAIN OPERATION EXPENDITURE	46
4.6	PROJECT DIRECT AND INDIRECT COST	50
5	AWARENESS ABOUT THE PROJECT AND BIODIVERSITY CONSERVATION IN MYANMAR	52
5.1	EXTENSION ACTIVITIES	52

5.2	VISIT FROM FOREST INFOM.....	53
5.3	VISIT FROM RECOFTC.....	53
6.	PROJECT ORGANIZATION AND MANAGEMENT	55
6.1	PERSONNEL	55
6.1.1	RESERVE MANAGEMENT TEAM	55
	ORGANIZATION CHART OF TANINTHAYI NATURE RESERVE.....	56
6.2	PROJECT COORDINTING COMMITEE	57
6.3	TECHNICAL COMMITTTEE (TC)	58
6.4	STAFF TRANSFERS.....	60
6.4.1	Staff Transfers from / to Taninthayi Nature Reserve during 2011 and 2012	60
7.	QUALITY AND EFFECTIVENESS OF COORDINATING MECHANISM	63
7.1	COMMUNICATION	63
	MONTHLY SITE LEVEL MEETING AT GANGAWTAUNG OFFICE	63
	Responsible Persons attending the meeting	63
8.	DISCUSSION AND RECOMMENDATIONS	66
8.1	LEGAL STATUS	67
	Recommendation 1:	67
	Recommendation 2:	68
	Recommendation 3:	68
8.2	PROTECTED AREA REGULATION.....	68
	Recommendation 4:	68
	Recommendation 5:	69
	Recommendation 6:	69
8.3	LAW ENFORCEMENT	69
	Recommendation 7:	69
	Recommendation 8:	70
8.4	PROTECTED AREA OBJECTIVES	70

Recommendation 9:	70
8.5 PROTECTED AREA DESIGN	71
Recommendation 10:.....	71
8.6 PROTECTED AREA BOUNDARY DEMARCATION	71
Recommendation 11:.....	72
8.7 MANAGEMENT PLAN.....	72
Recommendation 12:.....	72
Recommendation 13:.....	72
8.8 REGULAR WORK PLAN.....	72
Recommendation 14:.....	73
8.9 RESOURCE INVENTORY	73
Recommendation 15:.....	73
Recommendation 16:.....	73
8.10 PROTECTION SYSTEM	73
Recommendation 17:.....	74
Recommendation 18:.....	74
Recommendation 19:.....	74
8.11 RESEARCH.....	74
Recommendation 20:.....	75
Recommendation 21:.....	75
8.12 RESOURCE MANAGEMENT	75
Recommendation 22:.....	76
Recommendation 23:.....	76
8.13 STAFF NUMBERS	76
Recommendation 24:.....	76
8.14 STAFF TRAINING	77
Recommendation 25:.....	77

Recommendation 26:.....	77
8.15 CURRENT BUDGET	77
Recommendation 27:.....	77
8.16 SECURITY OF BUDGET	78
Recommendation 28:.....	78
8.17 MANAGEMENT OF BUDGET.....	78
Recommendation 29:.....	78
Recommendation 30:.....	78
8.18 EQUIPMENT	79
Recommendation 31:.....	79
8.19 MAINTENANCE OF EQUIPMENT	79
Recommendation 32:.....	80
8.20 PERSONNEL MANAGEMENT	80
Recommendation 33:.....	80
8.21 EDUCATION AND AWARENESS	81
Recommendation 34:.....	81
8.22 COMMUNICATIONS AND OUTREACH.....	81
Recommendation 35:.....	82
8.22 LOCAL COMMUNITIES (INCLUDING INDIGENOUS PEOPLE)	82
Recommendation 36:.....	82
8.24. ADDITIONAL POINTS LOCAL COMMUNITIES / INDIGENOUS PEOPLE	82
Recommendation 37:.....	83
8.25 MONITORING AND EVALUATION	83
Recommendation 38:.....	83
8.26 ECONOMIC BENEFIT	83
Recommendation 39:.....	84
Recommendation 40:.....	84

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

Recommendation 41:.....	84
8.27 FINANCIAL ANALYSIS	84
Recommendation 42:.....	84
Recommendation 43:.....	85
8.28 LOGICAL FRAMEWORK	85
Recommendation 44:.....	85
8.29 MID-TERM REVIEW	85
Recommendation 45:.....	86
9. CONCLUSION	86
6 REFERENCES	131

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

1 PROJECT DESIGN AND STRATEGY

Myanmar is rich in biological diversity as a result of its wide range of conditions in a tropical region, containing 251 known mammal species, 1056 bird species, 11, 800 different flowering plants.

Taninthayi Nature Reserve was established and legally notified by Ministry of Environmental Conservation and Forestry (MOECF) on the 30th of March 2005 with an area of about 170,000 ha covering relatively undisturbed tropical rainforests including pipeline corridor of Moattama Gas Transportation Company Limited (MGTC) and Taninthayi Pipeline Company LLC (TPC) as a protected area under prevailing policy and laws with the aim at conserving tropical rainforests and their constituent biodiversity in the Taninthayi region of southern Myanmar.

This is the first collaborative project between MOECF represented by the Forest Department and International Corporate (Corporate Social Responsibility) namely, the Moattama Gas Transportation Company Limited (MGTC) representing Total E&P Myanmar (TEPM) and Taninthayi Pipeline Company LLC (TPC) representing PETRONAS Carigali Myanmar Limited (PCML) along with Myanmar Oil and Gas Enterprise (MOGE) representing Ministry of Energy (MOE) by using funds derived from the operation of MGTC and TPC gas production facilities to support the establishment and long-term operation of Taninthayi Nature Reserve. Lately, PTT Exploration and Production Public Company Limited (PTTEP) the fellow Oil and Gas Company joined the consortium and will co-finance the project starting from the next phase.

1.1 LOCATION

Taninthayi Nature Reserve is situated in Dawei District, Taninthayi Division, between the Dawei River and Myanmar-Thailand border, between latitudes 14° 20' 50" and 14°

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

57' 55" North and between longitudes 98° 5' 10" and 98° 31' 32" East. Administratively, its location is in Yebyu and Dawei Townships of Dawei District in the northern part of Taninthayi Division in the southern Myanmar (see fig.1).



FIGURE 1 LOCATION OF TANINTHAYI NATURE RESERVE

1.2 AREA EXTENT

The area of Taninthayi Nature Reserve comprises two forest reserves, viz., the eastern parts of Heinze / Kaleinaung Reserve Forest 85,725 ha (211,836 acre) and Luwaing Reserve Forest 84,273 ha (208,240 acre). This area encompasses approximately 1,700 square kilometers (657 square miles) or 170,000 ha (420,077 acres). The size of this area is one of the largest protected areas compared to other countries of the region. It lies in the Ecoregion of Tenasserim-South Thailand Semi-Evergreen Rain Forests and harbors globally outstanding levels of species richness according to Ecoregions of WWF (fig.2).

According to WWF-2002 Terrestrial Ecoregions of the Indo-pacific, Taninthayi Nature Reserve lies within the Ecoregion number (53) namely, Tenasserim-South Thailand Semi-Evergreen Rainforest. This ecoregion encompasses the mountainous, semi-evergreen rainforests of the southern portion of the Tenasserim Range, which separates Thailand and Myanmar.

H.C Smith (1926) reported that the vegetation of the Heinze / Kaleinaung reserve included seven different forest types namely

- ◆ Giant evergreen forest,
- ◆ Sub evergreen forest,
- ◆ Moist deciduous forest,
- ◆ Riverine forest,
- ◆ Dry deciduous forest,
- ◆ Hill evergreen forest, and
- ◆ Tidal forest.

The giant evergreen forest occupied all ground between elevations of 500 feet and 1000 feet. The sub evergreen forest and moist deciduous forest covered almost all ground below and elevation 500 feet. Riverine forest occupied along the narrow bank of the streams and Dry deciduous forest on the top of some of the low ridges and spurs on the bank of Tavoy (Dawei) River. Hill evergreen occupies on the tops of the ridges and spurs above the elevation of 2000 feet. Ka-ban (*Anisoptera costata*), Kaungmu (*Anisoptera* sp.), Ka-dut (*Dipterocarpus* sp.) were giant trees and occupied the canopy and Shitle (*Swintonia floribunda*), Che (*Melanorrhoea glabra*), Tha-bye-ni (*Eugenia grandis*), Thit-ka, Thit-sho, Thin-gan (*Hopea* sp.), Ta-gat (*Dysoxylum grande*), San-ga (*Michelia champaca*), Taung-bein (*Artocarpus calophylla*), Kanazo (*Baccaurea sapida*),

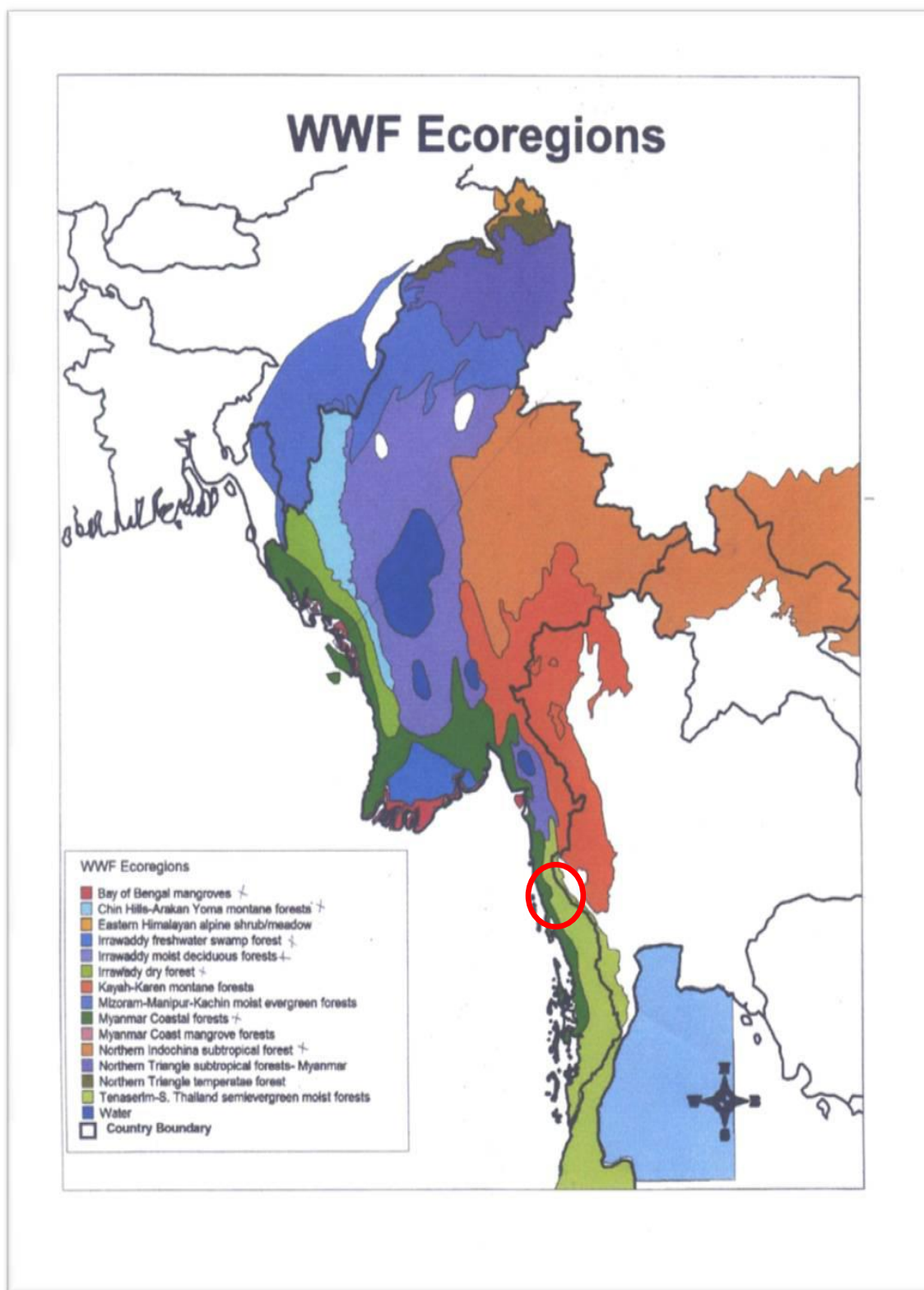


FIGURE 2 ECOREGIONS OF WWF

Karawe (*Cinnamomum inunctum*) occupied the second storey. The smaller trees and evergreen shrubs occupied the understory. Bamboo may or may not be present. Mostly they occupied on very steep slopes below 500 feet.

Nyo Maung et al., (2011) clearly confirmed that the vegetation and composition of tree species in the TNR still exists as described by Smith (1926), 85 years ago. However the land cover and land use have been changed over time. The population of each species concerned also decline due to logging, both legal and illegal.

During the first phase of the project, research projects for Mammals (Ye Htut et al., 2008), birds (Nay Myo Shwe et al., 2008) and flora (Hla Maung Thein, 2007) were conducted by national consultants. During the second phase of the project, research programs were conducted more specifically for individual flagship species such as Tiger, Tapir, and Elephant. Studies on Trees and Bamboo, Orchids, Medicinal plants and Forest Dynamics of Dipterocarp species were also conducted. Based on the data obtained from such research studies the relevance of the project to global, regional and national conservation is evaluated against IUCN Red List Data for Myanmar (2012).

1.3 IUCN RED LIST (2012)

For evaluating the conservation status of plant and animal species, the IUCN Red List of Threatened Species™, is recognized as the most comprehensive and objective approach, worldwide. IUCN Red List is now playing an increasing and prominent role in guiding conservation activities of governments, NGOs and scientific institutions all over the world.

IUCN was initiated in 1994, based on scientifically rigorous approach in order to determine the risk of extinction, which is applicable to all species and is now considered as a world standard. In order to produce the IUCN Red List of Threatened Species™, IUCN Species Program is working with IUCN Survival Commission (SSC) together with a network of scientists and partner organizations, working in almost every country in the world, based on the most complete scientific knowledge on the biology and conservation status of species.

The goals of the IUCN Red List are to:

- ◆ Identify and document those species most in need of conservation attention, if global extinction rates are to be reduced; and

- ◆ Provide a global index of the state of change of biodiversity.

1.3.1 IUCN RED LIST CATEGORIES AND CRITERIA

The IUCN Red List Categories and Criteria were extensively reviewed between 1997 and 1999. The revised Categories and Criteria were adopted by IUCN Council in February 2000 and the revised system came into use in 2001.

The following are the categories adopted for IUCN Red List:

- ◆ CR Critically Endangered
- ◆ EN Endangered
- ◆ VU Vulnerable
- ◆ NT Nearly Threatened
- ◆ DD Data Deficient

1.3.2 IUCN RED LIST Data for TNR

The following tables and figures provide IUCN Red List of TNR compared to Myanmar Data for Birds, Mammals and Trees.

IUCN RED LIST FOR BIRDS						
Category	CR	EN	VU	NT	DD	Total
Myanmar	7	10	21	83	1	122
TNRP	-	2	4	9	-	15

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

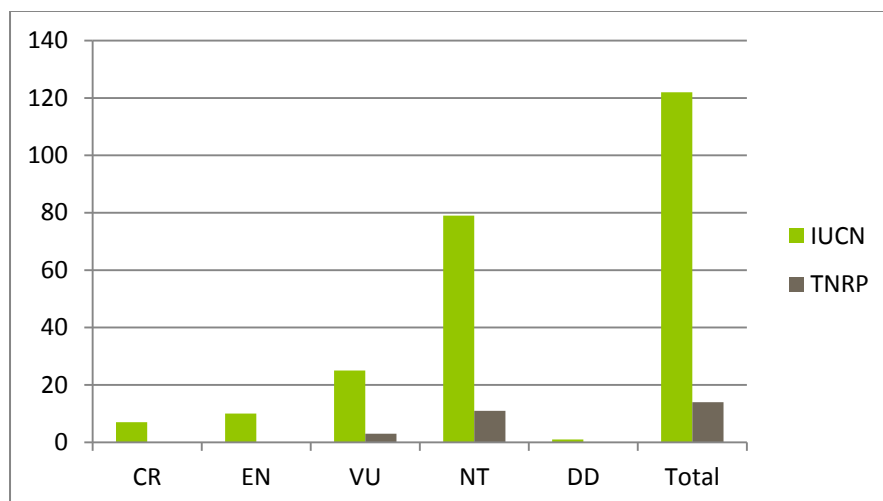


FIGURE 3 LIST OF IUCN RED LIST DATA FOR MYANMAR AND TNRP FOR BIRDS

IUCN RED LIST FOR MAMMALS						
Category	CR	EN	VU	NT	DD	Total
Myanmar	2	16	20	11	5	54
TNRP	2	6	11	6	2	27

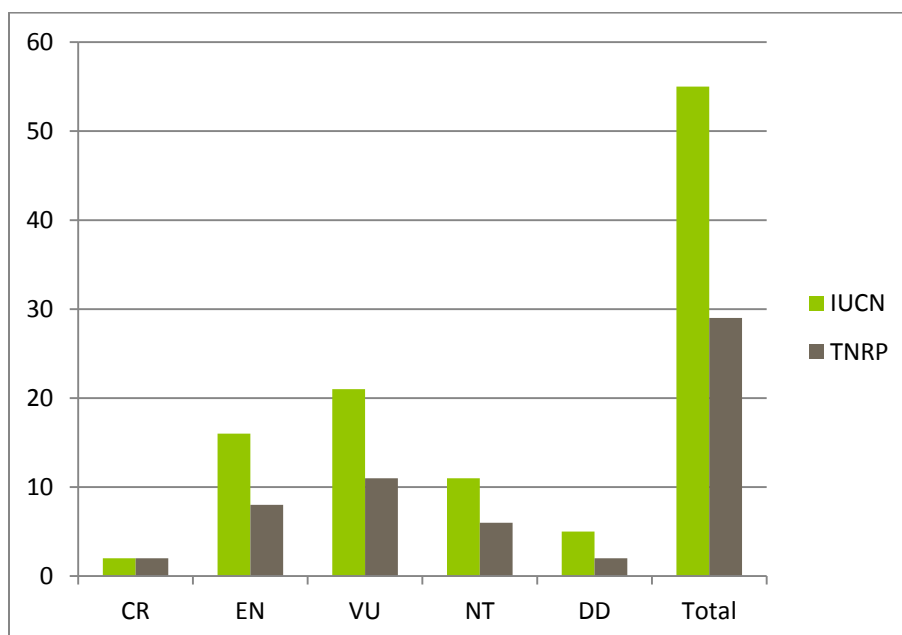


FIGURE 4 LIST OF IUCN RED LIST DATA FOR MYANMAR AND TNRP FOR MAMMALS

IUCN RED LIST FOR TREES						
Category	CR	EN	VU	NT	DD	Total
Myanmar	14	10	12	8	3	47
TNRP	3	4	6	-	-	13

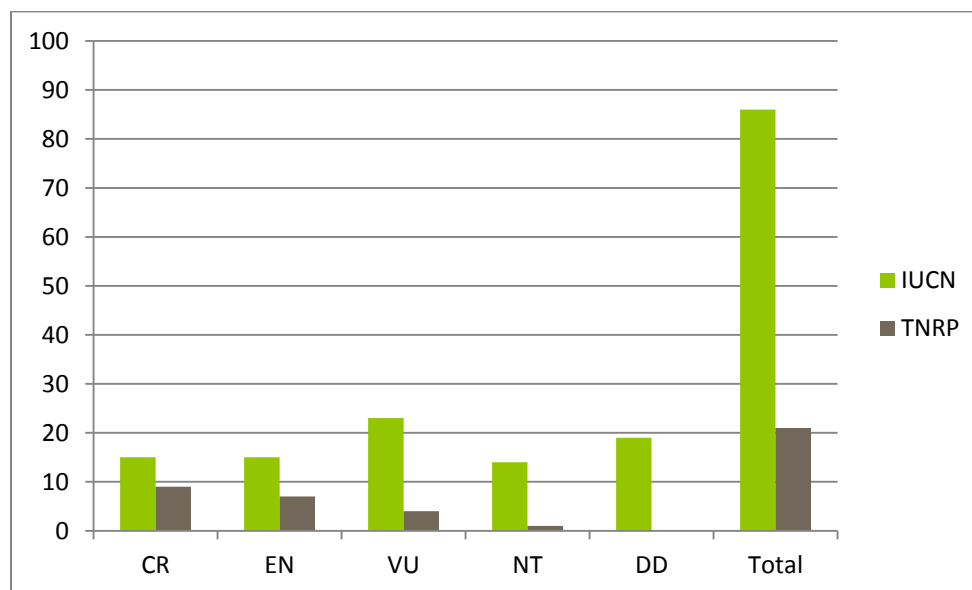


FIGURE 5 LIST OF IUCN RED LIST DATA FOR MYANMAR AND TNRP FOR TREES

As a result of the great variation in rainfall, temperature, complex river systems, and topography, there are several ecosystems in Myanmar. The following ecosystems are recognized:

- 1) Forest Ecosystem
- 2) Mountain Ecosystem
- 3) Dry and Sub-humid Land Ecosystem
- 4) Estuarine Mangrove Ecosystem
- 5) Inland Fresh Water Ecosystem
- 6) Grassland Ecosystem
- 7) Marine and Coastal Ecosystem
- 8) Small Island Ecosystem

Among the ecosystems, forests are considered to be integral for the stability of the environment in Myanmar.

One of the most species-rich forest types in the country is tropical evergreen forest. It is distributed in areas of high mean annual rainfall and low seasonality, predominantly close to the coast. A species-rich tree flora, dominated by members of the *Dipterocarpaceae*, characterizes this forest type. Good accessibility and the availability of high-value timber species have made tropical evergreen forests a major focus of commercial logging throughout mainland South-East Asia, and large areas have been degraded or cleared due to human interference. Some of the most extensive intact areas remaining in the region are observed in Taninthayi Region, inclusive of Taninthayi Nature Reserve in the south of the country, although these areas are under severe and immediate threat of conversion to other land use types like oil palm and rubber plantations.

The biological values of Myanmar's natural habitats and ecosystems have been recognized by a number of global conservation priority setting exercises. For instance, the country includes all or part of seven Global 200 Ecoregions defined by World Wildlife Fund (WWF). Also, the area has been identified by WWF as one of the threatened terrestrial ecosystems of the world and particularly as this area is connected to the Western Forest Complex of Thailand, it will be of significance for one of the important trans-border protected areas in Asia.

As Taninthayi Nature Reserve is situated in Ecoregion number (53), viz., Tenasserim South Evergreen Rainforest, it consists mainly of evergreen rainforests of the southern portion of the Taninthayi range. It can be observed from fig. 3, 4 and 5, a considerable quantity of critically endangered as well as endangered species of birds, mammals and trees existed which gives indication that TNR can be considered as an integral part of not only Myanmar's Protected Areas System but also quite relevant for global, regional and natural conservation priorities.

2 PROJECT EVALUATION STRATEGY FOR TANINTHAYI NATURE RESERVE

2.1 PROJECT GOAL

To effectively conserve and maintain the biodiversity of nature reserve, while contributing to the sustainable livelihood of local communities by getting involved in conservation works and to contribute to the establishment of Myanmar's Protected Areas network (total coverage 5% of total country area in the medium-term, 10% in the long term).

2.2 MANAGEMENT OBJECTIVES OF TNR

The management objectives of TNR as mentioned in TNR Management Plan are as follows (TNR Management Plan, 2009):

- ◆ To preserve all natural habitat types and populations of important native species and globally- threatened flora and fauna,
- ◆ Improve appreciation and understanding of biodiversity and socio-economic values of TNR amongst stakeholders at all levels,
- ◆ Effectively engage local communities in management planning and implementation of conservation activities at the Village Use Zone of TNR,
- ◆ Enhance the capacity of TNR management team so as to effectively manage the natural resources of the TNR and successfully implement conservation activities
- ◆ Conduct targeted biological survey/research to obtain relevant data that are essential for reviewing and revising TNR Management Plan at four-year interval
- ◆ To implement the conservation activities, law enforcement activities with the aims of reducing threats to TNR

2.3 EVALUATING EFFECTIVE MANAGEMENT OF PROTECTED AREAS

Good management of a protected area needs a thorough understanding of the activities related to a cyclical process with six stages or elements. It should be carefully planned and implemented which requires regular monitoring, leading to changes in management as required (WCPA, 2006). It begins with the understanding of the following elements of evaluation and criteria to be assessed:

2.3.1 Table1. Elements of Evaluation and Criteria

Elements of evaluation	Explanation	Criteria that are assessed	Focus of evaluation
Context	<i>Where are we now?</i> Assessment of importance, threats and policy environment	<ul style="list-style-type: none"> ◆ Significance ◆ Threats ◆ Vulnerability ◆ National Context ◆ Partners 	Status
Planning	<i>Where do we want to be?</i> Assessment of protected area design and planning	<ul style="list-style-type: none"> ◆ Protected areas legislation and policy ◆ Protected areas system design ◆ Reserve Design ◆ Management Planning 	Appropriateness
Inputs	<i>What do we need?</i> Assessment of resources need to carry out management	<ul style="list-style-type: none"> ◆ Resourcing of agency ◆ Resourcing of site 	Resources
Processes	<i>How do we get about it?</i> Assessment of the way in which management is conducted	<ul style="list-style-type: none"> ◆ Suitability of management processes 	Efficiency and appropriateness
Outputs	<i>What were the results?</i> Assessment of the implementation of management programmes and actions: delivery of products and services	<ul style="list-style-type: none"> ◆ Results of management actions ◆ Services and products 	Effectiveness
Outcomes	<i>What did we achieve?</i> Assessment of the outcomes and the extent to which they achieved objectives	<ul style="list-style-type: none"> ◆ Impacts: effects of management in relation to objectives 	Effectiveness and appropriateness

2.4 EVALUATION METHODS

The following methods are frequently applied in evaluating management effectiveness of protected areas. These methods are as follows:

- ◆ Management Effectiveness Tracking Tool (METT)
- ◆ Parks in Peril Consolidation Scorecard (PPCS)
- ◆ Rapid Assessment and Prioritization of Protected Area Management (RAPPAM)
- ◆ IUCN-WCPA

Among various evaluation methods, “Management Effectiveness Tracking Tool” will be adopted in this study using score cards modified to suit the requirements of TNR because of its broader scope and comprehensiveness compared to other methods.

2.4.1 Table 2. Comparison with Management Effectiveness Tracking Tools and Various Evaluation Methods

Sr.	Framework	Management Effectiveness Tracking Tool ¹	Parks in Peril (PPSCS) ²	RAPPAM ³	IUCN-WCPA3
1.	Context	1. Legal status	Land tenure/ Policy development	Threats, Biological importance, socioeconomic importance, Vulnerability, Protected area policies, Policy environment	Assessment of importance, threats and policy environment
2.	Planning	2. Protected Area regulation 3. Protected Area objectives 4. Protected Area design 5. Management Plan 6. Monitoring and evaluation	Reserve Zoning and buffer zone management Threat analysis /Management Plan Monitoring plan development and implementation /Management committee /Technical advisory	Protected area objectives Legal security, Site design and planning, Protected area system design	Protected area design and planning
3.	Inputs	7. Law enforcement 8. Resource Inventory 9. Staff numbers 10. Staff training 11. Current budget	On-site personnel Training Long term financial plan	Staff communication and information Infrastructure Finance	Resources needed for management

¹ WWF 2007: *Management Effectiveness Tracking Tool*² *The Nature Conservancy 1999: Measuring Success: The Parks in Peril Site Consolidation Scorecard Manual*³ Hosking et. Al. 2006: *Evaluating Effectiveness: A framework for assessing management effectiveness of protected areas. 2nd edition*

Sr.	Framework	Management Effectiveness Tracking Tool ¹	Parks in Peril (PPSCS) ²	RAPPAM ³	IUCN-WCPA3
		12. Security of budget			
4.	Processes	13. PA boundary demarcation 14. Research 15. Resource Management 16. Management of budget 17. Maintenance of equipment 18. Education and awareness 19. Indigenous people 20. Local communities 21. Personnel Management	Physical infrastructure/PA status Science and information needs assessment Physical infrastructure Physical infrastructure Environmental education programme NGO self sufficiency plan/ Community involvement in resource use	Research Monitoring and evaluation Management practices	Assessment of the way in which management is conducted
5.	Output	22. Regular work plan		Threat prevention, site restoration, wildlife management, Community outreach, Infrastructure outputs, planning outputs, monitoring, training, research	Assessment of the implementation of management programmes and actions, delivery of products and services
6.	Outcomes	23. Protection systems 24. Economic benefit 25. Communication and Outreach	Pressures		Effects of management in relation to objectives

2.5 PERFORMANCE ASSESSMENT

The assessment scores for the performance of the TNR project is presented in table 1. The assessment is made by assigning a simple score ranging between 0 (poor) to 3 (excellent). A series of four alternate answers are provided against each question to help assessors to make judgments as to the level of score given. In addition there are supplementary questions which elaborate to key themes in the previous questions and provide additional information and points. Questions that are not relevant to a particular protected area are omitted.

Hence, the maximum score of 25 questions and 6 supplementary questions is (75+6) 81. A final total % score from current assessment can be calculated as 75% which indicated that the performance of TNRP is satisfactory. However, there is still room for improvement at the later stages of the project.

2.5.1 Table3. Assessment Scores (Management Effectiveness Tracking Tool)

Issues	Score
1. Legal status	3
2. Protected area regulations	2
3. Law enforcement	2
4. Protected area objectives	2
5. Protected area design	2
6. Protected area boundary demarcation	2
7. Management plan	3
7a. Planning process	1
7b. Planning process	1
7c. Planning process	1
8. Regular work plan	2
9. Resource inventory	2
10. Protection systems	2
11. Research	2

12. Resource management	2
13. Staff numbers	3
14. Staff training	2
15. Current budget	3
16. Security of budget	3
17. Management of budget	2
18. Equipment	2
19. Maintenance of equipment	2
20. Personnel management	2
21. Education and awareness	2
22. Communication and Outreach	2
23. Local communities and Indigenous people	2
23 a. Impact on communities	1
23b. Impact on communities	1
23c. Impact on communities	1
24. Monitoring and evaluation	2
25. Economic benefit	2
Total score	61
Maximum score	81
(%) Total Score	75%

2.6 EVALUATION RATING

Evaluation of TNR Project is assessed on a five - point scale with the following scores:

2.6.1 Table 4. Evaluation Rating

Scores	Rating
< 40	Unsatisfactory
41-55	Moderately unsatisfactory
56-70	Moderately satisfactory

71-85	Satisfactory
> 85	Highly Satisfactory

Detail scores are provided in appendix 1 for easy reference.

2.7 CLARITY AND FEASIBILITY OF OBJECTIVES

2.7.1 Management Objectives of TNR

Although the objectives of management plan of TNR intends to preserve all natural habitat types and populations of important native species and globally threatened flora and fauna, due to security reasons it is not possible to reach the southern and northern parts of the project area for the time being. Nevertheless, during the current year, reserve boundary demarcation activities were able to carry out in the southern part of the reserve. For the remaining reserve boundary in the northern part of the reserve, the Project Director negotiated with 'Mon Pyi Thit Party' on 18-1-2013 and organized one presentation about the project activities of TNR and forest fire control in Myaukchaw village, which is one of the villages inside the Core Zone of TNR. There are altogether 9 villages inside TNR consisting of 464 households. The communities would like to have assistance for education, health, water and livelihood matters from TNR. They were also quite concerned about forest fire problem. They had prior consent from Norwegian Government for assisting health, education, infrastructure development and water supply situations. They had requested TNR to establish tree nursery for planting out denuded hills around villages with forest seedlings such as pyinkado seedlings. They would also like to establish firewood plantations in the vicinity of their villages as it is very difficult to collect firewood in the nearby forests which are highly depleted. So far RMT had negotiated with 'Mon Pyi Thit Party' for laying out boundary demarcation for the northern boundary and the demarcation had started in February and is in good progress.

In order to improve the appreciation and understanding of biodiversity and socioeconomic activities of TNR amongst stakeholders at all levels bimonthly site level meetings are organized and so far 10 site level meetings were held for exchange of experiences particularly between Socio-Eco program of MGTC and TNR. Responsible persons such as Project Director and Park Warden from TNR organized such meeting with the participation of concerned authorities from MOGE, MGTC, TPC and lately PTTEP joined the meetings.

In order to effectively engage local communities in management planning and implementing of conservation activities at Village Use Zone, training on Village Consultation Process (VCP) and Village Zonation Process (VZP) were held at 3 villages, Yebon, Kyaukshut and Zinba villages by WCS in 2010. VCP process was replicated to additional 9 villages by Extension Staff of TNRP in 2011 using participatory methods and villagers were found to be quite willing to involve in such programs.

In order to enhance the capacity of TNR management team so as to effectively manage natural resources of TNR and successfully implement conservation activities, in-house trainings as well as specific trainings were conducted by TNRP, WCS and Socio-Eco of MGTC.

To preserve all natural habitat types and populations of important native species and globally threatened flora and fauna, biological survey/ research studies were carried out by the National Consultants to find out and assess the biodiversity status of TNR. In order to find out the quality of the survey reports, the Technical Advisor, Robert Tizard (WCS) made the following remarks:

“I was very impressed by the quality of the reports overall. I think the national consultants have done an excellent job documenting historical information and documenting their own work. Overall I think the recommendations made are excellent, my main worry is the process of how the nature reserve can capture this information and integrate it for management purposes”.

The research data obtained during the course of study together with recommendations should be properly stored in a database system which should be used for reviewing and revising TNR Management Plan for the next 4 years, otherwise it will get lost over time.

2.7.2 CONSERVATION ACTIVITIES

Boundary demarcation program was supposed to be completed during the first phase of the project. However, due to security reasons, it was delayed up till now. The Project

Director had already negotiated with 'Mon Pyithit Party' to complete the remaining boundary demarcation activity of 40 miles in the northern part of TNR. In order to implement the conservation activities boundary demarcation is essential to define the area where villagers are made aware of the extent to which they can exercise their rights in Community Forestry operations or in the Village Use Zone for their day to day needs of forest produce. Boundary demarcation was carried out and completed in the southern part of TNR and some progress made in the northern part by end February, 2013.

2.7.3 LAW ENFORCEMENT

Law enforcement activities were carried out regularly at TNR. Patrolling at in and around TNR, service track and surprised checks were carried out at bus stations, market places and food stalls concerning seizure of wild meat and food. One interesting program concerning law enforcement is the gun control program. Normally, the local communities hold muzzle-loaders (local-made guns) to keep out wild animals from damaging their crops. After consultation with TNR they finally made up their mind to hand over 190 muzzle-loaders from 5 villages and under protective custody at LOUs during the closed season and collect their guns, only during the season when their crops ripen for protecting their crops.



Confiscation of timber



Local made guns at LOUs

Lately, WCS introduced Spatial Monitoring and Reporting Tool (SMART) for application in the field of law enforcement, monitoring and conservation of PAs. SMART has been developed by global conservation organizations such as WCS, WWF, ZSL, MIKE and CITES in close collaboration with protected area authorities and other key stakeholders. One important fact is that SMART will be freely available to the entire conservation

community. SMART has been evolved to response the escalated illegal killing and trading of endangered species such as tigers, rhinos, elephants and also for destroying their habitats. SMART will empower staff, boost staff motivation, increase patrol efficiency and promote transparency of monitoring mechanism. The quantitative measurements help improve the effectiveness of law enforcement and accountability as well as contribute to cost-effectiveness and motivation of field staff.

2.8 SUSTAINABILITY QUALITY AND ADEQUACY OF PROJECT STRATEGY

In Myanmar, assistance for the development of Wildlife and Nature Conservation program had been provided by UNDP/FAO from the early 1980's through 1990s. Since then Myanmar Government has been expanding the Myanmar Protected Areas (MPAs) primarily using its own resources. Recently, the International Conservation NGOs participated, but only in a modest scale.

TNRP is the one and only conservation project with the involvement of donors from Oil and Gas companies in Myanmar supporting for the planning, establishment and operation of TNR. The fellow gas companies take this opportunity, to explore new type of partnership and new mechanism for joint Public / Private sector funding and operation of protected area in Myanmar. The basic strategy of the project is to use funding derived from the operation of the MGTC and TPC gas pipelines operations with funding to be provided for a period, expected to be approximately 30 years based on the estimated life of the pipelines' operation. With the participation of another gas company, PTTEP, it can be assured that additional funding will flow in with the same amount with the same time-frame of 30 years, such that the sustainability of the project is really assured.

The objective of TNRP is not only to help develop protection and sustainable management of significant ecosystems and endangered wildlife systems. It will also take into consideration of the improvement of the livelihood of local communities in the vicinity of TNR to have rights to participate and develop actively for the promotion of material, spiritual and benefits for them. This challenging issue requires changes in the way of thinking, looking, working and understanding what genuine partnership might mean particularly for Private Public Partnership (3P).

During 2011 in TNRP five User Groups got Community Forestry Certificates and lately, it was quite inspired hearing from the Director, Forest Department of Taninthayi Region, that possibly at least 2 additional CFs certificates could be approved before the end of March, 2013.

3 PHYSICAL PROGRESS, EFFICIENCY AND ADEQUANCY IN TERMS OF DELIVERY OF INPUTS AND OUTPUTS

The physical progress of the project activities during the project period from 2009 to 2013 was provided as follows:

3.1 CONVERSION OF SHIFTING CULTIVATION THROUGH COMMUNITY FORESTRY

Sr. No.	Village	Area (acres)	No. of User Group	Status	
				TRNP	FD
1	Michaunlaung (Old)	3332	76	-	Certificate awarded
2	Zinbar (1)	2167	60	-	Certificate awarded
3	Zinbar (2)	751	30	-	Certificate awarded
4	Yebone	1128	76	-	Certificate awarded
5	Tharyarmon	1052	73	-	Certificate awarded
6	Zinbar (3)	1281	20	MP Submitted	Awaiting Certificate
7	Hnankye	168	17	2012-13	Formation of USGs
8	Thetkekewet	300	19	2012-13	Formation of USGs
9	Padaukkone	280	16	2012-13	Formation of USGs
10	Kyaukshat	2127	86	MP Submitted	Awaiting Certificate
11	Yarphu (new)	2923	65	MP Preparation	To submit MP
12	Mile 60	787	30	2012-13	Formation of USGs
	Total	16296	568		

During the mid-term review there were altogether 12 villages involved in the process of certification for Community Forestry. Out of 12 USGs, 5 CF certificates were awarded

for CF certificates in 2011. Afterwards, the target of additional 5 USGs was reduced to 3 USGs in 2012. The current status of CF in TNRP is as follows:

Sr.	Activities	Unit	Target	Done	%
1.	Establish Community Forestry				
1.1	Formation of User Groups	USGs	12	12	100%
1.2	CF Area Traverse Survey	USGs	12	10	83%
1.3	Submission of application	USGs	12	8	67%
1.4	Village Meetings	Times	60	214	357%
1.5	Management Plan Formulation	USGs	8	8	100%
1.6	Certification	USGs	8	5	63%

The reason for not awarding CF certificates in 2012-13 was not due to the inefficiency of TNRP but solely due to the frequent changes in certification procedures of the Forest Department.

3.1.1 FOREST TREE SEEDLINGS REQUESTED FROM COMMUNITY FORESTS

The number of tree seedlings requested from CF areas and their survival in December counting, 2012 was as follows:

Sr.	Name of CF	Requested seedlings		Acreage	Survival %
		Pyinkado	Mahawgani		
1.	Migyaunglaung	1700	950	40.5	95%
2.	Zinba (1)	650	400	26	100%

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

3.	Zinba (2)	200	200	9.5	73%
4.	Zinba (3)	1000	1200	22.5	71%
5.	Yebon	1080	-	2	93%
6.	Thayarmon	1200	800	-	-
7.	Thetkegwet	600	-	2	69%
8.	Kyaukshut	300	150	2	61%
	Total	5920	3600	104.5	-

3.1.2 STATUS OF CASH CROPS REQUISITION, DISTRIBUTION AND SURVIVAL AT CFS

Sr.	CF Area	Seedling Requested				Seedling Distributed			
		Wa-U	Lime		Cocoa	Wa-U	Lime		Cocoa
			Graft	Seed			Graft	Seed	
1.	MGL	6600	-	650	-	-	250 (82%)	200 (100%)	-
2.	ZBA 1	1500	-	960	-	-	-	300 (91.3%)	-
3.	ZBA 2	3400	-	1200	-	-	250 (59%)	200 (81%)	-
4.	ZBA 3	1200	-	1500	-	-	-	300 (83%)	-
5	YBN	500	-	1319	4500	-	-	300 (75%)	1000 (83%)
	Total	13200	-	5629	4500	-	500	1300	1000

3.2 VILLAGE USE ZONE FORMATIONS

According to the Operational Management Plan Village Use Zone (VUZ) is designated as areas surrounding established villages, usually with a radius of 1-2 km, where traditional land use , including agriculture, gathering of forest produce are allowed, except hunting of protected species. WCS had developed Village Consultation Process (VCP) and Village Zoning Process (VZP) in 2011 and during 2012 Village Land Use Map preparation was organized in 3 villages using participatory methods. Based on the

village land use map, the next step is to develop the Community Based Natural Resource Management (CBNRM). For proper functioning of VUZ, procedures and forms for extraction of timber and NWFP such as bamboos are required. A meeting was organized in 2-12-2012 by the Park Warden and Forest Department officials from Dawei District and Yebyu township for the development of forms for application of timber and NWFP for household use from VUZ for the villagers. So far the progress is quite satisfactory.

Sr.	Activities	Unit	Target	Done	%
1.	Village Use Zone Formation				
1.1	Awareness Talks				
	1.1.1 Administrative Body	Time	3	3	100%
	1.1.2 Villagers	Village	10	10	100%
1.2	Village Consultation Process	Village	10	12	120%
1.3	Participatory Exploration	Village	5	5	100%
1.4	Mapping	Village	3	3	100%
1.5	Procedure Development	Village	3	-	-

3.3 CONTROL HUNTING AND ILLEGAL LOGGING

Controlled of effective law enforcement was carried out in and around nature reserve by patrolling team on monthly basis. Although 288 times of patrols was planned to perform, actual performance far exceed planned activities by 477 times. Village meeting for raising awareness amongst local communities of the impacts of unsustainable wood and NTFPs and potential benefits of regulated exploitation was found to be low in comparison to the planned targets. Surprised checks and checks at service track and pipeline were found to be in accordance with the plan. Study patterns of wood and non-wood forest product for subsistence use was also performed at 30 villages in and around TNR.

Sr.	Activities	Unit	Target	Done	%
1.	Conduct effective law enforcement and patrolling in and around nature reserve	Time	288	477	166%
2.	Raise awareness amongst local communities of the impacts of unsustainable wood and NTFPs and potential benefits of regulated exploitation	Village	30	19	63%
3.	Service track and pipeline check	Time	48	46	95%
4.	Surprised check	Time	96	94	96%
5.	Study patterns of wood and non-wood forest product for subsistence use	Village	30	30	100%

3.4 CONTROL VILLAGE ENCROACHMENTS

In order to control village encroachment, information concerning settlement of new villages was obtained through the personnel from LOUs in the vicinity of TNR in the northern and southern parts of TNR. It was realized from the information received from villagers that there were 9 villages inside the “Core Zone” of the northern part and those villages were from ‘Mon Pyi Thit Party’. This fact was fully supported from 2010 satellite scenes of ALOS that a lot of disturbance (deforestation and degradation) had taken place in the northern and southern part of TNRP due to shifting cultivation, mining and human settlements. This fact was also proven by the recent satellite scenes of 1 m resolution ‘Google Earth’ where villages could be clearly spotted inside TNR northern boundary along with rubber plantations in a massive scale.

Sr.	Activities	Unit	Target	Done	%
1.	Collect information concerning settlement of new village through the personnel from Local Operating Units at the northern and southern TNR	Time	6	24	400%
2.	Monitor disturbance patterns regarding human settlements based on available recent satellite images	Time	2	1	50%

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

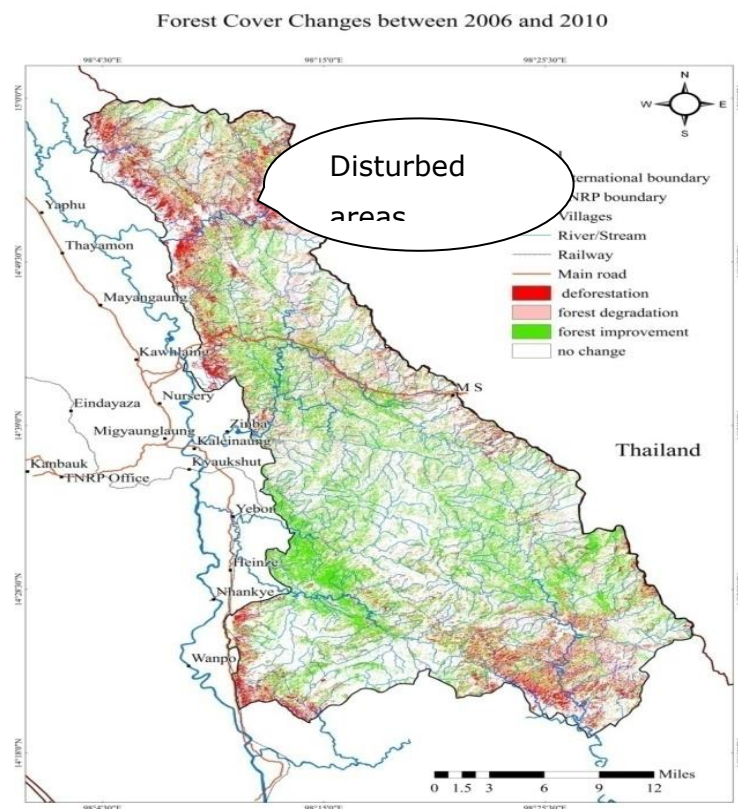


FIGURE 6 PROBABLE HUMAN SETTLEMENT IN NORTHERN PART OF TNR



FIGURE 7 VILLAGE INSIDE NORTHERN PART OF TN

3.5 CONTROL FOREST FIRE

For control of forest fire in TNR, a consultant had conducted study on appropriate forest fire management for 2 months each in 2011 and 2012. Yebon village was selected as a model village for prevention of forest fire as they were voluntary involved in construction of fire lines by their own consent. It is also important to recognize that this kind of community involvement is a kind of free and willing participation in activities developed by the actors themselves (empowerment).



FIGURE 8 VOLUNTARY FIRE LINE CONSTRUCTION AT YEBON VILLAGE

Forest fire management committee was formed at Yebon village and the next step was to develop forest fire management plan for Yebon village with the assistance of TNR based on the forest fire management plan developed by the forest fire consultant. TNRP supplied essential hand-made tools requested by the management committee for fire line preparation. As a domino effect additional 2 villages, viz., Kyaukshut and Zinba worked together with TNR for forest fire prevention.

Sr.	Activities	Unit	Target	Done	%
1.	Education talks	Village	12	14	117%
2.	Negotiate agreements with household/villages to prevent accidental fire	Village	5	5	100%
3.	Selection of model village for Forest Fire Control	Village	3	3	100%
4.	Conduct study on appropriate fire management	Month	4	4	100%

3.6 CONDUCT RESEARCH STUDIES BY NATIONAL CONSULTANTS

Based on the results of biological studies of mammals during the first phase, the research programs during the second phase were planned for the studies on individual flagship species such as Tiger, Elephant and Tapir. The National Consultants conducted individual research studies for a period of 4 months each. Tiger survey was conducted in November, 2010 whereas studies on Tapir and Elephant were not arranged in time that they had to start their work starting from March 2011 and completed in June 2011 which included the rainy season that greatly disrupted their work as the rain started quite early in April that year.

With the experiences mentioned above the remaining research studies like forest dynamics research, medicinal plants, orchids etc., were conducted in an appropriate timeframe after consultation with the Technical Advisory Tem, WCS for developing TORs for individual research studies. The research studies carried out during the second phase of the project were as follows:

Sr.	Activities	Unit	Target	Done	%
1.	Marketing Study of Non-Wood Forest Products	Month	2	2	100
2.	Trees and Bamboo species survey	Month	4	4	100
3.	Community Forestry	Month	4	4	100
4.	Tapir survey	Month	4	4	100

5.	Elephant survey	Month	4	4	100
6.	Appropriate Forest Fire Strategy	Month	4	4	100
7.	Tiger survey	Month	4	4	100
8.	Forest Dynamics Research on Endemic Tree Species	Month	4	4	*100
9.	Orchid survey	Month	4	4	100
10.	Medicinal Plants survey	Month	4	4	100

*Still need to submit the final report

3.7 CONDUCT BOUNDARY DEMARCATION

Although boundary demarcation of TNR was supposed to be completed during the first phase of the project from 2005 to 2009, due to unsecured areas in the north and south, the operation had to be extended to the second phase. During the first phase of the project, boundary pillars were laid along the western side of TNR with the coverage of 40 miles in extent. As the management plan of TNR did not include boundary demarcation program for the second phase, the Project Director had revised the budget so as to cover the expenses for boundary demarcation. With the security conditions improving along the southern boundary, boundary demarcation operations were conducted completely in the south. The Project Director had already contacted 'Mon Pyi Thit party' in the further north and organized to complete all boundary demarcations by March 2013.

Sr.	Activities	Unit	Target	Done	%
1.	Identification of boundary Line	Mile	110	67.11	61%
2.	Demarcation	Pillar	-	149	-
3.	Inspection road	Mile	71.33	71.33	100%
4.	Warning and educational notice board	Nos.	-	257	-

3.8 STRENGTHEN CAPACITY BUILDING FOR RESERVE MANAGEMENT TEAM

3.8.1 TECHNICAL ADVISORS (WCS)

For capacity building of RMT, trainings were organized by WCS for law enforcement and monitoring activities using Management Information System (MIST) and then introduced lately the more efficient, user friendly system and freeware, Spatial Monitoring and Reporting Tool (SMART).

WCS had organized training for capacity building of RMT as follows:

Sr.	Training Category	Period	Remarks
1.	Camera Trap Survey / Tiger survey	12-11-10 to 24-11-10	
2.	Patrolling/ Wildlife Training	25-1-11 to 1-2-11	
3.	Patrolling using MIST system	5-7-11 to 8-7-11	
4.	Community Based Natural Resource Management	9-11-12 to 12-11-12	
5.	SMART in law enforcement planning, monitoring and reporting	3-12-12 to 7-12-12	

WCS also organized 2 workshops on 17-12-2012 and 18-12-2012 for the development of the Conceptual Framework for 3rd phase of Taninthayi Nature Reserve Project.

Sr.	Topic	Presented by	Remarks
1.	Revising and updating the management framework for TNR	Madu Rao (WCS)	
2.	Review of implementation of management plan	Tint Swe PD	
3.	Implementation of the law enforcement-TNR	Tony Lynam WCS	
4.	Community engagement: Zonation, Community Forestry and Natural Resource Management	Robert Tizard WCS	

The next day executive level workshop was organized with 2 working groups formed and the final revised and updated work plan for the 3rd phase of TNRP was formulated.

Sr.	Topic	Presented by	Remarks
1.	Revising and updating the management framework for the Taninthayi Nature Reserve	Robert Tizard	
2.	Recommendations made for law enforcement and wildlife monitoring	Working Group No.1	
3.	Recommendations made for Community Development Outreach	Working Group No.2	
4.	Overview of implementation	Tint Swe Project Director	

3.8.2 TRAINING

3.8.2.1 IN-HOUSE TRAINING

		Attendance				Remarks
		2009-10	2010-11	2011-12	2012-13	
1.	Introduction to Computers	5	-	-	-	
2.	Community Forestry	29	11	-	-	
3.	Forestry Extension	7	-	-	-	
4.	GPS/Compass	17	-	-	-	
5.	Camera Trap Training	39	-	-	-	NC (Tiger)
6.	CF Extension	-	-	11	-	
7.	Medicinal Plants	-	-	12	-	NC (MP)
8.	Forest Inventory	-	-	21	-	FD
9.	GPS + SMART	-	-	-	12	

	Total	97	11	44	12	
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In-house trainings were organized by National Consultants, CFDT (Patheingyi), Forest Department staff and TNRP.

3.8.2.2 SOCIO-ECO TRAINING FOR TNRP

		Attendance				Remarks
		2009-10	2010-11	2011-12	2012-13	
1.	Capacity Building	17	-	-	-	
2.	Gender Issue	8	-	-	-	
3.	First Aid and Communication	-	-	15	-	
4.	No Plough / No burn for planting crops	-	-	15	-	
5.	Pesticide Use	-	-	9	-	
	Total	25	-	39	-	

The Socio-Eco department of MGTC also conducted trainings for TNRP staff for First Aid and Communication. The agriculture team also introduced the technique of planting crops without ploughing and burning as land preparation techniques which will help prevent felling and burning as a traditional method of taungya burning that was very destructive to the environment. However, it will be needed to wait and see how effective the technique will be in an environment like in TNRP with high rainfall and good undergrowth of succulent weeds. Training on the proper use of pesticides is also beneficial for TNRP staff, particularly for those engaged in nursery operations.

The knowledge gained from such kind of trainings could be imparted to the villagers in VZP and CBNRM programs.

3.8.2.3 JICA/RECOFTC TRAINING

Sr.	Particulars	Attendance				Remarks
		2010	2011	2012	2013	
1.	Forestry Extension	-	-	2	-	
	Total	-	-	2	-	

Two forestry extension staff got a chance to attend forestry extension program organized by JICA and RECOFTC. JICA and RECOFTC are organizations with vast experiences of Community Forestry activities and the experience gained from this kind of training will definitely be beneficial for CF practitioners in TNR.

3.8.2.4 Training at Myanmar Egress

Through Park Warden's initiative, 3 extensions staff had a chance to attend 3-month training program organized by a local NGO, Myanmar Egress on Social Entrepreneurship certificate course in 2011 and 2012. The course was intended for young graduates for all walks of life such as lawyers, doctors, NGOs, IT staff, business and those interested in politics, etc. The Social Entrepreneurship course covers the following topics: development and development economics, transformational economics, transformational leadership, communication and advocacy, governance and toolkits for management. Those extension workers can enhance their ability to communicate more effectively with local communities as competent facilitators in future.

3.8.3 STUDY TOURS

A six study tour for 3 senior staff to Western Forest Complex (WEFCOM) Thailand in 2011 was a good opportunity for sharing the experiences with PA staff from Thailand. However, no additional study tour program was arranged for TNRP staff to WEFCOM or any PA in the neighboring countries, despite the fact that funds were already allotted for the program.

Also, for junior project staff members there were plans to visit any protected areas in the country to exchange views and ideas. A team of 3 junior staff from TNRP visited

Hukaung Valley Wildlife Sanctuary to learn experiences of a 'Model Unique Participatory Conservation Area" in 2010. Since then no one got a chance to participate in such kind of in country study tour.

The Project Director U Tint Swe took initiative to send 4 TNRP staff and 7 villagers to study the Community Forestry activities carried out in Hmawbi and Taikkyi townships of Yangon Region. Villagers from TNRP took great interest in this tour program and realized from the CF practitioners how to effectively manage a small land area with high outcomes through activities such as growing vegetables as cash crops to earn a good living.

Sr.	Activities	Unit	Target	Done	%
1.	Organize staff training and study tour to other protected area within country	Time	2	1	50%
2.	Organize staff training and study tour to other countries for future collaboration of trans boundary conservation program	Time	2	1	50%
3.	Study tour to CF activities at Hmawbi and Taikkyi townships	Time	-	1	-

3.9 UPGRADE INFRASTRUCTURE DEVELOPMENT

3.9.1 BUILDINGS

During the second phase of the project one Environmental Educational Centre (EEC) was established together with one two-family type quarter and one three-family type quarter with green management principles. One more LOU is still under construction at Thetkekhet village.

Though construction of EEC was completed it has not been furnished well enough to become an Environmental Education Centre for students as well as for communities yet. For the moment it only serves as a training centre. **At least competent staff from Hlawga Park (with a modernized Environmental Education Center) should be invited to improve the situation to become a full fledged EEC.** EEC should be furnished with necessary panels, light boxes etc., for displaying materials related to wildlife conservation, forest products and also non-forest products and furnished with IEC materials.

The previous training shed at the nursery was renovated into accommodation hall for the villagers who will be attending the training courses or workshops.

An orchid house was already established. However, medicinal plant garden is not able to establish yet.

There are two nursery sheds with a capacity of 50, 000 seedlings each at Migyaunglaung Nursery. Up to 31-1-2013 there were 32, 906 seedlings nursed at the nursery (left from last year stock). Cash crop seedlings like lime seedlings were being raised at the nursery and 3,243 seedlings were available for the local communities.

Sr.	Activities	Unit	Target	Done	%
1.	Environmental Education Center	Unit	1	1	100%
2.	Family Quarters	Unit	5	5	100%
3.	Local Operating Unit	Unit	2	1	50%
4.	Extended Nursery Shed	Unit	1	1	100%
5.	Medicinal Plant Garden	Unit	1	-	
6.	Orchid House	Unit	1	1	100%

3.9.2 FIELD EQUIPMENTS

Purchase of additional field and survey equipments were made as feasible as possible and in line with the funds allotted. Field equipments such as Camera Traps, GPS, digital cameras and field gears such as boots, socks, rain coats and hammocks were purchased in line with the suggestion made by WCS during the training course on review of implementation of MIST and law enforcement strategy at TNR in July 2011. Internet access installation was made at the Project Director's office in Yangon.

Sr.	Activities	Unit	Target	Done	%
1.	Purchase Field and Survey Equipments: ♦ Camera Traps	Unit	22	22	100%

◆ GPS	Unit	-	11	-
◆ Digital Cameras	Unit	-	11	-
◆ Field Gear (boots, sock, bag, rain coat)	Unit	-	112	-
◆ Internet access installation	Unit	1	1	100%

3.9.3 VEHICLE, MOTORCYCLE AND BOAT

One additional vehicle and 10 motorcycles were purchased during the early stage of the second phase and additional vehicle and motorcycles will be purchased depending on the funds allocated according to the revised budget.

One new boat is necessary to purchase immediately as the current wooden boat used for patrolling is not serviceable any more.

During last quarter of the project, a sizeable amount of funds were in hand accrued from savings of staff allowances and diesel consumption and the Project Director has planned to purchase one additional light truck vehicle for the project.

Sr.	Activities	Unit	Target	Done	%
1.	Acquire additional transport facilities				
	Motor Vehicle	Unit	1	-	-
	Motorcycle	Unit	10	10	100%
	Boat	Unit	1	1	100%

3.10 MONITORING AND EVLUATION

Logical framework was developed in March 2010, put up to Technical Committee Meeting 1 (TC1) in July 2010, amended as per recommendation made at 1st TC meeting in August, 2010. However, Logical Framework for TNRP was finalized only at the last PCC meeting held in 11/3/2013. This was a serious drawback as Logical Framework should be completed at the start of the second phase and this probably was due to untimely schedules of Project Coordinating Committee (PCC) meetings and TC meetings. As Logical Framework is meant for guiding proper implementing of the project activities, this kind of situation should not be occurred during the third phase.

Sr.	Activities	Unit	Target	Done	%
1.	Logical Framework Approach Workshop	Time	1	2	200%
2.	Technical Committee Meeting	Time	10	4	40%
3.	Project Coordinating Committee Meeting	Time	8	3	38%
4.	Monitor and evaluate for all activities (External Consultancy Project Evaluation)	Time	2	2	100%
5.	Monitoring for land cover and Land use changes assessment using satellite images (purchase of satellite scene, ground truth checking and mapping)	Time	2	1	50%

3.11 LIVING COSTS OF PROJECT STAFF

During the third Technical Committee meeting with regard to keeping the local staff in the project, representatives from the partner companies recommended to submit a proposal for additional funding required for adjustment of living cost for project staff due to drastic fall of the price of FEC. The adjustment made for the living allowance of project staff was to adjust the allowance such that 1FEC is equivalent to MMK 1000. The first revision was made in 2009. The revised living allowance as of 2012 is as follows:

Staff Allowance Revision (April 2012)				
Sr.	Designation	Original (2005)	First (2009)	Second (2012)
1	Project Director (Director)	900	1125	1406
2	Park Warden (AD)	500	625	781
3	Project Staff Officer (SO)	400	500	625
4	Project Admin Officer (RO)	250	375	468
5	Range Officer (RO)	200	300	375

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

6	Head Clerk (HC)	150	225	281
7	Deputy Rangers (DR)	150	225	281
8	Computer and Accountant (C.)	100	150	187
9	Forester (For)	100	150	187
10	Driver/ Coxswain	100	150	187
11	Nursery Workers	80	120	150
12	Camp Watcher	80	120	150
13	Law enforcement staff	80	120	150
14	Extension staff	80	120	150
15	Office Helper	80	120	150

4 FINANCIAL ANALYSIS AND PROGRESS

4.1 Budget Allocation for 2009-10 to 2012-2013 at TNR

No.	Particulars	%	2009-2010	%	2010-2011	%	2011-2012	%	2012-2013
	Opening Budget		2.76		76,276.76		14,096.76		66,548.48
	For the Year		300,000.0		300,000.0		337,666.00		300,000.0
			300,002.7		376,276.7		351,762.76		366,548.5
	Expenditure								
1	PERSONNEL								
1.1	External consultancy- Project evaluation					2.10	6,000.00		6,000.00
1.2	External consultancy- Technical Advisor (2 mm)			6.63	24,000.00	4.21	12,000.00	7.25	24,000.00
1.3	National consultancies			0.00		3.79	10,800.00		
	i) Community Forestry			1.33	4,800.00				
	ii) Dynamics Research			0.66	2,400.00			1.09	3,600.00
	iii) Tiger Survey			1.33	4,800.00				
	iv) Bamboo Survey			1.33	4,800.00				
	v) Marketing Survey			0.66	2,400.00				
	vi) Fire Management			0.33	1,200.00				
	vii) Tapir Survey			0.33	1,200.00				
	viii) Elephant Survey			0.33	1,200.00				
	ix) Gurney's Pitta Survey								
	x) Taninthayi Langur Survey								
	xi) Rattan Survey								
	xii) Orchid Survey							1.45	4,800.00
	xiii) Medicinal Plant Survey							1.45	4,800.00
	xiv) Micro Finance Program Survey								
	Subtotal - Personnel			12.92	46,800.00	10.10	28,800.00	13.04	43,200.00
2	INVESTMENTS								
2.1	Office Equipment	2.24	5,006.00	1.19	4,298.00	1.60	4,553.00	2.42	8,000.00
2.2	Field Equipment	5.55	12,412.00	2.70	9,785.00	3.45	9,833.00	3.32	11,000.00
2.3	Vehicles	11.7	26,230.00	13.99	50,683.00	0.00			
2.4	Facilities Construction	6.55	14,643.00	9.98	36,131.00	6.85	19,538.00	6.04	20,011.00
	subtotal - Investments	26.0	58,291.00	27.86	100,897.0	11.89	33,924.00	11.78	39,011.00
3	OPERATION COSTS								
3.1	Nursery Practice	3.47	7,772.00	0.62	2,241.00	0.71	2,018.00	0.30	1,000.00
3.2	Boundary Demarcation	2.86	6,401.00	1.32	4,781.00	1.79	5,093.00	0.60	2,000.00
3.3	Patrolling	1.86	4,160.00	0.86	3,110.00	2.09	5,966.00	1.51	5,001.00
3.4	Communications	1.53	3,414.00	1.53	5,540.00	2.74	7,801.00	2.37	7,860.00
3.5	Vehicle fuel and maintenance	10.26	22,953.00	7.68	27,811.00	14.52	41,425.00	9.06	30,000.00
3.6	Training	1.24	2,783.00	2.01	7,280.00	1.50	4,267.00	0.60	2,000.00
3.7	MGTC/TPC logistical support	0.90	2,005.00	1.14	4,138.00	0.86	2,447.00	0.91	3,000.00
3.8	Staff allowances	38.1	85,271.00	34.14	123,655.0	42.76	121,952.00	45.38	150,333.0
3.9	Field survey/ Mapping	2.43	5,445.00	2.26	8,174.00	1.12	3,201.00	1.81	6,003.00
3.10	Socio-economic surveys, Workshops, Public education	3.73	8,334.00	0.99	3,569.00	1.69	4,831.00	1.81	6,000.00
3.11	Project Coordinating Committee Meeting	0.42	950.00	0.18	658.00	0.65	1,855.00	1.81	6,000.00
3.12	Outreach/ Buffer Zone development Programmes	1.27	2,836.00	3.16	11,443.00	3.55	10,120.00	3.92	13,000.00
	subtotal - Operating Costs	68.0	152,324.0	55.88	202,400.0	73.97	210,976.00	70.10	232,197.0
4	CONTINGENCIES								

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

4.1	Signboards, Contingencies, others	5.86	13,111.00	3.34	12,083.00	4.04	11,514.28	5.08	16,839.96
	subtotal - Contingencies	5.86	13,111.00	3.34	12,083.00	4.04	11,514.28	5.08	16,839.96
	Closing Budget	34.0	76,276.76	3.89	14,096.76	23.33	66,548.48	10.66	35,300.52
			300,002.7		376,276.7		351,762.76		366,548.4
	TOTAL Project Cost	100	223,726	100	362,180	100	285,215	100	331,248

4.2 YEARLY EXPENDITURE

No.	Particulars	2009-2010	2010-2011	2011-2012	2012-2013	Total	%
	EXPENDITURE	300002.76	376276.76	351762.76	366548.48	1394590.76	
1	PERSONNEL	-	46800	28800	43200	118800.00	9.88
2	INVESTMENTS	55291	100897	33924	39011	232123.00	19.31
3	OPERATION COSTS	152324	202400	210976	232197	797897.00	66.36
4	CONTINGENCIES	13111	2083	11514.28	16839.96	53548.24	4.45
	CLOSING BUDGET	79276.76	24096.76	66548.48	123498	192222.52	
	TOTAL PROJECT COST	223726	362180	285214.28	331247.96	1202368.2	

It can be observed from the above table and chart 1 that during 2009-2010 allotted budgets could not be spent for project personnel such as technical advisor, national consultants and outreach buffer zone management. The funds left over from 2009-2010 were accrued to the next year. The expenditure during 2010 -2011 greatly surpasses the allotted funds due to the fact that infrastructure development such as construction of Environmental Education Centre and purchase of vehicle greatly surpass the allocated funds.

Also, if you look at investments and chart 2, most of the investments made for TNRP occurred at 2010-2011 due to the construction activities and purchase of one addition vehicle locally (Grand Tiger vehicle) which costs double the price of the imported vehicle (Toyota Land Cruiser).

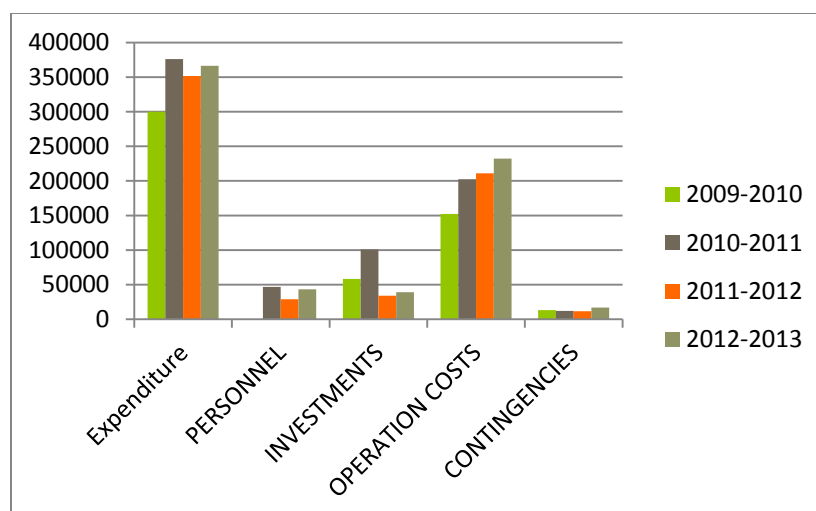
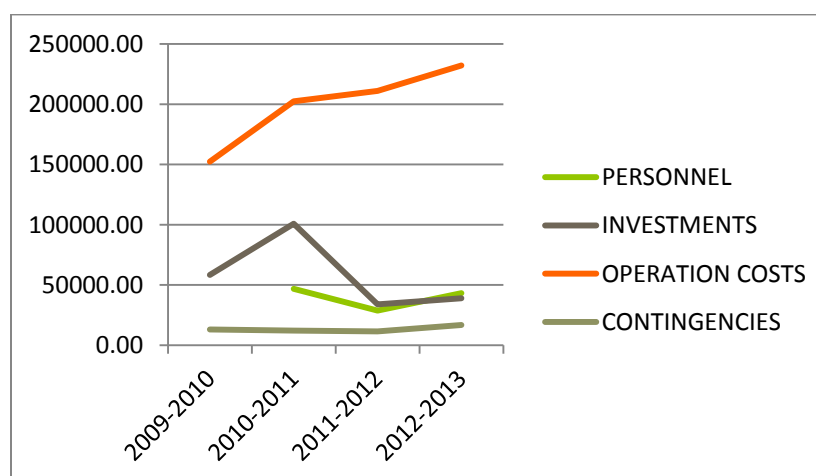


CHART. 1. YEARLY EXPENDITURE OF TNRP FROM 2009-2010 TO 2012-2013



The yearly expenditure of TNRP from 2009-2010 to 2012-2013 covered personnel costs, investments, operation costs and contingencies. Investment was peak during 2010-2011. Operations cost far exceeds investments and personnel costs followed by contingencies. Project contingency cost is not much different.

4.3 INVESTMENTS

No.	Particulars	2009-2010	2010-2011	2011-2012	2012-2013	Total	%
2.1	Office Equipment	5006	4298	4553	8000	21857	9.42
2.2	Field Equipment	12412	9785	9833	11000	43030	18.54
2.3	Vehicles	26230	50683			76913	33.13
2.4	Facilities Construction	14643	36131	19538	20011	90323	38.91
	Total Investments	58291	100897	33924	39011	232123	

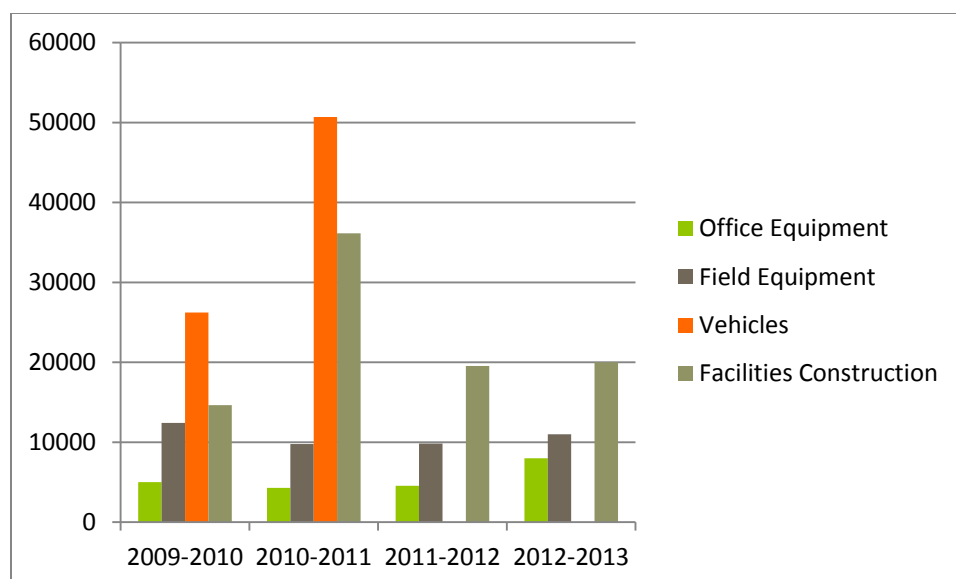
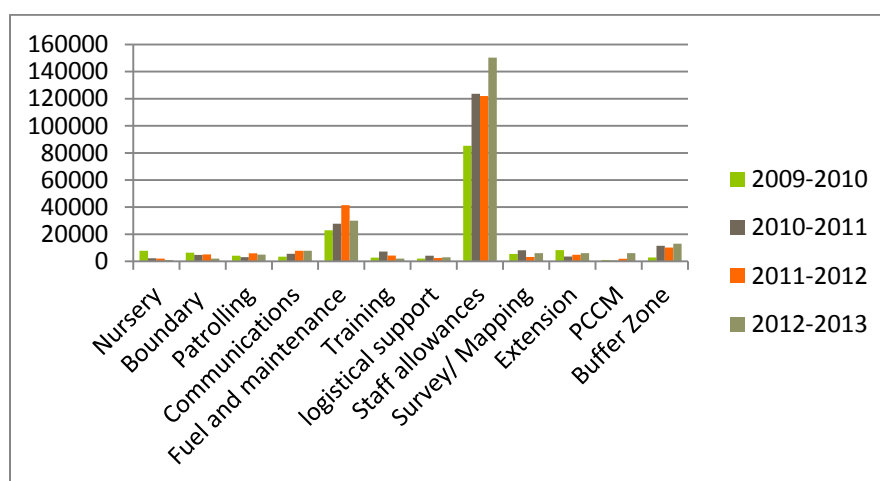


CHART2. INVESTMENTS OF TNRP FROM 2009-2010 TO 2012-13

4.4 OPERATION COSTS

No.	Particulars	2009-2010	2010-2011	2011-2012	2012-2013	Total	%
3.1	Nursery	7772	2241	2018	1000	12,888	1.63
3.2	Boundary	6401	4781	5093	2000	17,288	2.29
3.3	Patrolling	4160	3110	5966	5001	16,885	2.29
3.4	Communications	3414	5540	7801	7860	20,613	3.08
3.5	Fuel and maintenance	22953	27811	41425	30000	115,932	15.31
3.6	Training	2783	7280	4267	2000	16,119	2.05
3.7	logistical support	2005	4138	2447	3000	10,680	1.45
3.8	Staff allowances	85271	123655	121952	150333	465,730	60.31
3.9	Survey/ Mapping	5445	8174	3201	6003	18,985	2.86
3.1	Extension	8334	3569	4831	6000	18,231	2.85
3.11	PCCM	950	658	1855	6000	6,875	1.19
3.12	Buffer Zone	2836	11443	10120	13000	28,868	4.69
	Total	152324	202400	210976	232197	749,094	100



FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

CHART 3. OPERATIONAL COST OF MAJOR ACTIVITIES OF TNRP YEAR WISE

4.5 MAIN OPERATION EXPENDITURE

No.	Items	Total Expenditure	Percentage
1	Personnel	118800.00	9.88
2	Office Equipment	21857.00	1.82
3	Field Equipment	43030.00	3.58
4	Vehicles	76913.00	6.40
5	Facilities Construction	90323.00	7.51
6	Nursery Practice	13031.00	1.08
7	Boundary Demarcation	18275.00	1.52
8	Patrolling	18237.00	1.52
9	Communications	24615.00	2.05
10	Vehicle fuel and maintenance	122189.00	10.16
11	Training	16330.00	1.36
12	Staff allowances	481211.00	40.02
13	Field survey/ Mapping	22823.00	1.90
14	Public education	22734.00	1.89
15	Buffer Zone management	37399.00	3.11
16	Signboards, Contingencies, others	53548.24	4.45
17	Other cost	21053.00	1.75
	TOTAL Project Cost	1202368.24	100.00

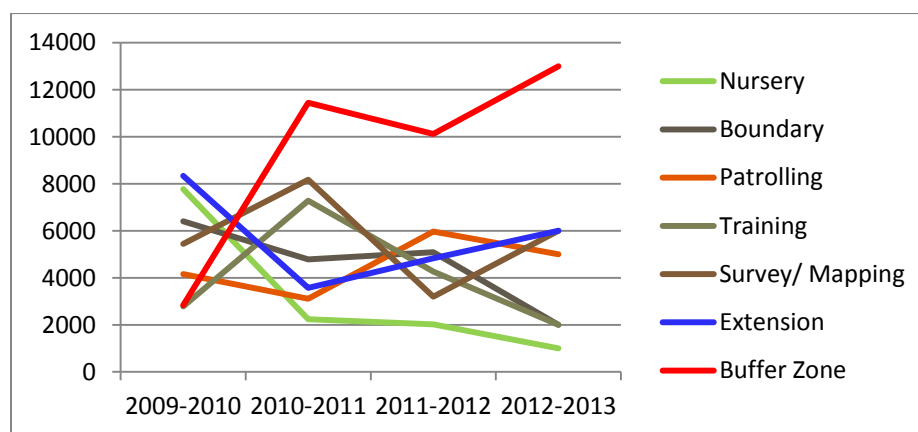


CHART4. TREND OF OPERATIONAL EXPENDITURE FOR MAJOR ACTIVITIES OF TNRP

It can also be observed from the above chart that major operations like nursery, boundary demarcation, patrolling, and training were in general in a declining stage over time except buffer zone management which increased overtime. The total expenditure incurred during the four year period was:

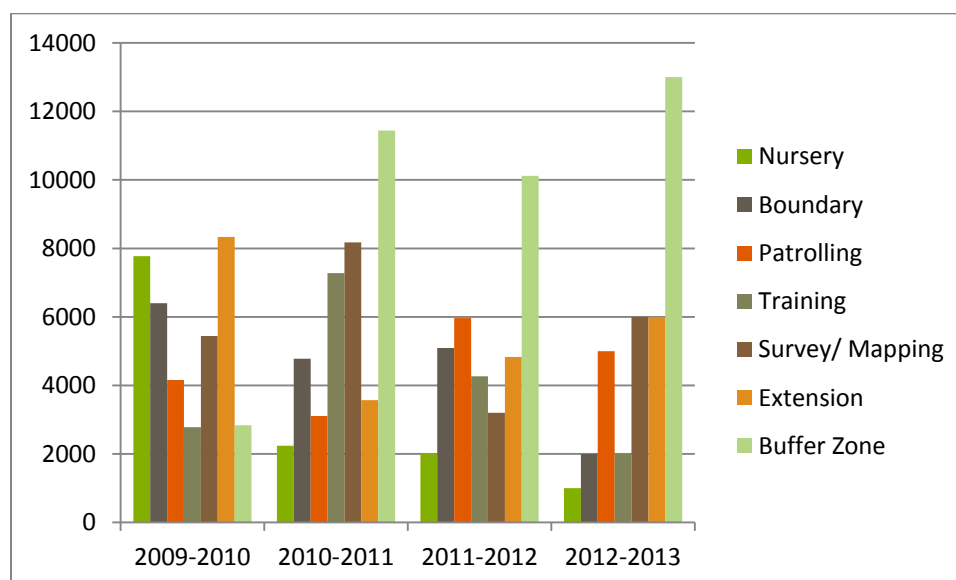


Chart 5. Expenses for major operations of TNR from 2009-10 to 2012-13

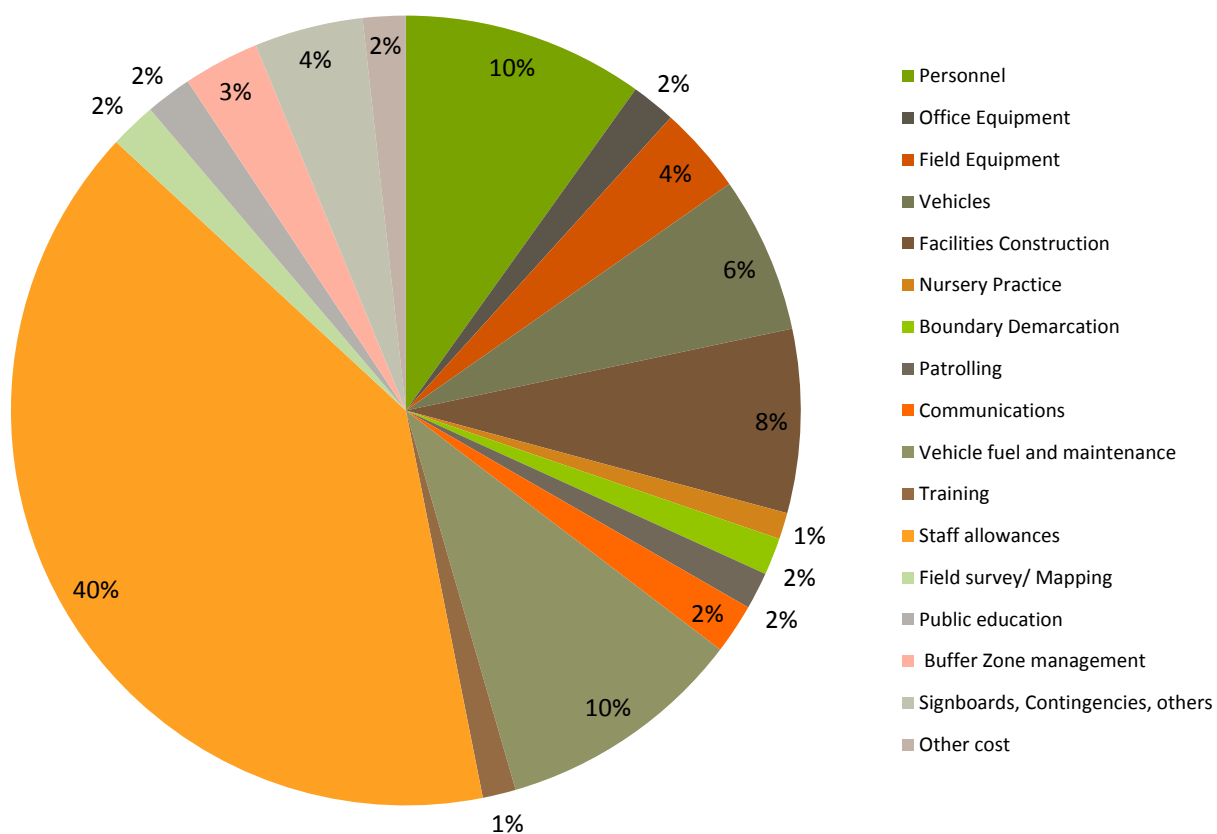
The high expense for major operations carried out during the second phase of the project was associated with buffer zone management. This is quite logical that during 2010-11 WCS had introduced VCP and VUZ programs with VCP activities replicated to 12 villages in 2011-12.

It can be depicted from the above chart that Survey / Mapping activities and extension programs performed quite well. Boundary demarcation activities were also in good progress despite the fact that due to security reasons it was a bit delayed for a while. In terms of operations, nursery works, boundary demarcation and patrolling were found to be not up to the mark. One of the major activities of TNR is patrolling and accordingly WCS organized a lot of trainings for patrolling and how to use MIST and SMART

systems for monitoring and evaluation programs. It is also stated that regular patrolling needs to be done in the buffer and core zone and constant monitoring done for markets, restaurants and roads where wildlife is traded; particularly the pipeline corridor where 1000 workers currently engaged in pipe laying operations of PTTEP. WCS also mentioned that funds allocated for patrolling are grossly insufficient for the protection of wildlife, timber and other natural resources and urgently need to be reviewed in the light of current costs for gasoline and food rations. However, it is quite certain that funds were not been revised and has been not been given priority as suggested. Incentive schemes for patrolling program as advised by WCS also did not materialize yet.

For nursery operations TNR Nursery had distributed 7,830 Pyinkado and Mahawgani seedlings to 7 USGs in 2012 planting season. The stock of seedling left at the nursery on 31-1-2013 was 32,139 seedlings (left over stock from last year) including 18,809 Pyinkado seedlings which indicated that there was no definitive policy for raising and distribution of seedlings at the nursery.

Toatl Expenditure

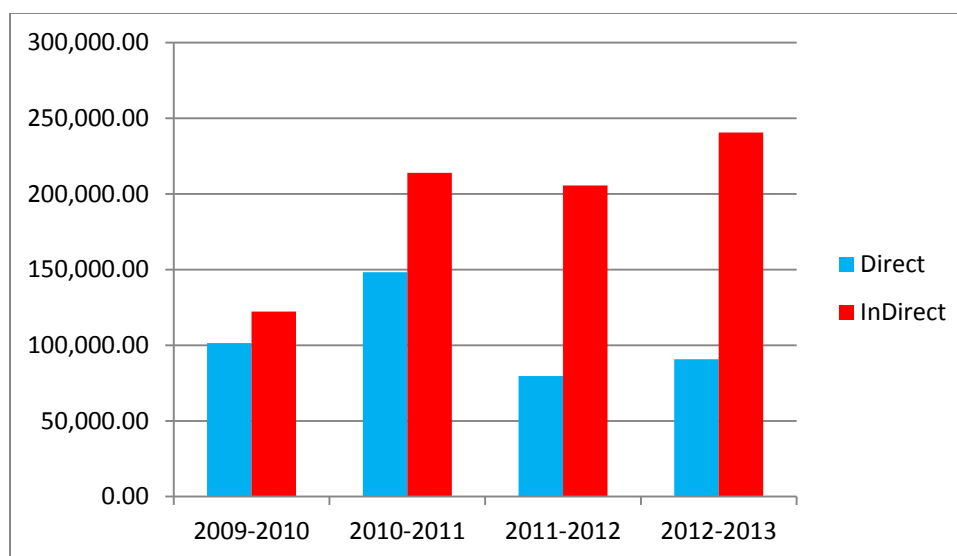


4.6 PROJECT DIRECT AND INDIRECT COST

The following table shows that the project direct and indirect cost in the year 2009-2010, 2010-2011, 2011-2012 and 2012-2013.

		2009-2010		2010-2011		2011-2012		2012-2013	
	Items	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect
1	Personnel				46,800.00		28,800.00		24,000.00
2	Investments	58,291.00		100,897.00		33,924.00		28,786.00	
3	Nursery Practice	7,772.00		2,241.00		2,018.00		857.00	
4	Boundary Demarcation	6,401.00		4,781.00		5,093.00		1,013.00	
5	Patrolling	4,160.00		3,110.00		5,966.00		3,649.00	
6	Communications	3,414.00		5,540.00		7,801.00		3,858.00	
7	Vehicle fuel and maintenance		22,953.00		27,811.00		41,425.00		23,743.00
8	Training		2,783.00		7,280.00		4,267.00		1,789.00
9	MGTC/TPC logistical support		2,005.00		4,138.00		2,447.00		2,090.00
10	Staff allowances		85,271.00		123,655.00		121,952.00		134,852.00
11	Field survey/ Mapping	5,445.00		8,174.00		3,201.00		2,165.00	
12	Socio-economic surveys, Workshops, Public education		8,334.00		3,569.00		4,831.00		1,497.00
13	Project Coordinating Committee Meeting		950.00		658.00		1,855.00		3,412.00
14	Outreach/ Buffer Zone development Programmes	2,836.00		11,443.00		10,120.00		4,469.00	
15	Signboards, Contingencies, others	13,111.00		12,083.00		11,514.28		6,870.48	
	Total	101,430.00	122,296.00	148,269.00	213,911.00	79,637.28	205,577.00	51,667.48	191,383.00

The graph shows more clear view of the direct and indirect cost of the project period. Every year project indirect cost is higher than the project direct cost. Although, the difference between the project indirect costs is not so much in 2009-2010, it has been increasing in the next three years.



It is quite logical that the direct cost should surpass indirect cost in order to have the project to be functional. However, it was found that indirect costs were slightly higher than the direct costs. This will be a lesson learnt for the future phase of the project since it is unrealistic to increase the project indirect cost more than the direct costs.

It is recommended for the project to invest more on the project direct cost than project indirect cost. In future, the Project Director should check and balance the project direct and indirect cost for a given period.

On analyzing the expenses with the schedules and budget headings, we found that the operation costs have increased substantially each year. However, the operation cost is generally dominated by staff allowance and fuel consumptions when compared to other expenses. Although it is justifiable that these are major portions of the budget expenditure, it is not an exact indicator of the well functioning and effectiveness of the project being carried out.

Contingencies stayed more or less throughout the 4-year period without much change.

Investment expenses has faced a steady rise from 2009 to 2011 and stayed at the point for almost two years until 2013. The steep rise at the start was due to substantial costs of vehicles and facilities. And a slight rise at the near end of the project was from the personnel expenses at 2010 to 2011.

5 AWARENESSABOUT THE PROJECT AND BIODIVERSITY CONSERVTION IN MYANMAR

5.1 EXTENSION ACTIVITIES

During the project period extension activities were conducted by extension staff for the benefit of local communities as follows:

Sr.	Particulars	2009-2010		2010-2011		2011-2012		2012-2013		Total
		No.	Attendance	No.	Attendance	No.	Attendance	No.	Attendance	
1.	Community Forestry	4	416	5	163	9	428	4	288	1295
2.	Environmental Education	8	1276	8	660	17	2046	4	485	4467
3.	Wildlife Law	3	146	2	156	1	104	-	-	406
4.	Village Use Zone	-	-	15	597	-	-	1	42	639
5.	TNR Project	5	260	-	-	-	-	4	283	543
6.	Bamboo Charcoal	-	-	5	203	2	43	-	-	246
7.	Forest Fire	1	48	2	70	16	750	1	94	962
8.	Tiger	-	-	2	156	-	-	-	-	156
9.	Environmental Conservation	-	-	-	-	2	234	-	-	234
10.	Cash crops	-	-	-	-	-	-	6	262	262
11.	Orchids	-	-	-	-	-	-	2	117	117
	Total	21	2146	39	2005	47	3605	22	1571	9327

Note: Cash crops include Wa-U, Shawbyu, Thithmwe, Cocoa (Socio-Eco).

If you look at the table for extension activities of TNRP it could be found that local communities were attending Community Forestry extension programs and Village Use Zone with good participation. However, environmental education program for students was observed to be stepped down from 17 – 4 times in 2012-2013. It was also observed that bamboo charcoal program was found to be not quite interested by the villagers or TNRP did not take any interest in promoting such kind of activities in 2012-

2013. It was very interesting to find out that cash crop such as Wa-U, Thithmwe and especially, Cocoa introduced by MGTC, were found to be quite interesting program for the local communities.

During the Union Day of 2013, TNRP took opportunity by joining the exhibition of Forest Department, Dawei and made presentations concerning activities about Taninthayi Nature Reserve Project so as to be aware of TNRP activities in Taninthayi Region.

5.2 VISIT FROM FOREST INFORM

Two scientists from FOREST INFORM visited TNRP and attended the Site Level Meeting organized on 5-2-2013 and explained that he is a GIS specialist and that in 1996 the Government of Myanmar and TOTAL had assigned him for the development of project document for TNRP (at that time Myintmoletkhat project) during the very early stage. He was very pleased to see the staff working in TNRP and the materialization of the project after so many years. He also advised that the project should use maps prepared with the participation of local communities. He also reminded that the most important task for the TNRP staff is to work together with the local communities. These comments highlighted the fact that the scope of TNRP, now working together with WCS is in line with the modern concepts of conservation through active participation of local communities.

5.3 VISIT FROM RECOFTC

One Senior Program Officer from Regional Community Forestry Training Center (RECOFTC) had visited TNRP from 8-3-2013 to 10-3-2013 and got a chance to discuss with project staff and CF User Groups about the future collaborative program in the field of community forestry.

Mr. Ronnakorn Triraganon (RECOFTC) had noticed that 5 CFUGs from TNRP has different reasons to form CFUG due to the following reasons:

- Watershed conservation for household drinking water
- Securing land tenure for their shifting cultivation
- Opportunity for farming lands

He also noticed that most of the CFUG members are those who do not have home gardens or farmlands and CF became a legal opportunity that provides farming lands for those people in designated area.

He is also aware that Community Forest (CF) is inside Village Use Zone (VUZ) and within VUZ local people can harvest small timber, firewood and NTFPs for only household use. He found that TNRP need to clarify resource use rights and tenure within CF and VUZ. Also, there is urgent need to establish mechanisms for taking care of existing forests in the VUZ. He mentioned that TNRP may consider how to promote local people role in managing VUZ and enhancing the quality of forest landscapes covering both land categories to ensure the sustainable use of forest resources.

He also noticed that CF management plans are much focused on forest protection and timber production but fewer links to local livelihood. TNRP may consider reviewing existing management plan for covering short, medium and long term benefits for these people. He also pointed out that in order to know what CF can support to local livelihoods the management planning requires proper forest resource assessment and participatory livelihood analysis. Also it was found that most ideas for CF management plan come from the CF national consultants with limited integration of local knowledge. Most project staff admitted that they have heard about participatory approach and tools but not practiced in the planning process. They do not know about how to facilitate participatory problem analysis and have no clear idea about what is meant by “facilitation”.

Concerning Environmental Education the current practice is to provide presentation and lecture only. This should be avoided and programs should be adopted by using more integration of adult learning and experiential learning principle.

For research activities the current practice is to hire national consultants for short term assignments. However, he has a strong feeling that the project missed opportunity to research activities in building up local capacity using local people’s knowledge and wisdom in research activity such as Participatory Action Research (PAR) by allowing local people work closely with consultant by using expertise from both sides.

Actually, Ron did not realize the fact that the medicinal plant research program was designed and formulated in the process of PAR by sharing the expertise of national consultants with the local knowledge of traditional medicine practiced by local people. Likewise, when conducting biological surveys local experience and knowledge are shared in the form of questionnaires and local knowledge through interviews.

6 PROJECT ORGANIZATION AND MANAGEMENT

6.1 PERSONNEL

6.1.1 RESERVE MANAGEMENT TEAM

According to the approved Management Plan by Project Coordinating Committee, the staff of Reserved Management Team consisted of personnel divided into two teams: Project Director's office (PD) in Yangon and Park Warden (PW) office at Kanbauk.

Project Director Office is responsible for overall management of the project whereas Park Warden office is meant for carrying out field activities based on 6 Local Operating Units.

According to the sanctioned strength of TNRP, the strength of Reserve Management Team (RMT) consisted of 62 staff. Existing RMT consisted of 25 permanent staff from Forest Department and 33 locals including 10 patrols and 7 extension staff. One Forester post and 3 locals are still needed to be filled up as soon as possible.

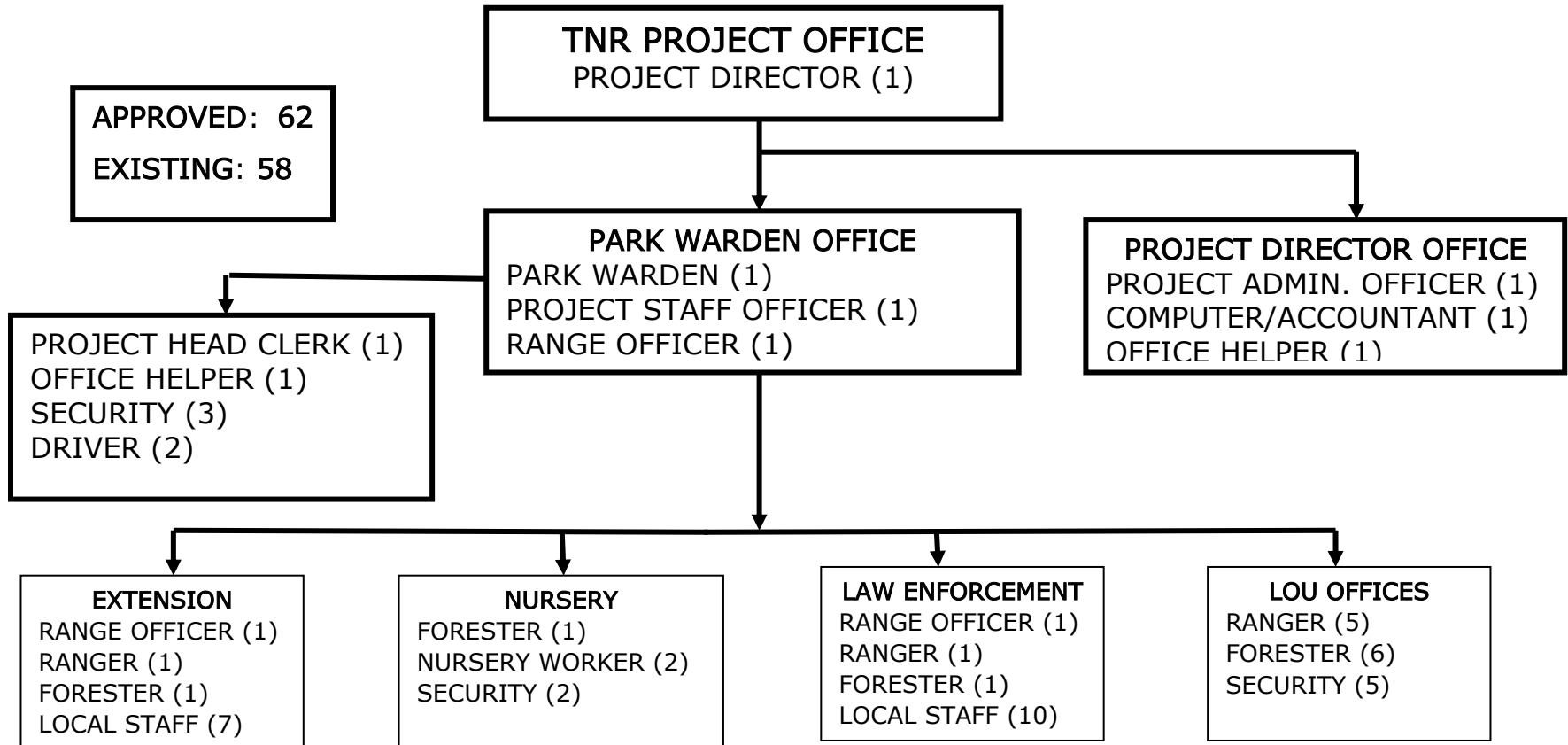
With more job opportunities coming up due to the involvement of PTTEP Oil and Gas Company during the pipe laying operations, which traverse TNRP from west to east, some of the trained local staff started leaving to more remunerative places while some trained locals are also looking forward to leave soon.

If you compare the staffing levels of some of the important Protected Areas in Myanmar, the situation of TNR is found to be quite sufficient (Myint Aung, 2007).

STAFFING

Sr.	PA Name	Area (km ²)	Permanent Staff	Local Staff	Total Staff	Staff (km ²)
1.	Alaungdaw KathapaNP	1,581	99	30	129	0.08
2.	Hkakaborazi NP	3,812	4	12	16	0.004
3.	Htamanthi WS	2,151	26	15	41	0.02
4.	Rakhine Yoma ES	1,756	10	11	21	0.01
5.	Inle Wetlands BS	642	13	8	21	0.03
6.	Idawgyi Wetland BS	775	5	0	5	0.01
7.	Taninthayi NR	1700	26	36	62	0.04

ORGANIZATION CHART OF TANINTHAYI NATURE RESERVE



One significant advantage of TNRP is that out of 62 staff, local staff consists of 36 which greatly satisfied the needs of the donors.

This is in line with MGTC advice to the Director General of Forest Department, dated 7th February 2013, that for the recruitment of TNRP staff, local candidates should be given priority in order to offer job opportunities from the project to local village communities and also to take advantage of their knowledge of the project area. So far vacancies at TNRP consist of 1 FD staff and 3 locals who will be assigned once the construction of LOU at Thetkwegwet is completed.

6.2 PROJECT COORDINATING COMMITTEE

The Project Coordinating Committee (PCC) acts as 'Board of Directors' providing oversight and guidance to the Project, overseeing reviewing and evaluating the work of the Project Team and safeguarding the interest of all parties. The main concern of PCC is direction and financial oversight rather than line management.

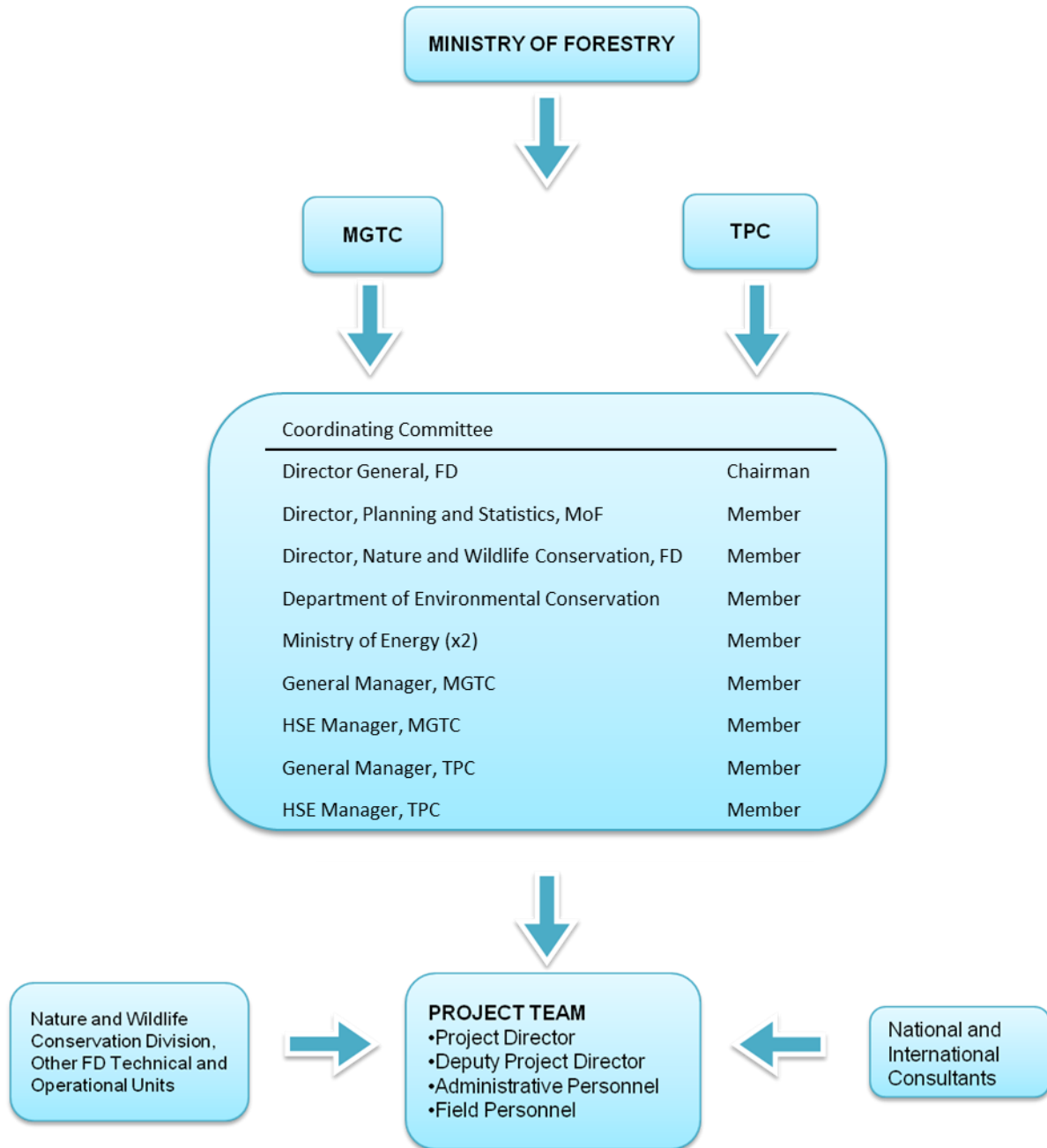
The project has been overseen by PCC consisting of representatives from the following parties:

- ◆ Ministry of Environmental Conservation and Forestry (MOECAF)
- ◆ Motamma Gas Transportation Company (MGTC)
- ◆ Taninthayi Pipeline Company (TPC), and
- ◆ Ministry of Energy (MOE)

During the 16th PCC meeting on 11-3-2013 a consensus was arrived to add one representative from Department of Environmental Conservation of MOECAF in PCC.

It has been predetermined in the project document that PCC meetings will be held at regular intervals (at least) semi-annually with an emphasis on regular review of project progress or at other such times as may be required. In actual case since the 14th PCC meeting held in August 2009 there were only 2 PCC meetings: the 15th PCC meeting held in 9-3-2012 (after 20 months) and the very recent one in 11th March 2013 (after 12 months).

It was clarified during the 16th PCC meeting that in future there should be 2 PCC held in a year, one at Nay Pyi Taw and the other at Yangon.



6.3 TECHNICAL COMMITTEE (TC)

Technical Committee (TC) meetings are planned to be held on a quarterly basis (minimum 4 times a year). Up till now, Technical Committee meetings were held as follows:

- ◆ 23rd August 2010 (First TC Meeting)
- ◆ 15th December 2010 (Second TC Meeting)
- ◆ 13th September 2011 (Third TC Meeting)
- ◆ 13th July 2012 (Fourth TC Meeting) and finally,
- ◆ 13th February 2013 (Fifth TC Meeting).

These technical meetings are to be held to review the project activities (at least minimum 4 times a year) and progress and to hold special meetings whenever required.

TC meetings are organized:

- ◆ To provide assistance to Reserve Management Team (RMT) in implementing project activities, monitoring and evaluation based on TNR Operational Management Plan.
- ◆ To approve the Project Key Performance Indicators in line with Logical Framework Approach.
- ◆ To identify the area of improvement and gaps and recommend the mitigation plan.
- ◆ To advise the Project Coordinating Committee on the progress and issues for deliberation at the PCC Meeting.
- ◆ To ensure all funds allocated are utilized effectively and efficiently.

During the 5th Technical Committee meeting in 13-2-2013 a new issue was put up by U Hla Myo Aung, who was designated as Environmental Officer in charge for monitoring of Zawtika onshore pipeline project owned by PTTEP. The objective of monitoring is to find out whether PTTEP or its Sub-Contractor (CPPI) is following the Environmental Management Plan (EMP) of Environment Social Health Impact Assessment (ESHIA) of PTTEP during the pipeline construction stage. Also to find out how effective the mitigation process on the majority of the most potentially damaging environmental effects of the project. This is the very first project in which MOECF is conducting the environmental audit for the ESHIA developed for pipeline construction operation of PTTEP gas pipeline.

For example, according to the EMP the following activities are to be monitored:

- ◆ For control of surface water quality trees are not allowed to cut into the water courses during the construction of Right Of Way (ROW).
- ◆ Also in order to protect from soil erosion in steep slopes, backfilling must be conducted instantly after completion of pipe laying and inspection operation
- ◆ To minimize loss of vegetation the area should be restored to its original state by reinstating the disturbed areas with native grass.
- ◆ To minimize loss of biodiversity by checking whether bush meat / fish are being consumed at contractor camps
- ◆ ROW is quite close to seasonal corridors to wild elephants, particularly during the dry season and should keep away from elephant habitat.

- ◆ The pile of debris from trees and bamboos causing a man-made fuel load which should be removed from ROW to appropriate site
- ◆ The improper disposal of garbage, oil leaks from machineries at the work site is unacceptable
- ◆ Wood stock yard and Pipe stock yard should be at the designated place assigned by Environmental Officer (EO)
- ◆ No access roads mentioned in the ESHIA
- ◆ No designated area mentioned in Lay Down Area and Disposal Area
- ◆ Cable Crane installation not mentioned in ESHIA
- ◆ Non-compliance issues such using open-cut method instead of Horizontal Directional Drilling (HDD) in road and river crossings.

As PTTEP as project owner and operator should properly control, supervise and audit contractor (CPPI) operations in compliance with the Environmental Management Plan (EMP).

One significant issue came up with the re-route problem at 4 locations of which 3 are inside TNR area. Forest Department is imposing PTTEP to produce a scoping study whether additional EIA for the re-route areas by a third party firm would be necessary or not before making any advancement for the new routes.

During the Final Evaluation mission trip to Kanbauk, the team had a chance to visit the pipeline construction site and also made interviews with HSE Managers of PTTEP and CPPI for environmental performance assessment and its compliance with ESHIA.

6.4 STAFF TRANSFERS

6.4.1 Staff Transfers from / to Taninthayi Nature Reserve during 2011 and 2012

Sr	Name	Designation	Date	From	To	Reference
1.	U Zaw Win Myint	Project Director	23 Sep 2011	TNRP	DAWE	Office order 616/2011
2.	U Tint Swe	Park Warden/Project Director	23 Sep 2011	TNRP	TNRP	Office order 616/2011
3.	U Aung Ko Oo	Range Officer	15 Dec 2011	Myeik Tsp.	TNRP	Office order 800/2011
4.	U Nyunt Swe	Ranger	23 Jan 2012	Yebyu Tsp.	TNRP	Office order 33/2011
5.	U Soe Naing	Forester	23 Jan 2012	Yebyu Tsp.	TNRP	Office order 33/2011
6.	U Min Maw	Park Warden	23 Jan 2012	P&S NPT.	TNRP	Office order 38/2012
7.	U Khet Khet	Ranger	4 Apr	TNRP	Yangon	Office order

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

	Kyaw		2012		region	76/2012
8.	U Thet Ko	Ranger	4 Apr 2012	Dawe Tsp.	TNRP	Office order 76/2012
9.	U Nyi Nyi Htwe	Forester	11 Apr 2012	Dawe Tsp.	TNRP	Office order 426/2012
10.	Daw Ei Sandi Set	Range Officer	6 Aug 2012	TNRP	FRI	Office order 546/2012
11.	Daw Kay Khine Lwin	Range Officer	6 Aug 2012	Admin. NPT.	TNRP	Office order 547/2012
12.	U San Tun	Range Officer	24 Sep 2012	TNRP	NWCD	Office order 684/2012
13.	U Thein Htay	Range Officer	24 Sep 2012	NWCD	TNRP	Office order 685/2012
14.	U Shwe Phone	Range Officer	24 Sep 2012	TNRP	Dawe Tsp.	Office order 686/2012
15.	U Hla Win	Range Officer	24 Sep 2012	Dawe Tsp.	TNRP	Office order 687/2012
16.	U Aung Soe Moe	Forester	24 Sep 2012	.TNRP	Thayetchaung Tsp	.Office order 687/2012
17.	U Shwe Thein	Forester	24 Sep 2012	Dawe Tsp.	TNRP	Office order 688/2012
18.	Naw Valuable	Extension staff	1 Oct 2012	TNRP	CPPI	Resigned from TRRP
19.	U Hla Myo Aung	Staff Officer	22 Oct 2012	Myaungmya Tsp.	TNRP	Office order 759/2012
20.	U Thiha	Driver	19 Nov 2012	TNRP	GEOCOMP	Resigned from TNRP
21.	U Shwe Win	Driver	19 Nov 2012	-	TNRP	New recruit
22.	Naw Nightingale	Extension staff	19 Dec 2012	-	TNRP	New recruit

SUMMARY

Sr.	Month	To TNR (IN)	From TNR (OUT)	Remarks
1.	September 2011	1	1	
2.	December 2011	1	-	
3.	January 2012	3	-	
4.	April 2012	2	1	
5.	August 2012	1	1	
6.	September 2012	3	3	
7.	October 2012	*1	1	*Special Duty as Environmental Officer for PTTEP
8.	November 2012	1	1	
9.	December 2012	1	-	
	Total	14	8	

Staff transfers were a serious issue during the mid-term evaluation period. The staff of the first phase (2005-2009) was totally replaced by a new team since the start of the second phase. During March 2011, 11 permanent staffs from FD were transferred again just after receiving training from WCS in January 2011. This was highlighted by WCS that staff transfers should be considered, only at least one year after receiving any kind of technical training that is essential for reserve management.

The turnover rate during the later stages of the second phase of the project was that the maximum staff transferred was 3 staff at time and that was observed in January 2012 and September 2012.

The Project Director U Zaw Win Myint released his dual charge as Project Director of TNRP as well as Director of Forest Department, Taninthayi Region to U Tint Swe, Park Warden on 21-9-2011. U Tint Swe also took dual charge as Project Director as well as Park Warden, until U Min Maw was appointed as Park Warden on 5-1-2012. After that U Tint Swe took charge as Project Director of TNRP up till now.

7. QUALITY AND EFFECTIVENESS OF COORDINATING MECHANISM

7.1 COMMUNICATION

Monthly meetings of TNRP staff are organized for reviewing activities within the month and to make plans for the next month. Reserve Management Team organized bi-monthly Site-level Meetings with all stakeholders during the project period from 2009-10 to 2012-13. Since 2011, the Project Director did not have a chance to participate in the bi-monthly Site Level meetings at Gangawtaung Office which is one of the most important meetings for coordinating with stakeholders at Site Level.

MONTHLY SITE LEVEL MEETING AT GANGAWTAUNG OFFICE

Sr.	Date	Attendees						Total
		MOGE	MGTC	TPC	PTTEP	Others	TNR	
1.	9-3-2010	2	1	-	-	3	4	10
2.	3-7-2010	4	2	4	-	-	2	12
3.	23-8-2010	1	-	4	-	-	4	9
4.	4-10-2010	4	3	-	-	-	4	11
5.	12-2-2011	3	4	2	1	-	5	15
6.	17-6-2011	4	3	1	7	1	4	20
7.	16-2-2012	3	2	2	-	3	5	15
8.	7-6-2012	3	3	2	1	2	2	13
9.	15-8-2012	-	3	-	2	2	2	9
10.	11-2-2013	4	3	1	1	2	2	13
	Total	28	24	16	12	13	34	127

Responsible Persons attending the meeting

9-3-2010 TNR: PW; MGTC: Supervisor (Community); Others: Geocomp, Range Officer, Yebyu township

3-7-2010 TNR: PD, PW; MGTC: Supervisor (Community); PCML: Site Manager

- 23-8-2010** TNR: Staff Officer: POC: Site Manager
- 4-10-2010** TNR: PW, NC (CF); MGTC: HSE (Supervisor)
- 12-2-2011** TNR: PW; MGTC: Supervisor (Socio-eco); TPC: Security Officer
- 17-6-2011** TNR: Staff Officer; NC (Elephant), NC (Tapir); MGTC: Agri/Vet Supervisor: Supervisor (Community); PTTEP: Site Manager, Construction Engineer, Project Engineer: Others: Operation Manager (United Engineering)
- 16-2-2012** TNR: National Consultant (Forest Fire Protection); PW; SO; Range Officers; MGTC: Supervisor (Community); TPC: Socio-eco; Security Officer; Others: Geocomp; United Engineering;
- 7-6-2012** TNR: PW; RO; MGTC: HSE; Chief Security Officer (CSO); Socio-eco (Secondee); Medic; PCML: Medic; Others: UE;
- 15-8-2012** TNR: PW; RO; MGTC: HSE; Socio-eco(Program Manager); POC: Site Manager; TPC: Medic; PTTEP: Socio-eco Officer; Others: UE; Forester (Kaleinaung Forest Department);
- 11-2-2013** TNR: PW; RO; MGTC: Chief Security Officer (CSO); HSE (Supervisor); Radio Officer; TPC: Medic; PTTEP: Security Supervisor; Others: UE; Range Officer (Kaleinaung Forest Department)

Another source of communication among all stakeholders is through Project Quarterly Progress Reports (PQPR). It is clearly stated in the project document that the Project Director will prepare and submit quarterly progress reports to the Coordinating Committee. It was observed that starting from PQPR 25 the current Project Director stopped producing PQPR without giving any reason at all. The situation was highlighted by TPC in the 3rd TC meeting and MGTC in the 4th TC meeting. Also it was learned that MGTC's General Manager was also quite concerned about receiving PQPR reports in time for proper monitoring of the project. Also the partners are quite serious about receiving technical reports from national consultants also. It is also mentioned in the project document that *"technical reports will be submitted to the Project Director by each technical consultant and each organization contracted to undertake special studies. The Project Director will then forward copies of all completed reports to the Coordinating Committee"*.

Technical committee meetings are also one source of coordinating mechanism. As stated earlier TC meetings were held not on a regular basis as planned. It was quite obvious that the 3rd, 4th and 5th TC meetings' resolutions were approved only at the last PCC meeting held on 11th March 2013, just before the termination of the second phase project on 31st March 2013.

The most important coordinating mechanism is the Project Coordinating Committee Meetings. Since 2009 August, only two PCC meetings were held. During the 16th PCC meeting, it was decided that PCC should be held at least twice in every physical year, which is quite in line with what is mentioned in the project document. Also it was decided in the 16th PCC meeting that TNRP should cooperate with the Socio-eco department of MGTC for capacity building of local communities in order to strengthen their financial management capacity for micro-finance program to be supported by TNRP.

Actually microfinance program was included in the second phase of the project. During the 15th PCC meeting the Project Director proposed to replace 'Microfinance Program' with 'Livelihood Support Program' and to formulate necessary terms and conditions for support and to conduct activities with allotted budget in timely manner.

8. DISCUSSION AND RECOMMENDATIONS

A common objective of park management is to reduce the threats to the conservation targets (Rao, 2012). Hence, the next step is to list all the direct and indirect factors that are threats to the conservation target(s).

Direct threats are human activities such as hunting, fishing, logging, farming, road building and house construction that physically result in unwanted changes in animal abundance, age or size class distributions, movement patterns, species richness and/or the quality and extent of their habitat.

Direct threats at TNR can be broadly classified into:

- ◆ Shifting Cultivation
- ◆ Subsistence Hunting
- ◆ Subsistence logging / non-timber forest products
- ◆ Commercial Hunting / Illegal logging
- ◆ Village encroachment, and
- ◆ Forest Fire

Indirect threats are factors underlying direct threats (meaning the reasons why the direct threats are happening).

Indirect threats of TNR can be classified as:

Reserve Management Team: Lack of resources or capacity to enforce resource use regulations, monitor impacts, or communicate rules to users (*Lack of adequately qualified staff to do enforcement*)

Local Communities: lack of awareness of how their activities threaten biodiversity and sustainable use of natural resources, lack of interest in conservation, lack of alternatives to a damaging activity (*Lack of alternative sources of income leads people to break laws and engage in illegal wildlife trade and illegal logging*)

Policy makers: inadequate laws, policy or support for their enforcement (*Lack of enforcement of the Wildlife Law*)

The strategy for effective control of direct threats and indirect threats is through four broad types of interventions:

- ◆ *Enforcement* such as forest patrols, market patrols, road check points, marking protected area boundaries and core zones, etc.
- ◆ *Education and awareness raising* such as disseminating wildlife regulations, the status and importance of the animals, etc.)

- ◆ *Incentives* such as direct payments to people to protect an animal, alternative income derived from wildlife research in TNR, etc.
- ◆ *Modification of livelihood practices* such as growing livestock forages near villages, training farmers to protect crops from elephants, relocating fields.

It would be necessary to monitor interventions to make sure that they are being implemented as planned through the following processes at TNR based on METT:

8.1 LEGAL STATUS

TNR Project area had been decreed as “**Taninthari Nature Reserve**” according to the Notification No. (18/2005), dated 30th March 2005 by Ministry of Forestry, Minister’s Office, Government of Myanmar

An “Environmental Conservation Law” was promulgated in 30th March 2012, in order to implement the Environmental Policy of Myanmar. This will incorporate environmental conservation activities for sustainable development practices as well as providing clean and healthy environment for the future generations. Also, the recent law highlighted to conserve the ecosystem services in order to ensure the biodiversity, integrity and ecological functioning of the natural systems which are being threatened due to human activities.

A recent rule concerning “Conservation of Water Sources, Rivers and Streams” was proclaimed in January 22, 2013. It also highlighted the prevention and control of pollution for the protection of the environment. These two legislations will give added value for the protection and conservation of TNRP.

At the moment PTTEP has been laying gas pipeline traversing the Pipeline Corridor of TNR. A good coordination and cooperation between PTTEP and TNRP personnel is essential for the smooth operation of the pipe laying campaign that will have minimum impact on the environment. Forest Department has assigned one Environmental Officer for this task in order to monitor the progress of the operation as well as to find out whether the construction activities are in compliance with the Environmental Management Plan of Environment Social Health Impact Assessment report (ESHIA) of PTTEP.

Recommendation 1:

To make sure that all stakeholders are aware of the status of the Reserve and rules and regulations being enforced through regular meetings with the stakeholders, particularly during regular Site Level Meetings and also by being close coordination with the villagers.

Recommendation 2:

As this project is the one and only project in Myanmar with Private Public Partnership (3P), TNRP should treat this project as a model project and closely monitor whether the activities performed by PTTEP are in compliance with the recently promulgated EIA legislation of Myanmar.

Recommendation 3:

Closely monitor the pipe laying operations of PTTEP by screening out environmentally unsound project activities. Identify feasible alternatives, (such as re-routing activities of the pipeline ROW) so as to modify existing ESHIA with additional EIA for re-routing options to reduce environmental impacts by carrying out mitigation measures to reduce, offset, or eliminate major impacts like the removal of endemic and rare tree species, habitat fragmentation for wildlife and soil erosion problem in the very steep slopes.

8.2 PROTECTED AREA REGULATION

The following laws in relation to management of forest resources as well as protection of wildlife, wild plants and conservation of protected areas were proclaimed in 1992 and 1994 respectively as follows:

- ◆ Forest Law (Law No. 8/92)
- ◆ Protection of Wildlife, Wild Plants and Conservation of Protected Areas Law (Law No 6/94, 1994)

Rules for protection of wildlife and natural vegetation and conservation of protected areas (24 October, 2002)

Notification No. 583/94 concerning protection for extinction of wild animals in the Union of Myanmar.

Recommendation 4:

Allocate funds for organizing extension programs for educating 'Wildlife Legislations' and 'Protected Areas'. Also 'Protected Status of Wild Animals' such as:

- ◆ Totally protected animals: mammals birds and reptiles;
- ◆ Normally protected animals: mammals, birds and reptiles
- ◆ Seasonally protected animals: mammals and birds.

Recommendation 5:

According to the new organization set up of TNR the extension unit will be manned by 10 staff which includes:

- ◆ 1 Range Officer
- ◆ 1 Deputy Ranger
- ◆ 1 Forester, and
- ◆ 7 Local extension staff.

The objective of restructuring is to mobilize the team in order to carry out more extension activities during the third phase of the project.

Recommendation 6:

During the past 4 year period, explanation of wildlife law could be carried out at 1 school and 8 villages only. More extension programs should be organized in future at schools at least to understand the values of wildlife and ecosystem services.

8.3 LAW ENFORCEMENT

Patrolling has been carried out 477 times against the target of 288 in and around TNRP. During the patrolling from 2009 to date 228.58 tons of timber/poles/scantlings were confiscated and properly handed over to Yebyu township Forest Department for further action.

Local communities from 5 villages handed over 190 local made guns at LOUs for custody during the closed season of hunting.

After the training of MIST in January 2011 by WCS, patrol staff started using patrol forms for recording patrolling data. Due to the complication of the MIST system, the response from TNRP staff was not satisfactory. WCS introduced new software SMART after conducted training on 'Application of SMART in Law Enforcement Planning, Monitoring and Reporting' from 03 to 07 December 2012. This new system is more user friendly and SMART data is in process of data entry from patrol data forms from LOUs and LEM team.

Recommendation 7:

As the SMART software is more user friendly than MIST and as it is open-source software with free access, TNRP should assign a dedicated person as LEM database Manager and an Assistant for data entry in order to operate smoothly.

Recommendation 8:

TNRP should initiate incentive schemes for patrol staff to collect quality SMART data as recommended by WCS during any kind of patrols.

8.4 Protected Area Objectives

According to the Operational Management Plan of TNR, the objectives of the protected area are:

- ◆ To preserve all natural habitat types and populations of important native species and globally threatened flora and fauna
- ◆ Improve appreciation and understanding of biodiversity and socioeconomic values of TNR amongst stakeholders at all levels.
- ◆ Effectively engage local communities in management planning and implementation of conservation activities at the village Use Zone of TNR.
- ◆ Enhance the capacity of TNR Management team so as to effectively manage the natural resources of TNR and successfully implement conservation activities.
- ◆ Conduct targeted biological survey / research to obtain relevant data that are essential for reviewing and revising TNR Management Plan at four-year interval.
- ◆ To implement the conservation activities, law enforcement activities with the aims at reducing threats to TNR.
- ◆ Due to security constraints and access only part of the TNR is under proper management to meet the objectives of the management plan.

Recommendation 9:

Reserve Management Team could manage effectively in the secured areas for the time being. Nowadays with the change of new civil government and with peace agreements with Mon Pyi Thit Party (MPTP), the situation has been improving. The Project Director made initiatives to contact with the senior party members of MPTP and got agreement from them for cooperation of conducting boundary demarcation at the northern part of the reserve. The PW took advantage of this situation by explaining the project activities of TNR at Myauk Chaw village in Mon New State Area quite recently. This situation calls for improvement in security condition of the Northern Part of the area and plans should be arranged to extend the services there.

8.5 PROTECTED AREA DESIGN

Based on 2006 TM satellite scenes (TNR Management Plan 2009) the following zones are designated for effective management of TNR, taking into consideration for current land use and security conditions.

- ◆ Core Zone (CZ)
- ◆ Village Use Zone (VUZ)
- ◆ Integrated Buffer Zone (IBZ), and
- ◆ Transportation Corridor (TC).

New satellite scenes (ALOS with 10m resolution) had been acquired and analyzed by Planning and Statistics Division of Forest Department.

Comparison of satellite scenes indicated that deforestation and degradation rates were decreasing for the two periods: 1990-2006 and 2006 -2010:

Deforestation rate in TNR

1.	1990-2006	0.008%
2.	2006-2010	0.001%

Degradation rate in TNR

1.	1990-2006	0.021%
2.	2006-2010	0.014%

The interpreted data indicated that the forest cover has improved in the middle part of TNR and the most disturbed location occurred at the northern and southern parts of TNR.

Recommendation 10:

Need to study why deforestation and forest degradation happened in TNR together with socio-economic and their related factors using RS and GIS. It is better to use 1m resolution data like IKONOS to study the causes of deforestation and degradation for the hotspot areas in the northern and southern parts of TNR, where access is still restricted at the moment.

8.6 PROTECTED AREA BOUNDARY DEMARCATION

149 boundary pillars were laid along the southern part of TNR and also along the remaining northern part boundary after negotiating with Mon Pyi Thit Party.

The boundary demarcation extends to about 67.11 miles against the planned target of 110 miles. With the participation of the local people, Village Use Zone was determined using participatory methods initiated by WCS in November 2012 aiming at the formulation of Community Based Natural Resource Management (CBNRM) in TNR.

As part of CBNRM the training was focused on village level land use mapping using participatory approach. Kyaukshut village was used as a model village with the participation of 45 villagers and from additional 2 villages, one from Zinba and six from Yebon participated as observers. Altogether 52 villagers and 18 TNRP staff participated. Village Use Zone Boundary of Kyaukshut village was demarcated.

Recommendation 11:

It is learnt that villagers from Yebon and Zinba are quite anxious to participate in Village Use Zone Mapping exercise in their village. During the Village Consultation Process (VCP) training organized by WCS, 3 villages participated in the process. TNRP replicated this process to cover the additional 9 villages in TNR. Likewise, TNRP with the assistance of WCS should replicate Village Use Zone Mapping to cover all 12 villages in TNRP.

8.7 MANAGEMENT PLAN

TNR Management Plan was prepared by the Core Unit and approved by the Project Coordinating Committee (PCC) in 2009 September. Research Management Team (RMT) has been implementing the Management Plan since then.

Recommendation 12:

During the implementation of the management plan, it is necessary to periodically review and collate information that are relevant for the revision of the management plan before the end of the project period in 2013.

Recommendation 13:

The Project Director is responsible to prepare a new Management Plan for the third phase before the end of the second phase.

8.8 REGULAR WORK PLAN

A Technical Committee was formed in 23 August 2010 and the objective of forming this committee is to meet on regular basis (minimum 4 times a year) to review the project activities and progress and to hold special meetings whenever required.

Starting from the first technical committee meeting in 23-8-2010 there were merely 5 TC meeting performed against 11 planned. Work plans for 2010-11, 2011-12 and 2012-13 were revised during Technical Committee meetings (TC1, TC3 and TC4) by PD accordingly.

Recommendation 14:

Annual work plan should be monitored closely by RMT and if there is any problem encountered during the implementation it should be put up to the TC for further action and finally approved through PCC.

8.9 RESOURCE INVENTORY

Assessment of land use / land cover was conducted using updated satellite images (ALOS satellite image) by Planning and Statistics Division of Forest Department. A report was reproduced by P&S Division of FD and it was stated that the land cover status of TNR was improving in the middle part of TNR while deforestation and degradation was observed in the northern and southern parts due to shifting cultivation, village encroachment and mining activities.

Training on forest inventory to find out the existing stock of timber and bamboo resources in the Village Use Zone was conducted. The inventory design applied during the training is the National Forest Inventory design which is found to be quite complicated for forest survey to be carried out in the Village Use Zone by the villagers.

Recommendation 15:

As WCS is introducing Community Based Natural Resource Management for TNR, it is worth consulting with them on how they managed to survey resource inventory by villagers in Hukong Valley Wildlife Sanctuary in the Kachin State.

Recommendation 16:

It was also learnt that WCS had published report on line transect method of inventory for CBNRM in Hukong Valley Wildlife Sanctuary and the same technique should be adopted for TNRP using the same methodology.

8.10 PROTECTION SYSTEM

Patrolling system is in place developed by WCS. Patrolling teams are formed based on Local Operating Units (LOUs). There are altogether 6 LOUs organizing monthly

patrols in the vicinity of their LOUs. There is also a mobile patrol team headed by one Range Officer from Gangawtaung Office.

For recording of patrol data previously MIST data forms were used. After conducting SMART training in Yangon in December 2012, MIST system has been switched to SMART which is more user friendly with open source data (free downloading).

To be able to apply SMART effectively in law enforcement planning, monitoring and reporting at all sites, it will need a dedicated LEM Database Manager and an Assistant for data entry.

At the moment the LEM Database Manager is performed by one staff officer with GIS expertise, who attended SMART training and the data entry assistant has been undertaken by one Range Officer who also attended the SMART training.

Recommendation 17:

Park Warden should closely manage the patrolling staff activities, particularly for the mobilization of the teams, based on information received from LOU staff. Each LOU should develop a monthly work plan under the framework developed in line with the annual work plan.

Recommendation 18:

LEM data base manager and his assistant play a key role in SMART system; they should have at least basic knowledge in GIS and Excel for handling SMART.

Recommendation 19:

Although initiation of incentive schemes for collecting quality patrolling were recommended by WCS, it is not effective yet.

8.11 RESEARCH

For assisting revision of the Management Plan during the second phase of the project, National Consultants had conducted the following research programs:

- ◆ Marketing study of Non-Wood forest products
- ◆ Tree and Bamboo Resource Survey
- ◆ Community Forestry
- ◆ Forest Dynamics Study
- ◆ Tiger Survey
- ◆ Forest Fire Management
- ◆ Tapir Survey
- ◆ Elephant Survey

There were 4 research programs which could not be performed due to the unavailability of the qualified staff as well as limited access to study sites due to security reasons and also lack of potential habitats:

- ◆ Explore Gurney's Pitta presence in and around potential areas of TNR using tape play methods
- ◆ Assess the abundance and distribution of Taninthayi Langur in TNR
- ◆ Survey of Rattan
- ◆ Introduce Micro Finance as incentive for improvement of communities through promotion of income generation activities

MGTC pointed out that the quality of the consultancy reports should be improved with the assistance from WCS Technical Advisors in order to reach international standards.

When checked with the contract between TNRP and WCS on 19th August 2010, it was stated that WCS would assist with the preparation of term of references and supervision of technical consultants and survey teams.

It was learnt that PD had requested WCS to prepare TORs of research programs and supervise the quality of reports. It was learnt from an email sent by WCS to PD that on the whole the qualities of reports were satisfactory.

Recommendation 20:

More cooperation between PD and WCS will be necessary for research studies to reach international standards. PD will also need to devise new biological research studies in the remaining areas of TNR based on recommendations made by the consultants.

Recommendation 21:

The Senior Program Officer from RECOFTC had visited TNR for looking opportunities to conduct joint research programs, particularly Community Forests programs with RECOFTC in future. This is a good opportunity for TNRP to get external assistance from RECOFTC regarding community forestry development programs in future.

8.12 RESOURCE MANAGEMENT

In 2010 September, WCS had initiated Village Consultation Process (VCP) and Village Use Zoning (VUZ) in 3 villages in TNR, viz., Zinba, Kyaukshut and Yebone villages. The VCP process was replicated by TNR staff that covered additional 9 villages.

WCS has initiated a Community Based Natural Resource Management (CBNRM) in TNR with Kyaukshut village selected as pilot project village. A training program was organized by WCS for preparation of 'village land use plan' based on participatory methods used in Hukaung Valley Wildlife Sanctuary.

Based on 'Village Land Use plan' the next step is to introduce the CBNRM which is a resource management system accomplished with the active participation of the community. This CBNRM system is the collaborative effort among TNRP, WCS (Myanmar Program) and local people for effective management of natural resources in the Village Use Zone of TNR.

Recommendation 22:

Normally, management planning starts from top level management, such as TNR. However, in CBNRM it is totally different. Using participatory approach, planning starts from the grass root level, i.e., the villagers draw up plans with sustainable use based on land use maps developed systematically through participatory methods. This is in inline with the new government's planning approach of bottom-up approach. This approach will prevent outsiders from being encroached their area. Villagers develop regulations in order to effectively manage their area.

Recommendation 23:

Local communities should be effectively engaged in management planning and implementation of conservation activities in the Village Use Zone in collaboration with TNR staff. RMT should select at least 1 pilot village to effectively study the CBNRM approach for resource management in VUZ.

8.13 STAFF NUMBERS

The sanctioned staff according to the Management Plan approved by PCC in 14th PCC meeting was 62 which included 26 permanent staff from Forest Department and 36 locals inclusive of 10 law enforcement staff and 7 extension staff.

Recommendation 24:

The staff seems to be quite sufficient for the time being. However, with the plan for open up of 2 new LOUs in future, it will be necessary to revise the organization set up of the project in the third phase. This is particularly necessary as peace negotiations has been taken place for Mon Pyithit Party and KNU and once the security conditions become favorable there will be more operations to be carried out in future by TNR.

8.14 STAFF TRAINING

Starting from the second phase, WCS organized trainings not only for law enforcement and matters relating to wildlife training as usual. Apart from law enforcement, trainings were more attuned towards community participation (VCP & VZP) and lately introduced the concept towards Community Based Natural Resource Management (CBNRM) which is a good initiative for poverty alleviation which is very appropriate with the vision of the government.

Recommendation 25:

Trainings organized by WCS and MGTC are quite interesting for the communities in the vicinity of TNR. Villagers are quite willing to join participatory processes such as VCP, VZP and CBNRM in planning by themselves for their future. This kind of trainings should be expanded to some more villages in the third phase.

Recommendation 26:

During the implementation of the VZP process PD realized that micro-finance program should be reintroduced with the assistance from Socio-eco of MGTC as financial constraints will involve in the effective management of VUZ and CBNRM in the third phase.

8.15 CURRENT BUDGET

Due to sudden drop of FEC exchange rate in 2012, the adjustment for supplying additional field allowances / local staff salary was made equal to 1 FEC=1000 Kyats, according to 3rd TC meeting proposal and approved by 15th PCC meeting.

Recommendation 27:

MGTC / TPC suggested that due to limited budget caused by drastic fall of FEC, TNRP should revise its work plan annually, to be in line with budget approved by MGTC and TPC, and they had no objection for the revision of budget allotment 'within agreed budget'. With the participation of PTTEP for laying the third gas pipeline in the pipeline corridor it was confirmed during the 16th PCC meeting PTTEP will join MGTC and TCP for funding the TNRP starting from the third phase. Work plans should be developed in line with additional funds flow in from PTTEP starting from the third phase of the project.

8.16 SECURITY OF BUDGET

In line with the project document it is learnt that the project will be supported from funds derived from the operation of MGTC and TPC pipelines on the estimated life of pipelines, which is expected to be approximately 30 years. According to 16th PCC meeting held in 11th March 2013, it was confirmed that MGTC and TPC would not intend to increase the funding. Instead PTTEP will join the consortium with the same amount of co-funding for the project. The budget provision will eventually be US \$ 1.8 million for the next 4 years.

Recommendation 28

Prevailing security conditions seems to be improving in future such that there will be more LOUs to be established and more works will be assigned, particularly in the Northern and Southern parts of TNR. Based on the performance of RMT, MGTC/TPC/PTTEP should consider raising annual funds in future.

8.17 MANAGEMENT OF BUDGET

The overall budget allotted for the second phase project of US\$ 1.2 million was approved by the 14th PCC meeting. Cash calls have to be made every 3 months alternatively to either MGTC/TPC on yearly basis based on work plans developed and approved yearly. If any adjustments have to be made it can be arranged through Technical Committee meetings.

Third party financial audit was conducted for a time period of 2009 October to 2010 April and 2010 April to 2011 March by U Tin Win & Group from 15-2-12 to 21-2 12.

Recommendation 29:

Annual budget should be based on approved work plans every year and consider all aspects of activities pertaining to effective use of budget being provided. If situations call for, the budget should be revised at the nearest PCC meeting or upon special arrangement in the nearest TC meeting so as to be more logical and realistic in performing the tasks. Otherwise work performances would be not up to the mark.

Recommendation 30:

Though a third party audit had been performed in February 2012, it still needs one more financial audit in March 2013 before the termination of the second phase of the project.

8.18 EQUIPMENT

During the first phase of the project there were fixed assets registers at Yangon and Gangawtaung offices at TNRP. During the first four-year period the fixed asset register was systematically organized with code number, description / commodity name, quantity and remarks.

During the second phase of the project it was observed that the current fixed assets register was found to be not properly updated. The current fixed assets register was updated to 3-7-2012 only at PD office. Recently purchased items such as notebook, GPS, camera traps and field equipments had not been properly recorded in the proper register also.

In line with the recommendations made by WCS consultant the following items were procured for smooth working conditions:

Sr.	Items	Recommended	Actual
1.	Motorcycles	x	-
2.	Head light and high power flashlights	x	-
3.	Mobile phones for communication	x	-
4.	Hammocks, sleeping bags, leech socks	x	x
5.	Fly sheets	x	x
6.	Backpacks	x	x
7.	Sylva compass	x	-
8.	1 more boat for patrolling along water courses	x	-
9.	Batteries for GPS and digital cameras	x	x

Recommendation 31:

If feasible the remaining items should be procured during the third phase of the project for smooth working conditions of TNRP.

8.19 MAINTENANCE OF EQUIPMENT

The Generators at Gangawtaung Office, Nursery at Migyaunglaung village were maintained by a qualified mechanic during the site visit to Gangawtaung Office by final evaluation team members in February 2013. Likewise all air conditioners at Gangaw Office were also maintained.

The motorcycles were maintained locally at Kanbauk. The two vehicles were maintained in Yangon as there were no qualified mechanics and spare parts available on site.

There are no maintenance records traceable for motorcycles and even for the important assets like 2 vehicles.

Recommendation 32:

There should be a proper maintenance plan / register for all important assets such as vehicles, motorcycles, generator sets, both stationary and mobile, water pumps, copier machine etc and maintenance records should fill in promptly after maintenance and updated regularly.

8.20 PERSONNEL MANAGEMENT

At the termination of the first phase in 30th November, 2009 all previous staff from TNRP had been replaced by a new team consisting of 1 Project Director, 1 Park Warden and other forest department staff consisting of 26 personnel. The fact was that the new staff had to start from scratch.

Again in 2011 March, 11 staff was transferred back to Forest Department after attending training in 2011 January organized by WCS. The frequent turnover rate indicted that staffs were dissatisfied with their jobs as some staff started submitting transfer requests. This was aggravated by the fact that the nosedive in FEC rate significantly affected the staff allowances which greatly impacted their motivation. Starting from 2012, Forest Department took great caution about staff turnover rate by transferring permanent staff by not more than 3 at a time.

Recommendation 33:

According to the project document, the intent of providing field allowances for the staff is as incentive for working in remote areas as well as to compensate for additional field costs. As the staffs are paid by FEC, in order to compensate the loss in exchange, the PD got approval from 15th PCC meeting to increase the allowances to sustain the situation. Project staffs are at the moment enjoying additional allowance for the time being. As the government is going to revoke FEC within 3 months period PD should take into consideration how to handle the staff allowances in future.

8.21 EDUCATION AND AWARENESS

Forestry extension programs were organized by RMT with participation by National Consultants such as Forest Fire Management Consultant and Orchid Consultant also. The topics covered include the following topics:

- ◆ Taninthayi Nature Reserve Project
- ◆ Forest Fire Management
- ◆ Village Use Zone
- ◆ Bamboo Charcoal / Organic Fertilizer
- ◆ Community Forestry
- ◆ Environmental Awareness
- ◆ Cash crops like Wa-U, Shawbyu and Thithmwe.

The number of times performed in 2011, 2012 and 2013 are provided in the table below:

Awareness	2011	Attendance	2012	Attendance	2013	Remarks
Talks	35	2657	33	1827	2	231

Most of the forestry extension programs were performed at 10 villages along the Ye-Dawe road. Currently, the forestry extension program has been extended to more new villages in the south and particularly at Myaukchaw village in the territory of Mon Pyi Thit Party, in the north, so as to get better coverage and provide knowledge about protected areas, particularly about rights and privileges and what the prohibitions are.

Recommendation 34:

It is envisaged that forestry extension programs should be continued due to the fact that local people have not enough knowledge about the Community Forestry programs and Community Based Natural Resources Management where communities will play a major role in getting the benefits out of the Village Use Zone so as to enjoy day to day needs of forest produce for their sustainable use.

8.22 COMMUNICATIONS AND OUTREACH

Monthly meetings of TNR staff are held regularly in order to monitor and review the monthly activities planned for the month. Generally Park Warden is in charge for the meeting and all in charge of LOUs, extension unit and law enforcement unit attend the meeting. Plans for the coming month are also decided at that meeting.

Likewise, Site Level Meetings are planned to organize bi-monthly with all the stakeholders such as MOGE, MGTC, TPC and lately PTTEP joined the meeting in February 2011. However, only 10 site level meetings could be held during the period from 2010 to 2013.

Number of Site Level Meetings Organized During 2010 to 2013 at TNRP

Year	2010	2011	2012	2013	Total
No. of meetings	4	2	3	1	10

Recommendation 35:

Site level meetings were found to be not in agreement with the plan of meeting once every two months. Site level meetings should be held bi-monthly regularly. In order to give decisions in time at least Project Director should present at these meetings occasionally so as to be more effective and accountable.

8.22 LOCAL COMMUNITIES (INCLUDING INDIGENOUS PEOPLE)

Starting from 2010 WCS had organized Village Consultancy Process (VCP) at 3 villages so as to achieve thrust building with local communities by using participatory approaches with the active participation of the villagers. Normally, villagers have to listen all the time without making any interruption at all. The VCP process is the bottom up approach with villagers can communicate with the instructors in a two way communication process.

Village Zonation Process (VZP) was also introduced in 2010 at Yebon village with the participation of local communities for drawing up maps based on their experience and local knowledge.

During 2012 WCS introduced Village Land Use Mapping process so as to review the land use status of TNRP in Kyaukshut village. This is a process in which local communities are thoroughly discussed about the natural resources through participatory process and finally arrived at a manageable plan with agreements for the use of the resources confirmed and approved by the users' group themselves.

Recommendation 36:

This Land Use mapping exercise is the first step for developing Community Based Natural Resource Management (CBNRM). WCS has successfully established CBNRM at Hukaung Valley Wildlife Sanctuary, in Kachin State. Likewise it is strongly believed that CBNRM will also be successful in TNRP. CBFiM should be replicated to

other interesting villages over time with the active participation of the local communities.

8.24. ADDITIONAL POINTS LOCAL COMMUNITIES / INDIGENOUS PEOPLE

During the CF management plan formation, local communities are openly discussed with TNRP staff as well as FD staff from Dawe District. After VCP process local communities have open communication and thrust building with TNRP staff, particularly LOUs in charge and keenly participated in land use mapping exercises. Another activity worth mentioning is the Community Based Fire Management (CBFiM) program. CBFiM is helping to enhance community welfare by protecting their resources from fire and villagers are very active in participating in the forest fire prevention team.

Recommendation 37:

Continue building open communication and thrust between (User Groups) Local Communities and all stakeholders including TNRP staff.

8.25 MONITORING AND EVALUATION

For monitoring purposes there is a system in place at TNRP.

Sr.	Monitoring Tool	Frequency	Status
1.	Monthly meeting of TNRP staff	Monthly	Held every month.
2.	Bi-monthly Site Level Meeting	Bi-monthly	Not regularly held.
3.	Project Quarterly Progress Report	Quarterly	No PQPR after 24.
4.	Technical Committee Meeting	Quarterly	Held 5 times only
5.	Project Coordinating Committee Meeting	Half-yearly	Held only 2 times

Recommendation 38:

Project Quarterly Progress Report should be distributed in time to inform the donors as well as concerned authorities on the progress of the project. Bi-monthly Site level meetings, TC meetings as well as PCC meetings should be held as scheduled so as to effectively monitor the progress of the project.

8.26 ECONOMIC BENEFIT

Introducing Community Forestry practices to abolish age-old Shifting Cultivation practices is to refrain from serious negative impacts on the existing forests as well

as biodiversity. Those practicing CF will receive forest tree seedlings as well as cash crop seedlings in the form of agro-forestry practices. The remaining forests in the Village Use Zone will be conserved properly so that villagers can get day to day needs of timber, firewood and other non-wood forest products like bamboo from these forests. They can get additional income for the community by selling the surplus with the arrangement of the Forest Department concerned.

Recommendation 39:

Natural Forest management is quite complicated process. The management of Village Use Zone is like a new venture for TNRP. TNRP is now closely consulting with Forest Department personnel for drawing up procedures and management schemes such that villages will get benefits by effectively manage the forests so that benefits will be sustainable.

Recommendation 40:

The main problem that will be encountered will be the benefit sharing of common property resources. WCS can help assist such kind of problem by using the case study of CBNRM program in Hukaung Valley Wildlife Sanctuary in Kachin State.

Recommendation 41:

Proper monitoring of Community Forests is to keep track of whether CF User Groups follow the management plan of not and if problems cropped up RMT should immediately take care to improve the situation.

8.27 FINANCIAL ANALYSIS

It is quite logical that the direct cost should surpass indirect cost so as to have the project to be functional. However, it was found that indirect costs were substantially higher than the direct costs during the second phase of the project. This will be a lesson learnt for the future phases of the project since it is unrealistic to increase the project indirect cost more than the direct costs.

It was also learnt that a third party audit was performed by U Tin Win and Group from 15-2-2012 to 21-2 2012.

Recommendation 42:

It is recommended for the project to invest more on the project direct cost than project indirect cost. In future, the Project Director should check and balance with the project direct and indirect cost for a given period.

Recommendation 43:

A final third party audit for the remaining two-year period should be performed before the termination of the second phase.

8.28 LOGICAL FRAMEWORK

The effectiveness of protected areas in conserving biological diversity largely depends on how they are managed and the extent to which planned interventions are successful in reducing threats to biodiversity contained within the protected area. WCS had revised the conceptual framework of TNR for the third phase based the following factors:

- To revise and update the conceptual model of TNR based on new information collected
- To revise the key recommendations for the management plan
- To develop a framework for implementing the management plan including timeline, responsible agencies, partnership and indicators for monitoring success

Recommendation 44:

In order to develop the management plan for the next 4 years a Logical Framework should be developed during the early stages of the formulation of management plan.

8.29 MID-TERM REVIEW

During the mid-term review 38 recommendations were made, out of that 8 recommendations were still outstanding. The following were the recommendations still pending and needed immediate action at the moment.

Sr.	Recommendations	Actions Taken	Ref.
1.	Study tours to WEFCOM or other PAs within the region	Pending	-
2.	Study tour to other protected areas in-country	Pending	-
3.	Fixed Assets register to be updated	Updated up to 3/7/12 only.	Fixed assets register missing at Gangawtaung Office
4.	To keep and update maintenance registers like Vehicles and Motorcycles	Pending	No registers in place

5.	Resource inventory to be carried out at VUZ	Pending	Inventory training completed by FD
6.	PQPR and Technical reports delivery	Pending	Not issued since PQPR 25
7.	Instead of consultancy for Microfinance organize for Socio-economic Survey	Pending	Switched to Management Plan Consultancy at 16 th PCC meeting
8.	Incentive scheme to be initiated for user grants of CF program	Pending	-

Recommendation 45:

The above mentioned pending activities should be taken immediate actions.

9. CONCLUSION

The final evaluation study was performed using the standard evaluation approach developed by Management Effectiveness Tracking Tool (METT) based on standard criteria and indicators. The overall score of 75% indicated that the project is satisfactory: however it still needs room for improvement. One of the outstanding achievements during the second phase was the recipient of 5 CF certificates in 2011 which will induce sense of security of land tenure for the local communities with the expected flow of economic benefits from activities associated with the Community Forestry Program. Though plans were aimed at receiving additional 3 certificates before the termination of the second phase due to changes in departmental procedures concerning CF certification process, it was delayed despite the fact that RMT had submitted CF management plans for Zinba and Kyaukshut USGs in time to Director FD, Taninthayi Region.

Under the scheme of “Livelihood Support Program” cash crop seedlings were distributed to the local communities who got CF program. Due to the advocacy of Round Yam (Wa-U) as potential cash crop species during the extension programs, villagers requested 13, 200 Round Yam seedlings to TNR. However, TNR could not provide any Round Yam seedlings for the time being. Villagers also requested for 5,629 lime seedlings and 4500 Cocoa seedlings of which TNR could support through the purchase of 500 grafted lime seedling and 1,300 normal lime seedlings. For Cocoa seedlings, Socio-Eco provided 1,000 seedlings. This indicated that “Livelihood Support Program” is not ready yet to support the livelihood of CF User Groups for the moment.

During the 3rd Technical Committee meeting on 30th September, 2011 one of the TC member, U Shein Gay Ngai, Assistant Director of Nature and Wildlife Conservation Division recommended that Round Yam have a proven market to make a successful alternative livelihood programs and if necessary, knowledge and technologies at Nat-Ma-Taung National Park could be shared and it would be better to build 'Wa-U' drying plant by the project. This will be a good opportunity to send some of the staff from TNR to study Round Yam as a potential cash crop in TNR in future rather than starting from scratch. A collaborative research project on the potential of cash crops as livelihood support for local communities should be carried out with RECOFTC during the third phase.

Also during the mid-term review it had been pointed out that Forest Department, Dawe District should play a leading support role together with RMT in the post certification scenario of CF. So far a meeting was organized with Forest Department, Dawe District, for the development of procedures for resource use rights for 2 pilot villages. What RMT could best carried out was the survival counting carried out in December, 2012 for 5 CFs only.

During the CF workshop organized by evaluation team on 25-2-2013 with 17 CF members from Kyaukshut, Yebone, Heinze, Zinba(1), Zinba(2), Zinba(3), Migyaunglaung, Mile(60), Yaphu(New) and Mayanchaung, it is clear that CF USGs are very interested to practice CF. They fully admitted that it is a good chance for them to get legal opportunity for getting farm lands as CF.

As management plans submitted for CF certificates were prepared by the CF consultants after negotiating with USGs at the meetings, it is quite difficult for the USGs to follow up the management plan. Staff training and development of additional skills using participatory approaches developed by RECOFTC will certainly improve the situation in the third phase.

When discussing with CF USGs about the cash crops, they indicated that they are interested in 'Thithmwe', 'Durian', 'Mangosteen', 'Cocoa' and 'Rhambutan' as cash crops and for forest trees, they prefer Pyinkado and Mahogany.

Concerning fire protection at CFs, 5 USGs indicated that have been practicing community based fire management developed by Fire Management consultant who chose Yebon USGs as a pilot village. As a domino effect additional 4 USGs joined the program successfully. They constructed fire lines 8-10 wide, have fire watch-man

patrolling regularly, also have alarm system and in Migyaunglaung there is a fire tower also.

On the other hand for effective management of the Village Use Zone (VUZ) an approach initiated by WCS using participatory approach is quite acceptable by the local communities. The Village Consultation Process (VCP) and Village Zoning Process (VZP) utilized full integration of local knowledge using participatory approach and the final Village Land Use Map was drawn and approved by villagers themselves. This map will be essential for the development of Community Based Natural Resource Management (CBNRM) which they will introduce in the next phase. In such cases RMT will act as facilitators rather than taking the leading role in the management process.

Concerning biodiversity status of the reserve, the NC for tiger survey had reported that *"The findings confirmed the presence of tigers and sufficient prey mammals in TNR using questionnaire survey and track and sign surveys. A certain level of hunting pressure and habitat disturbances caused by peripheral villages was also encountered during the survey"*

The NC for Tapir survey also made the following comments. *"A total of 3 individuals of tapir were recorded by camera traps in 2 different sites at Khotama and Make Byat ka than salt licks. The Yebone salt lick and its vicinity had been defined as tapir presence area by previous year's camera trap data and foot prints recorded by tiger survey consultant as well in 2011"*

Likewise, the NC for the tree and bamboo survey had reported that *"A total of 84 species belonging to 70 genera were found in the 9 study areas of TNR. A total of 384 tree species and 30 bamboo species were recorded. The main vegetation types in this area can be grouped into three formations i.e. evergreen forest, mixed deciduous forest and bamboo forest. According to IUCN Red Data List there are 21 tree species listed as endangered which include 15 dipterocarpus species.* The forests in the study areas (most accessible areas) are under high pressure due to encroachments for logging, hunting, plantations establishment, seasonal fire, erosion, landslides and seasonal strong wind due to storms. These disturbances are very sensitive to dynamic processes, species diversity, community structure, population development and habitats of the wildlife. These may lead to the deteriorating and breaking down the web life of ecosystem which may lead to the extinction of species.

Concerning orchids 63 orchid species belonging to 50 genus were collected during the study in the southern part of TNR. It was observed that no evidence of orchid trade in the study area. However, some *Bulbophyllum auricomum* (Thazin) have been found collecting by local people and selling for their extra income. Small commercial orchid collection and selling was noticed in Mayan Chaung Village. Some local people have been collecting *Dendrobium excile* (Moe Thazin) and selling at fresh ones by 5000 Kyats per viss and their final destination is to Yangon.

The very exciting collection was an unusual, beautiful *Calanthe* species with flowers at Ye Kan Taung Area close to Gangawtaung Office. This *Calanthe* species might be new record for Science (need firm confirmation from well-known orchid specialist).

It was suggested by the National Consultant (Orchid) that some commercial potential native orchids should be propagated with mutual cooperation with local NGOs such as Myanmar Floriculturist Association (or) private firm by means of scientific modern technology and distributed to local people for growing. By supporting this program, local communities can earn extra income for their families' wellbeing.

It is also stated that "*the orchid survey team believes that TNR area is home for lots of orchid diversity and should continue orchid survey under the joint cooperation between TNRP and local consultant or orchid society*".



FIGURE 9 CALANTHE SPECIES FROM YE' KAN TAUNG

The NC for medicinal plants had mentioned that the survey is only the ethno botanical survey to list the medicinal plants and their uses by interviewing the local people and the local medicinal practitioners (Bein-daw-hsiaya). 344 species of medicinal plants were collected, of which most of the species collected are near the village areas. 16 wild species, which are rare to collect near the residences, were collected from the forests.

There is a great potential for herbal medicine cultivation for increasing family income for poverty alleviation of local communities. It is also necessary to conserve the marketable medicinal plant species from depletion through excessive collection.

The study area is just 20% of TNR and *"the collection of 344 medicinal plant species indicated that TNR is still rich in natural resources of medicinal plants"*.

Based on the above research findings, it is quite certain that TNR is still an important Protected Area (PA) due to its unique biodiversity. Personnel from Planning and Statistics Division, Forest Department had made an assessment on land use and land cover, based on available satellite data (ALOS, ETM data) and the results indicated that the rate of deforestation and degradation decreased inside TNR. However, at the two extremes of north and south of TNR there are disturbances due to village encroachment, shifting cultivation and mining activities. Thus it is necessary to study the causes of deforestation and forest degradation using RS and GIS techniques (with high resolution data, such as 1km resolution data - IKONOS) and socio-economic data together.

In order to keep TNR well protected, TNR is facing many challenges at the moment. Through awareness programs local communities are being educated on how to be in compliance with forest law, wildlife law and on the other hand how to get support from all stakeholders including line government departments and Oil and Gas companies for appreciation of the 'Reserve Values' and work hand in hand with RMT for the successful management of the reserve.

At the moment the government is looking forward for rural development and poverty alleviation through socioeconomic wellbeing of the rural people. The CF program will be in harmony with the above mentioned statement and will play a key role in creating new livelihood opportunities, increased control of resource use by local people and developing new markets for forest and non-forest products.

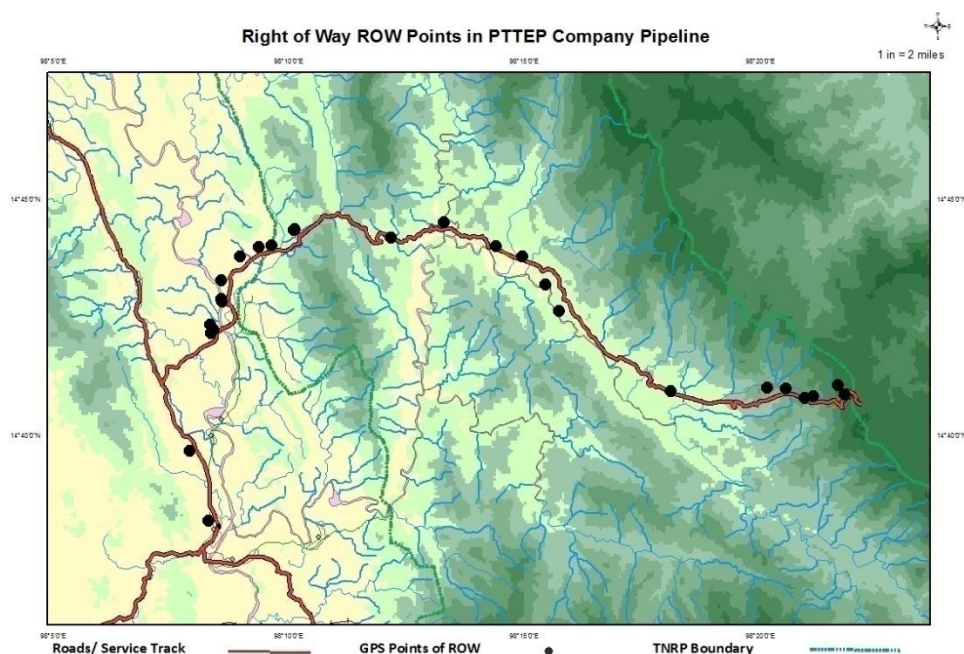
Outreach Buffer Zone development program concerning re-introduction of microfinance program should be initiated through the assistance of Socio-Eco Department of MGTC as they have vast experiences in the microfinance program since 1997.

This development program will one way or another linked harmoniously with the Community Based Natural Resource Management program initiated by WCS.

WCS conducted trainings for strict law enforcement through regular and effective patrolling against illegal activities but at the same time development programs for the poverty alleviation of local communities. Training on effective patrolling using up-to-date program such as SMART (freeware) was conducted to replace the more complicated MIST system previously introduced. During patrols illegal loggings as well as bush-meat selling at market places and food stalls are thoroughly examined and taking immediate actions in case of violations. Likewise, patrol along the service track is becoming important as reports on wildlife trafficking through this route are quite notorious in the international media. This issue is a very delicate issue as the service track is controlled by Oil and Gas companies as well as military personnel stationed along the route.

There are also some weaknesses observed during the implementation of the project. All inclusive procedures for extraction of forest products need to be drafted for VUZ. So far no plan developed for extracting forest products from the VUZ. Moreover, only 4 villages upgraded for CFUSGs out of which 1 village which is beyond the buffer zone want to do gap planting with rubber trees which is not permitted under CF regulations. Two management plans were already submitted to FD Divisional Office, Dawe, awaiting CF certificates.

Due to the uncertainty of the PTTEP gas pipeline alignment, transportation corridors are not yet finalized among the three oil companies. More over due to the pipe laying operations of PTTEP, TNR is getting additional job for monitoring whether the pipe laying operation is in compliance with the Environmental Management Plan of Environment Social Health Impact Assessment (ESHIA) of PTTEP.



Another constraint is the development of the Management Plan for the third phase. The Project Director would like to get assistance from a National Consultant for development of the management plan at the earliest possible time.

The above statements of the project indicated that there are strong and weak points in implementing the project. However, the systematic review of the project using METT approach indicated that the performance of the project is so far satisfactory.

1. Tracking Tool Assessment of TNR Project

LEGAL STATUS

Issues	Criteria	Score: Highlights only one box per question	
Does the protected area have legal status (or in the case of private reserves is covered by a covenant or similar)	The protected area is not gazetted/covenanted	0	
	There is agreement that the protected area should be gazetted/covenanted but the process has not yet begun	1	
	The protected area is in the process of being gazetted/covenanted but the process is still incomplete (includes sites designated under international conventions, such as Ramsar, or local/traditional law such as community conserved areas, which do not yet have national legal status or covenant)	2	
	The protected area has been formally gazetted/covenanted	3	

COMMENTS / EXPLANATION

- TNR Project area had been decreed as “**Taninthari Nature Reserve**” according to the Notification No. (18/2005), dated 30th March 2005 by Ministry of Forestry, Minister’s Office, Government of Myanmar
- An “Environmental Conservation Law” was promulgated in 30th March 2012, in order to implement the Environmental Policy of Myanmar. This will incorporate environmental conservation activities for sustainable development practices as well as providing clean and healthy environment for the future generations. Also, the recent law highlighted to conserve the ecosystem services in order to ensure the biodiversity, integrity and ecological functioning of the natural systems which are being threatened due to human activities.
- A recent rule concerning “Conservation of Water Sources, Rivers and Streams” was proclaimed in January 22, 2013. It also highlighted the prevention and control of pollution for the protection of the environment.
- These two legislations will give added value for the protection and conservation of TNRP.
- At the moment PTTEP has been laying gas pipeline traversing the Pipeline Corridor of TNR. A good coordination and cooperation between PTTEP and TNRP personnel is essential for the smooth operation of the pipe laying campaign that will have minimum impact on the environment. Forest Department has assigned one Environmental Officer for this task in order to monitor the progress of the operation as well as to find out whether the

construction activities are in compliance with the Environmental Management Plan of Environment Social Health Impact Assessment report (ESHIA) of PTTEP.

NEXT STEPS

- a) To make sure that all stakeholders are aware of the status of the Reserve and rules and regulations being enforced through regular meetings with the stakeholders, particularly during regular Site Level Meetings and also by being close coordination with the villagers.
- b) As this project is the one and only project in Myanmar with Private Public Partnership (3P), TNRP should treat this project as a model project and closely monitor whether the activities performed by PTTEP are in compliance with the recently promulgated EIA legislation of Myanmar.
- c) Closely monitor the pipe laying operations of PTTEP by screening out environmentally unsound project activities. Identify feasible alternatives, (such as re-routing activities of the pipeline ROW) so as to modify existing ESHIA with additional EIA for re-routing options to reduce environmental impacts by carrying out mitigation measures to reduce, offset, or eliminate major impacts like the removal of endemic and rare tree species, habitat fragmentation for wildlife and soil erosion problem in the very steep slopes.

2. Protected Area Regulation

Issues	Criteria	Score: Highlights only one box per question	
Are appropriate regulations in place to control land use and activities (e.g. hunting)?	There are no regulations for controlling land use and activities in the protected area	0	
	Some regulations for controlling land use and activities in the protected area exist but these are major weaknesses	1	
	Regulations for controlling land use and activities in the protected area exist but there are some weaknesses or gaps	2	
	Regulations for controlling inappropriate land use and activities in the protected area exist and provide an excellent basis for management	3	

COMMENTS / EXPLANATION

FINAL EVALUATION REPORT-TANINTHAYI NATURE RESERVE

- a) The following laws in relation to management of forest resources as well as protection of wildlife , wild plants and conservation of protected areas were proclaimed in 1992 and 1994 respectively as follows:
 - ◆ Forest Law (Law No. 8/92)
 - ◆ Protection of Wildlife, Wild Plants and Conservation of Protected Areas Law (Law No 6/94, 1994)
- b) Rules for protection of wildlife and natural vegetation and conservation of protected areas (24 October, 2002)
- c) Notification No. 583/94 concerning protection for extinction of wild animals in the Union of Myanmar.
- d) Reserve Management Team (RMT) had organized 9 meetings for explaining “Wildlife Law” to the villagers, teachers and students in the 8 villages and 1 school.

Sr.	Date	Village / School	Attendees	Remarks
1.	15-2-2010	Kyaukshut	32	
2.	24-2-2010	Kawhlaing	56	
3.	11-3-2010	Hnakeye	58	
4.	3-11-2010	Myitta	54	
5.	30-11-2010	Yebyu	102	
		Total	302	
1.	18-9-2011	Pakari School	186	
		Total	186	
1.	11-1-2012	Mayanchaung	45	
2.	13-1-2012	Kawhlaing	49	
3.	21-1-2012	Yebyu	110	
		Total	204	
		Grand Total	692	

RMT had organized 9 meetings, 1 at school and 8 at the villages within 3 years period. Altogether 692 attended. As the villages in the vicinity of TNRP are 30 villages with at least 1 primary school in each village, it is quite apparent that the extension program organized by RMT seems to be not quite sufficient.

NEXT STEPS

- a) Allocate funds for organizing extension programs for educating 'Wildlife Legislations' and 'Protected Areas'. Also 'Protected Status of Wild Animals' such as:
- ◆ Totally protected animals: mammals birds and reptiles;
 - ◆ Normally protected animals: mammals, birds and reptiles
 - ◆ Seasonally protected animals: mammals and birds.

- b) According to the new organization set up of TNR the extension unit will be manned by 10 staff which includes:
- ◆ 1 Range Officer
 - ◆ 1 Deputy Ranger
 - ◆ 1 Forester, and
 - ◆ 7 Local extension staff.

The objective of restructuring is to mobilize the team in order to carry out more extension activities during the third phase of the project.

- c) During the past 4 year period, explanation of wildlife law could be carried out at 1 school and 8 villages only. More extension programs should be organized in future at schools at least to understand the values of wildlife and ecosystem services.

3. Law enforcement

Issues	Criteria	Score: Highlights only one box per question	
Can staff (i.e. those with responsibility for managing the site) enforce protected area rules well enough?	The staff have no effective capacity/resources to enforce protected area legislation and regulations	0	
	There are major deficiencies in staff capacity/resources to enforce protected area legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)	1	
	The staff have acceptable capacity/resources to enforce protected area legislation and regulations but some deficiencies remain	2	
	The staff have excellent capacity/resources to enforce protected area legislation and regulations	3	

COMMENTS / EXPLANATION

- Patrolling has been carried out 477 times against the target of 288 in and around TNRP.
- During the patrolling from 2009 to date 228.58 tons of timber/poles/scantlings were confiscated and properly handed over to Yebyu township Forest Department for further action.
- Local communities from 5 villages handed over 190 local made guns at LOUs for custody during the closed season of hunting.
- After the training of MIST in January 2011 by WCS, patrol staff started using patrol forms for recording patrolling data. Due to the complication of the MIST system, the response from TNRP staff was not satisfactory. WCS introduced new software SMART after conducted training on 'Application of SMART in Law Enforcement Planning, Monitoring and Reporting' from 03 to 07 December 2012. This new system is more user friendly and SMART data is in process of data entry from patrol data forms from LOUs and LEM team.
- After the training the trainees are expected to:
 - ◆ Understand SMART data model and use of patrol forms
 - ◆ Skillfully enter field patrol data into SMART database
 - ◆ Skillfully retrieve and analyze data from SMART database
 - ◆ Facilitate reporting, monitoring and planning of patrolling and law enforcement activities using SMART.

NEXT STEPS

- As the SMART software is more user friendly than SMART and as it is open-source software with free access, TNRP should assign a dedicated person as LEM database Manager and an Assistant for data entry in order to operate smoothly.

- b) TNRP should initiate incentive schemes for patrol staff to collect quality SMART data as recommended by WCS during any kind of patrols.

4. Protected Area Objectives

Issues	Criteria	Score: Highlights only one box per question	
Is management undertaken according to agreed objectives?	No firm objectives have been agreed for the protected area	0	
	The protected area has agreed objectives, but is not managed according to these objectives	1	
	The protected area has agreed objectives, but is only partially managed according to these objectives	2	
	The protected area has agreed objectives and is managed to meet these objectives	3	

COMMENTS / EXPLANATION

- a) According to the Operational Management Plan of TNR, the objectives of the protected area are:
- ◆ To preserve all natural habitat types and populations of important native species and globally threatened flora and fauna
 - ◆ Improve appreciation and understanding of biodiversity and socioeconomic values of TNR amongst stakeholders at all levels.
 - ◆ Effectively engage local communities in management planning and implementation of conservation activities at the village Use Zone of TNR.
 - ◆ Enhance the capacity of TNR Management team so as to effectively manage the natural resources of TNR and successfully implement conservation activities.
 - ◆ Conduct targeted biological survey / research to obtain relevant data that are essential for reviewing and revising TNR Management Plan at four-year interval.
 - ◆ To implement the conservation activities, law enforcement activities with the aims at reducing threats to TNR.
 - ◆ Due to security constraints and access only part of the TNR is under proper management to meet the objectives of the management plan.

NEXT STEPS

- a) Reserve Management Team could manage effectively in the secured areas for the time being. Nowadays with the change of new civil government and with peace agreements with Mon Pyi Thit Party (MPTP), the situation has been improving. The Project Director made initiatives to contact with the senior party members of MPTP and got agreement from them for cooperation of conducting boundary demarcation at the northern part of the reserve.
- b) The PW took advantage of this situation by explaining the project activities of TNR at Myauk Chaw village in Mon New State Area quite recently.
- c) This situation calls for improvement in security condition of the Northern Part of the area and plans should be arranged to extend the services there.

5. Protected Area Design

Issues	Criteria	Score: Highlights only one box per question	
Is the protected area the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern?	Inadequacies in protected area design mean achieving the major objectives of the protected area is very difficult	0	
	Inadequacies in protected area design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment anagement)	1	
	Protected area design is not significantly constraining achievement of objectives, but could be improved (e.g. with respect to larger scale ecological processes)	2	
	Protected area design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns etc	3	

COMMENTS / EXPLANATION

- a) Based on 2006 TM satellite scenes (TNR Management Plan 2009) the following zones are designated for effective management of TNR, taking into consideration for current land use and security conditions.
- ◆ Core Zone (CZ)
 - ◆ Village Use Zone (VUZ)
 - ◆ Integrated Buffer Zone (IBZ), and
 - ◆ Transportation Corridor (TC).
- b) New satellite scenes (ALOS with 10m resolution) had been acquired and analyzed by Planning and Statistics Division of Forest Department.
- c) Comparison of satellite scenes indicated that deforestation and degradation rates were decreasing for the two periods: 1990-2006 and 2006 -2010:

Deforestation rate in TNR

1.	1990-2006	0.008%
2.	2006-2010	0.001%

Degradation rate in TNR

1.	1990-2006	0.021%
2.	2006-2010	0.014%

- d) The interpreted data indicated that the forest cover has improved in the middle part of TNR and the most disturbed location occurred at the northern and southern parts of TNR.

NEXT STEP

- a) Need to study why deforestation and forest degradation happened in TNR together with socio-economic and their related factors using RS and GIS.
- b) It is better to use 1m resolution data like IKONAS to study the causes of deforestation and degradation for the hotspot areas in the northern and southern parts of TNR, where access is still restricted at the moment.

6. Protected Area Boundary Demarcation

Issues	Criteria	Score: Highlights only one box per question	
Is the boundary known and demarcated?	The boundary of the protected area is not known by the management authority or local residents/neighbouring land users	0	
	The boundary of the protected area is known by the management authority but is not known by local residents/neighbouring land users	1	
	The boundary of the protected area is known by both the management authority and local residents /neighbouring land users but is not appropriately demarcated	2	
	The boundary of the protected area is known by the management authority and local residents/neighbouring land users and is appropriately demarcated	3	

COMMENTS/EXPLANATION

- 149 boundary pillars were laid along the southern part of TNR and also along the remaining northern part boundary after negotiating with Mon Pyi Thit Party.
- The boundary demarcation extends to about 87.51 miles exceeding the planned target of 40 miles.
- With the participation of the local people, Village Use Zone was determined using participatory methods initiated by WCS in November 2012 aiming at the formulation of Community Based Natural Resource Management (CBNRM) in TNR. As part of CBNRM the training was focused on village level land use mapping using participatory approach. Kyaukshut village was used as a model village with the participation of 45 villagers and from additional 2 villages, one from Zinba and six from Yebon participated as observers. Altogether 52 villagers and 18 TNR staff participated.
- Village Use Zone Boundary of Kyaukshut village was demarcated.

NEXT STEP

- It is learnt that villagers from Yebon and Zinba are quite anxious to participate in Village Use Zone Mapping exercise in their village. During the Village Consultation Process (VCP) training organized by WCS, 3 villages participated in the process. TNR replicated this process to cover the additional 9 villages in TNR. Likewise, TNR with the assistance of WCS should replicate Village Use Zone Mapping to cover all 12 villages in TNR.

7. Management Plan

Issues	Criteria	Score: Highlights only one box per question	
Is there a management plan and is it being implemented?	There is no management plan for the protected area	0	
	A management plan is being prepared or has been prepared but is not being implemented	1	
	A management plan exists but it is only being partially implemented because of funding constraints or other problems	2	
	A management plan exists and is being implemented	3	
a) Planning Process	The planning process allows adequate opportunity for key stakeholders to influence the management plan	+1	
b) Planning Process	There is an established schedule and process for periodic review and updating of the management plan	+1	
c) Planning Process	The results of monitoring, research and evaluation are routinely incorporated into planning	+1	

COMMENTS / EXPLANATION

- a) TNR Management Plan was prepared by the Core Unit and approved by the Project Coordinating Committee (PCC) in 2009 September.
- b) Research Management Team (RMT) has been implementing the Management Plan since then.
- c) Work progress on the implementation of the management plan by RMT is to be provided in Project Quarterly Progress Report in term of percentage accomplished and to be circulated to concerned partners.
- d) After PQPR 24, PD stopped preparing the project quarterly reports at his own discretion.

NEXT STEPS

- a) During the implementation of the management plan, it is necessary to periodically review and collate information that are relevant for the revision of the management plan before the end of the project period in 2013.
- b) The Project Director is responsible to prepare a new Management Plan for the third phase before the end of the second phase.

8. Regular Work-plan

Issues	Criteria	Score: Highlights only one box per question	
Is there a regular work plan and is it being implemented	No regular work plan exists	0	
	A regular work plan exists but few of the activities are implemented	1	
	A regular work plan exists and many activities are implemented	2	
	A regular work plan exists and all activities are implemented	3	

COMMENTS / EXPLANATION

- A Technical Committee was formed in 23 August 2010 and the objective of forming this committee is to meet on regular basis (minimum 4 times a year) to review the project activities and progress and to hold special meetings whenever required.
- Starting from the first technical committee meeting in 23-8-2010 there were merely 5 TC meeting performed against 11 planned.
- Work plans for 2010-11, 2011-12 and 2012-13 were revised during Technical Committee meetings (TC1, TC3 and TC4) by PD accordingly.

NEXT STEPS

- Annual work plan should be monitored closely by RMT and if there is any problem encountered during the implementation it should be put up to the TC for further action and finally approved through PCC.

9. Resource Inventory

Issues	Criteria	Score: Highlights only one box per question	
Do you have enough information to manage the area?	There is little or no information available on the critical habitats, species and cultural values of the protected area	0	
	Information on the critical habitats, species, ecological processes and cultural values of the protected area is not sufficient to support planning and decision making	1	

	Information on the critical habitats, species, ecological processes and cultural values of the protected area is sufficient for most key areas of planning and decision making	2	
	Information on the critical habitats, species, ecological processes and cultural values of the protected area is sufficient to support all areas of planning and decision making	3	

COMMENTS / EXPLANATION

- a) Assessment of land use / land cover was conducted using updated satellite images (ALOS satellite image) by Planning and Statistics Division of Forest Department.
- b) A report was reproduced by P&S Division of FD and it was stated that the land cover status of TNR was improving in the middle part of TNR while deforestation and degradation was observed in the northern and southern parts due to shifting cultivation, village encroachment and mining activities.
- c) Training on forest inventory to find out the existing stock of timber and bamboo resources in the Village Use Zone was conducted. The inventory design applied during the training is the National Forest Inventory design which is found to be quite complicated for forest survey to be carried out in the Village Use Zone by the villagers.

NEXT STEPS

- a) As WCS is introducing Community Based Natural Resource Management for TNR, it is worth consulting with them on how they managed to survey resource inventory by villagers in Hukong Valley Wildlife Sanctuary in the Kachin State.
- b) WCS had published report on line transect method of inventory for CBNRM and should be adopted for TNRP using the same methodology.

10. Protection System

Issues	Criteria	Score: Highlights only one box per question	
Are systems in place to control access/resource use in the protected area?	Protection systems (patrols, permits etc) do not exist or are not effective in controlling access/resource use	0	
	Protection systems are only partially effective in controlling access/resource use	1	
	Protection systems are moderately effective in controlling access/resource use	2	
	Protection systems are largely or wholly effective in controlling access/ resource use	3	

COMMENTS / EXPLANATION

- Patrolling system is in place developed by WCS. Patrolling teams are formed based on Local Operating Units (LOUs). There are altogether 6 LOUs organizing monthly patrols in the vicinity of their LOUs. There is also a mobile patrol team headed by one Range Officer from Gangawtaung Office.
- For recording of patrol data previously MIST data forms were used. After conducting SMART training in Yangon in December 2012, MIST system has been switched to SMART which is more user friendly with open source data (free downloading).
- To be able to apply SMART effectively in law enforcement planning, monitoring and reporting at all sites, it will need a dedicated LEM Database Manager and an Assistant for data entry.
- At the moment the LEM Database Manager is performed by one staff officer with GIS expertise, who attended SMART training and the data entry assistant has been undertaken by one Range Officer who also attended the SMART training.

NEXT STEP

- Park Warden should closely manage the patrolling staff activities, particularly for the mobilization of the teams, based on information received from LOU staff.
- Each LOU should develop a monthly work plan under the framework developed in line with the annual work plan.
- LEM data base manager and his assistant play a key role in SMART system; they should have at least basic knowledge in GIS and Excel for handling SMART.
- Although initiation of incentive schemes for collecting quality patrolling were recommended by WCS, it is not effective yet.

11. Research

Issues	Criteria	Score: Highlights only one box per question	
Is there a programme of management orientated survey and research work?	There is no survey or research work taking place in the protected area	0	
	There is a small amount of survey and research work but it is not directed towards the needs of protected area management	1	
	There is considerable survey and research work but it is not directed towards the needs of protected area management	2	
	There is a comprehensive, integrated programme of survey and research work, which is relevant to management needs	3	

COMMENTS / EXPLANATION

- a) For assisting revision of the Management Plan during the second phase of the project, National Consultants had conducted the following research programs:
 - ◆ Marketing study of Non-Wood forest products
 - ◆ Tree and Bamboo Resource Survey
 - ◆ Community Forestry
 - ◆ Forest Dynamics Study
 - ◆ Tiger Survey
 - ◆ Forest Fire Management
 - ◆ Tapir Survey
 - ◆ Elephant Survey
- b) There were 4 research programs which could not be performed due to the unavailability of the qualified staff as well as limited access to study sites due to security reasons and also lack of potential habitats:
 - ◆ Explore Gurney's Pitta presence in and around potential areas of TNR using tape play methods
 - ◆ Assess the abundance and distribution of Taninthayi Langur in TNR
 - ◆ Survey of Rattan
 - ◆ Introduce Micro Finance as incentive for improvement of communities through promotion of income generation activities
- c) MGTC pointed out that the quality of the consultancy reports should be improved with the assistance from WCS Technical Advisors in order to reach international standards.
- d) When checked with the contract between TNRP and WCS on 19th August 2010, it was stated that WCS would assist with the preparation of term of references and supervision of technical consultants and survey teams.
- e) It was learnt that PD had requested WCS to prepare TORs of research programs and supervise the quality of reports. It was learnt from an email sent by WCS to PD that on the whole the quality of reports was satisfactory.

NEXT STEPS

- a) More cooperation between TNR and WCS for research studies to reach international standards.
- b) The Senior Program Officer from RECOFTC had visited TNR for looking opportunities to conduct joint research programs, particularly Community Forests programs with RECOFTC in future. This is a good opportunity for TNRP to get external assistance from RECOFTC regarding community forestry development programs in future.

12. Resource Management

Issues	Criteria	Score: Highlights only one box per question	
Is active resource management being undertaken?	Active resource management is not being undertaken	0	
	Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented	1	
	Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed	2	
	Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented	3	

COMMENTS / EXPLANATION

- a) In 2010 September, WCS had initiated Village Consultation Process (VCP) and Village Use Zoning (VUZ) in 3 villages in TNR, viz., Zinba, Kyaukshut and Yebone villages. The VCP process was replicated by TNR staff that covered additional 9 villages.
- b) WCS has initiated a Community Based Natural Resource Management (CBNRM) in TNR with Kyaukshut village selected as pilot project village.
- c) A training program was organized by WCS for preparation of 'village land use plan' based on participatory methods used in Hukaung Wildlife Sanctuary.
- d) Based on 'Village Land Use plan' the next step is to introduce the CBNRM which is a resource management system accomplished with the active participation of the community.
- e) This CBNRM system is the collaborative effort among TNRP, WCS (Myanmar Program) and local people for effective management of natural resources in the Village Use Zone of TNR.

NEXT STEPS

- a) Normally, management planning starts from top level management, such as TNR. However, in CBNRM it is totally different. Using participatory approach, planning starts from the grass root level, i.e., the villagers draw up plans with sustainable use based on land use maps developed systematically through participatory methods. This is in inline with the new government's planning approach of bottom-up approach.
- b) This approach will prevent outsiders from being encroached their area. Villagers develop regulations in order to effectively manage their area.
- c) Local communities should be effectively engaged in management planning and implementation of conservation activities in the Village Use Zone in collaboration with TNR staff.

13. Staff Numbers

Issues	Criteria	Score: Highlights only one box per question	
Are there enough people employed to manage the protected area?	There are no staff	0	
	Staff numbers are inadequate for critical management activities	1	
	Staff numbers are below optimum level for critical management activities	2	
	Staff numbers are adequate for the management needs of the protected area	3	

COMMENTS / EXPLANATION

- a) The sanctioned staff according to the Management Plan approved by PCC in 14th PCC meeting was 62 which included 26 permanent staff from Forest Department and 36 locals inclusive of 10 law enforcement staff and 7 extension staff.
- b) During the start of the second phase in October 2009, the staff of first phase had been totally replaced by a new team since the start of the second phase. During March 2011, 11 permanent staff had been transferred again just after receiving training in January 2011.
- c) This was a total loss for the project. Donors were not quite happy about the situation.
- d) Since then Forest Department took great caution about staff turnover rate by transferring permanent staff by not more than 3 at a time.
- e) In October 2012, Forest Department transferred one staff officer to TNR on special mission for monitoring and supervision of Pipe Laying Operations of Zawtika Onshore Pipeline Operation in the Pipeline Corridor of TNR (PTTEP and CCPI)

NEXT STEPS

- a) The staff seems to be quite sufficient for the time being. However, with the plan for open up of 2 new LOUs in future, it will be necessary to revise the organization set up of the project in the third phase.

- b) This is particularly necessary as peace negotiations has been taken place for Mon Pyithit Party and KNU and once the security conditions become favorable there will be more operations to be carried out in future by TNR.

14. Staff Training

Issues	Criteria	Score: Highlights only one box per question	
Are staff adequately trained to fulfil management objectives?	Staff lack the skills needed for protected area management	0	
	Staff training and skills are low relative to the needs of the protected area	1	
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	
	Staff training and skills are aligned with the management needs of the protected area	3	

COMMENTS / EXPLANATION

- a) Staff training by WCS during the second phase of the project include the following:
- ◆ Training on Village Consultation Process (VCP) and Village Zonation Process (VZP) for TNR (20-29 September, 2010)
 - ◆ Patrolling and Wildlife Protection Training (25 January 2011 to 1 February 2011)
 - ◆ Patrolling and Wildlife training (5-8 July, 2011)
 - ◆ Review of Implementation of MIST and Law Enforcement Strategy (9-11 July, 2011)
 - ◆ Village Land Use Mapping by villagers for the development of CBNRM, 9-12 November 2012)
 - ◆ Training on application of SMART in Law Enforcement Planning and Reporting (12 December 2012)
- b) Community Forestry (CF) training provided by Central Forestry Development Training Centre, Forest Department is a good training opportunity for TNR staff. Seven extension staff from TNR attended the training while 10 permanent staff joined as observers.
- c) Starting from the second phase, WCS organized trainings not only for law enforcement and matters relating to wildlife training as usual. Apart from law enforcement, trainings were more attuned towards community participation (VCP & VZP) and lately introduced the concept towards Community Based Natural Resource Management (CBNRM) which is a good initiative for poverty alleviation which is very appropriate with the vision of the government.
- d) At the site level there is a good opportunity to learn from Yadana Socio-Eco Program of MGTC. They have started the socio-economic program since 1995. The socioeconomic program covers 25 villages in the vicinity of the Yadana Gas Pipeline. The activities involved in this program include:
- ◆ Health
 - ◆ Education and Community Development

- ◆ Micro-finance
- ◆ Agri-Vet
- ◆ Infrastructure / assets to markets.

Some of the villages of TNR overlapped with the Socio-Eco Program.

NEXT STEPS

- a) Trainings organized by WCS and MGTC are quite interesting for the communities in the vicinity of TNR. Villagers are quite willing to join participatory processes such as VCP, VZP and CBNRM in planning by themselves for their future.
- b) It was a great surprise for the villagers to get involved in the planning process. One good advantage of this process is that planners can brainstorm the Indigenous Knowledge (IK) of the local people which can effectively be used in the planning stage.
- c) This kind of exercise should be expanded to some more villages in the third phase.
- d) During the implementation of the VZP process PD realized that micro-finance program should be reintroduced with the assistance from Socio-eco of MGTC as financial constraints will involve in the effective management of VUZ and CBNRM in the third phase.

15. Current Budget

Issues	Criteria	Score: Highlights only one box per question	
Is the current budget sufficient?	There is no budget for management of the protected area	0	
	The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage	1	
	The available budget is acceptable but could be further improved to fully achieve effective management	2	
	The available budget is sufficient and meets the full management needs of the protected area	3	

COMMENTS / EXPLANATION

- a) Due to the drastic drop in exchange rate of FEC and Myanmar Kyat (MMK) during the first TC meeting the site allowances and salaries of local staff were revised in 2009.
- b) Again, due to sudden drop of FEC exchange rate in 2012, the adjustment for supplying additional field allowances / local staff salary was made equal to 1 FEC=1000 Kyats, according to 3rd TC meeting proposal and approved by 15th PCC meeting.

NEXT STEP

- a) MGTC / TPC suggested that due to limited budget caused by drastic fall of FEC, TNRP should revise its work plan annually, to be in line with budget approved by MGTC and TPC, and they had no objection for the revision of budget allotment within agreed budget.
- b) With the participation of PTTEP for laying the third gas pipeline in the pipeline corridor it was confirmed during the 16th PCC meeting PTTEP will join MGTC and TCP for funding the TNRP starting from the third phase.

16. Security of Budget

Issues	Criteria	Score: Highlights only one box per question	
Is the budget secure?	There is no secure budget for the protected area and management is wholly reliant on outside or highly variable funding	0	
	There is very little secure budget and the protected area could not function adequately without outside funding	1	
	There is a reasonably secure core budget for regular operation of the protected area but many innovations and initiatives are reliant on outside funding	2	
	There is a secure budget for the protected area and its management needs	3	

COMMENTS / EXPLANATION

- a) In line with the project document it is learnt that the project will be supported from funds derived from the operation of MGTC and TPC pipelines on the estimated life of pipelines, which is expected to be approximately 30 years.
- b) According to 16th PCC meeting held in 11th March 2013, it was confirmed that MGTC and TPC would not intend to raise the funding due to drastic fall of FEC. Instead PTTEP will join the consortium with the same amount of co-funding for the project. The budget provision will eventually be US \$ 1.8 million for the next 4 years.

NEXT STEP

- a) MGTC/TPC should consider raising annual funds due to the fact that prevailing security conditions seems to be improved in future such that there will be more LOUs to be established and more works will be assigned, particularly in the Northern and Southern parts of TNR.

17. Management of Budget

Issues	Criteria	Score: Highlights only one box per question	
Is the budget managed to meet critical management needs?	Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)	0	
	Budget management is poor and constrains effectiveness	1	
	Budget management is adequate but could be improved	2	
	Budget management is excellent and meets management needs	3	

COMMENTS / EXPLANATION

- The overall budget allotted for the second phase project of US\$ 1.2 million was approved by the 14th PCC meeting.
- Cash calls have to be made every 3 months alternatively to either MGTC/TPC on yearly basis based on work plans developed and approved yearly.
- If any adjustments have to be made it can be arranged through Technical Committee meetings.
- WCS had revised and update the conceptual model of TNR based on new information collected.
- Third party financial audit was conducted for a time period of 2009 October to 2010 April and 2010 April to 2011 March by U Tin Win Group from 15-2-12 to 21-2-12.

NEXT STEPS

- WCS had developed TNRP implementation plan for 2013-2017. The revised conceptual model and implementation plan now serve as the baseline to develop a revised management plan for the project.
- This management plan needs to take into account the constraints and limitations identified based on past 8 years' experience to ensure the project reaches its stated goal and objectives.
- Annual budget should be based on approved work plans every year and consider all aspects of activities pertaining to effective use of budget being provided.
- If situations call for the budget should be revised at the nearest PCC meeting or upon special arrangement in the nearest TC meeting so as to be more logical and realistic in performing the tasks. Otherwise work performances would be not up to the mark.
- Though a third party audit had been performed in February 2012, it still needs one more financial audit in March 2013 before the termination of the second phase of the project.

18. Equipment

Issues	Criteria	Score: Highlights only one box per question	
Is equipment sufficient for management needs?	There are little or no equipment and facilities for management needs	0	
	There are some equipment and facilities but these are inadequate for most management needs	1	
	There are equipment and facilities, but still some gaps that constrain management	2	
	There are adequate equipment and facilities	3	

COMMENTS / EXPLANATION

- During the first phase of the project there were fixed assets registers at Yangon and Gangawtaung offices at TNRP. During the first four-year period the fixed asset register was systematically organized with code number, description / commodity name, quantity and remarks.
- During the second phase of the project it was observed that the current fixed assets register was found to be not properly updated. The current fixed assets register was updated to 3-7-2012 only. Recently purchased items such as notebook, GPS, camera traps and field equipments had not been properly recorded in the proper register also.
- In line with the recommendations made by WCS consultant the following items were procured for smooth working conditions:

Sr.	Items	Recommended	Actual
1.	Motorcycles	x	-
2.	Head light and high power flashlights	x	-
3.	Mobile phones for communication	x	-
4.	Hammocks, sleeping bags, leech socks	x	x
5.	Fly sheets	x	x
6.	Backpacks	x	x
7.	Sylva compass	x	-
8.	1 more boat for patrolling along water courses	x	-
9.	Batteries for GPS and digital cameras	x	-

NEXT STEPS

- If feasible the remaining items should be procured during the third phase of the project for smooth working conditions of TNRP.

19. Maintenance of Equipment

Issues	Criteria	Score: Highlights only one box per question	
Is equipment adequately maintained?	There is little or no maintenance of equipment and facilities	0	
	There is some ad hoc maintenance of equipment and facilities	1	
	There is basic maintenance of equipment and facilities	2	
	Equipment and facilities are well maintained	3	

COMMENTS / EXPLANATION

- The Generators at Gangawtaung Office, Nursery at Migyaunglaung were maintained by a qualified mechanic during the site visit to Gangawtaung Office by final evaluation team members in February 2013.
- Likewise all air conditioners at Gangaw Office were also maintained.
- The motorcycles were maintained locally at Kanbauk.
- The two vehicles were maintained at Yangon as there were no qualified mechanics and spare parts available on site.
- There are no maintenance records traceable for motorcycles and even for the important assets like 2 vehicles.

NEXT STEPS

- There should be a proper maintenance plan / register for all important assets such as vehicles, motorcycles, generator sets, both stationary and mobile, water pumps, copier machine etc and maintenance records should fill in promptly after maintenance and updated regularly.

20. Personnel Management

Issues	Criteria	Score: Highlights only one box per question	
Is the staff managed well enough?	Problem with personnel management significantly constrain management effectiveness	0	
	Problems with personnel management partially constrain management effectiveness	1	
Process	Personnel management is adequate but could be improved	2	
	Personnel management is excellent and aids effectiveness	3	

COMMENTS / EXPLANATION

- At the termination of the first phase in 30th November, 2009 all previous staff from TNRP had been replaced by a new team consisting of 1 Project Director, 1 Park Warden and other forest department staff consisting of 26 personnel. The fact was that the new staff had to start from scratch.
- Again in 2011 March, 11 staff was transferred back to Forest Department after attending training in 2011 January organized by WCS.
- The frequent turnover rate indicted that staffs were dissatisfied with their jobs as some staff started submitting transfer requests.
- This was aggravated by the fact that the nosedive in FEC rate significantly affected the staff allowances which greatly impacted their motivation.
- Starting from 2012, Forest Department took great caution about staff turnover rate by transferring permanent staff by not more than 3 at a time.

NEXT STEPS

- According to the project document, the intent of providing field allowances is as incentive for working in remote areas as well as to compensate for additional field costs. As the staffs are paid by FEC, in order to compensate the loss in exchange, the PD got approval from 15th PCC meeting to increase the allowances to sustain the situation.
- The next step necessary is how to allocate the funds flow in from PTTEP during the third phase from 2013 to 2017.

21. Education and Awareness

Issues	Criteria	Score: Highlights only one box per question	
Is there a planned education programme linked to the objectives and needs?	There is no education and awareness programme	0	

	There is a limited and ad hoc education and awareness programme	1	
	There is an education and awareness programme but it only partly meets needs and could be improved	2	
	There is an appropriate and fully implemented education and awareness programme	3	

COMMENTS / EXPLANATIONS

- a) Forestry extension programs were organized by RMT with participation by National Consultants such as Forest Fire Management Consultant and Orchid Consultant also. The topics covered include the following topics:
- ◆ Taninthayi Nature Reserve Project
 - ◆ Forest Fire Management
 - ◆ Village Use Zone
 - ◆ Bamboo Charcoal / Organic Fertilizer
 - ◆ Community Forestry
 - ◆ Environmental Awareness
 - ◆ Cash crops like Wa-U, Shawbyu and Thithmwe.
- b) The number of times performed in 2011, 2012 and 2013 are provided in the table below:

Awareness	2011	Attendance	2012	Attendance	2013	Remarks
Talks	35	2657	33	1827	2	231

- c) Most of the forestry extension programs were performed at 10 villages along the Ye-Dawe road. Currently, the forestry extension program has been extended to more new villages in the south and particularly at Myaukchaw village in the territory of Mon Pyi Thit Party, in the north, so as to get better coverage and provide knowledge about protected areas, particularly about rights and privileges and what the prohibitions are.

NEXT STEPS

- a) It is envisaged that forestry extension programs should be continued due to the fact that local people have not enough knowledge about the Community Forestry programs and Community Based Natural Resources Management where communities will play a major role in getting the benefits out of the Village Use Zone so as to enjoy day to day needs of forest produce for their sustainable use.

22. Communication and outreach

Issues	Criteria	Score: Highlights only one box per question	
Is there a planned communication and outreach program?	There is little or no communication between managers and stakeholders involved in the protected area.	0	
	There is communication between managers and stakeholders but this is ad hoc and not part of a planned communication program.	1	
	There is a planned communication programme that is being used to build support for the protected area amongst relevant stakeholders but implementation is limited.	2	
	There is planned communication programme that is being used to build to build support for the protected area amongst relative stakeholders	3	

COMMENTS / EXPLANATION

- Monthly meetings of TNR staff are held regularly in order to monitor and review the monthly activities planned for the month. Generally Park Warden is in charge for the meeting and all in charge of LOUs, Extension Unit and Law Enforce Unit attend the meeting. Plans for the coming month are also decided at that meeting.
- Likewise, Site Level Meetings are planned to organize bi-monthly with all the stakeholders such as MOGE, MGTC, TPC and lately PTTEP joined the meeting in February 2011. However, only 10 site level meetings could be held during the period from 2010 to 2013.

Number of Site Level Meetings Organized During 2010 to 2013 at TNRP

Year	2010	2011	2012	2013	Total
No. of meetings	4	2	3	1	10

NEXT STEP

- Site level meetings were found to be not in agreement with the plan of meeting once every two months.
- Site level meetings should be held bi-monthly regularly. In order to give decisions in time at least Project Director or Park Warden should be present at the meeting so as to be more effective and accountable.

23. Local communities (including indigenous people)

Issues	Criteria	Score: Highlight only one box per question	
Do local communities resident or near the protected area have input to management decisions?	Local communities have no input into decisions relating to the management of the protected area	0	
	Local communities have some input into discussions relating to management but no direct role in management	1	
	Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved	2	
	Local communities directly participate in all relevant decisions relating to management, e.g. co-management	3	

COMMENTS / EXPLANATION

- Starting from 2010 WCS had organized Village Consultancy Process (VCP) at 3 villages so as to achieve thrust building with local communities by using participatory approaches with the active participation of the villages. Normally, villagers have to listen all the time without making any interruption at all. The VCP process is the bottom up approach with villages can communicate with the instructors in a two way communication process.
- This VCP was extended to additional 7 villages with the effort from the Extension Unit of TNRP and found to be a great success.
- Village Zonation Process (VZP) was also introduced in 2010 at Yebon village with the participation of local communities for drawing up maps based on their experience and local knowledge.
- During 2012 WCS introduced Village Land Use Mapping process so as to review the land use status of TNRP in Kyaukshut village. This is a process in which local communities are thoroughly discussed about the natural resources through participatory process and finally arrived at a manageable plan with agreement for the use of the resources there in by the users group. Eighteen TNRP staff together with 46 villagers from Kyaukshut village participated while 6 villagers from Yebon village and 1 villager from Zinba joined as observers.
- Starting from 2013 Yebon village was selected as a model village for introducing Community Based Fire Management practice. Fire Management Committee was formed in line with the suggestions made by the Forest Fire Consultant. Fire lines were constructed along the CF/Natural Forest boundary. Some of the fires fighting equipments upon request made by local communities were provided by TNRP. A team of fire watchers were formed for patrolling the area during the fire season.

NEXT STEPS

- a) This Land Use mapping exercise is the first step for developing Community Based Natural Resource Management (CBNRM). WCS has successfully established CBNRM at Hukaung Valley Wildlife Sanctuary, in Kachin State. Likewise we strongly believe that CBNRM will also be successful in TNRP.
- b) CBFiM should be replicated to other interesting villages over time with the active participation of the local communities.

24. Additional Points Local Communities / Indigenous People

Issues	Criteria	Score: Highlight only one box per question	
a. Impact on communities	There is open communication and trust between local and/or indigenous people, stakeholders and protected area managers	+1	
b. Impact on communities	Programmes to enhance community welfare, while conserving protected area resources, are being implemented	+1	
c. Impact on communities	Local and/or indigenous people actively support the protected area	+1	

COMMENTS / EXPLANATION

- a) During the CF management plan formation, local communities are openly discussed with TNRP staff as well as FD staff from Dawe District.
- b) After VCP process local communities have open communication and thrust building with TNRP staff, particularly LOUs in charge and keenly participated in land use mapping exercises.
- c) CBFiM program is helping to enhance community welfare by protecting their resources by fire and are very active in participating in the forest fire prevention team.

NEXT STEPS

- a) Continue building open communication and thrust between (User Groups) Local Communities and all stakeholders including TNRP staff.

25. Monitoring and Evaluation

Issues	Criteria	Score: Highlights only one box per question	
Are management activities monitored against performance?	There is no monitoring and evaluation in the protected area	0	

	There is some ad hoc monitoring and evaluation, but no overall strategy and/or no regular collection of results	1	
	There is an agreed and implemented monitoring and evaluation system but results do not feed back into management	2	
	A good monitoring and evaluation system exists, is well implemented and used in adaptive management	3	

COMMENTS / EXPLANATION

For monitoring purposes there is a system in place at TNRP.

Sr.	Monitoring Tool	Frequency	Status
1.	Monthly meeting of TNRP staff	Monthly	Held every month.
2.	Bi-monthly Site Level Meeting	Bi-monthly	Not regularly held.
3.	Project Quarterly Progress Report	Quarterly	No PQPR after 24.
4.	Technical Committee Meeting	Quarterly	Held 5 times only
5.	Project Coordinating Committee Meeting	Half-yearly	Held only 2 times

NEXT STEP

- Project Quarterly Progress Report should be distributed in time to inform the donors as well as concerned authorities on the progress of the project.
- Bi-monthly Site Level Meeting, TC meetings as well as PCC meetings should be held as scheduled so as to effectively monitor the progress of the project.

26. Economic benefit

Issues	Criteria	Score: Highlights only one box per question	
Is the protected area providing economic benefits to local communities, e.g. income, employment, payment for environmental services?	The protected area does not deliver any economic benefits to local communities	0	
	Potential economic benefits are recognized and plans to realize these are being developed	1	
	There is some flow of economic benefits to local communities	2	

	There is a major flow of economic benefits to local communities from activities associated with the protected area	3	
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COMMENTS / EXPLANATION

- a) Introducing Community Forestry practices to abolish age-old Shifting Cultivation practices is to refrain from serious negative impacts on the existing forests as well as biodiversity. Those practicing CF will receive forest tree seedlings as well as cash crop seedlings in the form of agro-forestry practices.
- b) The remaining forests in the Village Use Zone will be conserved properly so that villagers can get day to day needs of timber, firewood and other non-wood forest products like bamboo from these forests. They can get additional income for the community by selling the surplus with the arrangement of the Forest Department concerned.
- c) Another good example of economic benefits to the community is the case of Thayarmon village. The village is not situated inside TNR boundary and it is situated quite far away from TNR. They approached RMT to help assist obtaining CF program such that they can conserve the existing forests in the form of watershed management for the supply of water for the village which is their urgent requirement.

NEXT STEPS

- a) Natural Forest management is quite complicated process. The management of Village Use Zone is like a new venture for TNR. TNR is now closely consulting with Forest Department personnel for drawing up procedures and management schemes such that villages will get benefits by effectively manage the forests so that benefits will be sustainable.
- b) The main problem that will be encountered will be the benefit sharing of common property resources. WCS can help assist such kind of problem by using the case study of CBNRM program in Kachin State.
- c) Proper monitoring of Community Forests with is to keep track of whether CF User Groups follow the management plan of not and if problems cropped up RMT should immediately take care to improve the situation.

Logical Framework for TNRP (2009-2010 to 2012-2013)

Strategy of Intervention	Measurable indicators	Means of verification	Key assumptions
<p><u>Development objective</u> To effectively conserve and maintain the biodiversity of nature reserve, while contributing to the sustainable livelihood of local communities by getting involved in conservation works .</p>	<p><u>Impact indicators</u> <u>By the year 2035</u> Forest cover unchanged Total forest cover in 2006: 132409 ha (77.89%). 103983 ha of primary forest. 28426 ha of secondary forest.</p> <p>Sustainable livelihoods initiated in all villages heavily dependent on TNR. Participatory Resources Management initiated in all villages heavily dependent on TNR.</p>	<p>- Forest resources assessment</p> <p>- Socio-economic survey - Reports/records</p>	<p>Government and communities remain supportive of conservation. The occurrence of natural disasters does not worsen. The financial sources remain stable. Land uses other than forest in TNR remain static.</p> <p>Migrations to Thailand do not increase. Currency exchange rate does not fluctuate greatly. Disasters do not worsen. Security condition remains stable.</p>

<u>Specific objective</u> To reduce rate of degradation, deforestation and loss of biodiversity in TNR through local communities' effective engagement in planning and implementation of conservation activities of TNR	<u>Outcome indicators</u> By the year 2013 Rate of deforestation and degradation reduced from 0.008 % to 0.004% and from 0.021% to 0.016%. 8 more CF, 3 VUZ formed 25% of villages heavily dependent on TNR will be in the track to involve in conservation activities	- Change analysis Reports/proposals Records CF Certificates	Government and communities remain supportive of conservation. The occurrence of natural disasters doesn't worsen. The financial sources remain stable. Land use remains unchanged. The financial sources remain stable. Land uses remain unchanged. Migrations to Thailand do not increase. Purchasing power does not fluctuate greatly.
<u>Outputs 1</u> Land conversion to shifting cultivation controlled.	<u>Output indicator</u> By the year 2013 25 % of the shifting cultivators has established agro-forestry plantation. 8 User's Groups has been certified.	CF Progress report Nos of CF Certificate	Risks : Migration , land use change, security constraints,
Subsistence Hunting reduced.	By the year 2013 Controlled use of local-made guns used for hunting initiated in 3 villages around TNR.	Reports	Risks : Security constraints, weak law enforcement, weak cooperation among local administrative bodies, community and TNRP
Subsistence logging reduced	By the year 2013 Legal extraction of timber from Village Use Zone has been exercised at 3 villages.	Reports Record	Risks : Security constraints, weak law enforcement, land use changes, weak cooperation among local administrative bodies, community, TNRP and FD
Commercial Hunting and logging minimized.	By the year 2013 25 % of illegal logging reduced in peak theft	Reports Records Wildlife trade survey	Risks : Security constraints, weak law enforcement , high timber demand, decrease of forest cover outside TNR due to land use

	season. 60 % restaurants will be found to be free from bush meat.		change, limited access to porous border, no bilateral agreement with neighboring country for trans boundary conservation program, limited meat production and market mechanism
Village encroachment controlled	By the year 2013 80 % of village encroachment identified.	Collection of ground information High resolution satellite data	Risks : Funding restriction , security constraints,
Forest fire under control.	By the year 2013 50 % of villages in and around TNR has been informed the danger of fire and its impact. Participatory fire management has been established in 5 villages.	Reports Records	Risks : Natural disasters, Financial constraints, Security constraints, weak law enforcement, uncontrolled expansion of mono crops around TNR
Presence and abundance of biodiversity recorded.	By the year 2013 10 biological surveys have been conducted. Presence of wildlife in 20% of TNR recorded	Survey reports Patrolling report	Risks : Security constraints, staff rotation, limited budget
Local People's Awareness Improved	By the year 2013 30 educational talks have been conducted in villages and schools. Extension program extended to the northernmost and southernmost communities of TNR Pamphlets in local ethnic languages distributed	Reports Records	Risks : Staff rotation, land use change, funding restriction, existence of communities inside TNR where there are security constraints,

	<p>8 CF Users' Group has been certified.</p> <p>3 village use zones have been formed.</p> <p>16 planting campaigns have been launched.</p> <p>4 workshops and 6 trainings have been conducted.</p> <p>60% of residents have been participated in meeting.</p>	- Certificates	
Boundaries demarcated. (reserve & zone)	<p>By the year 2013</p> <p>40 mile of reserve boundary demarcated.</p> <p>90 miles of zone boundary demarcated</p>	Reports	Risks : Security constraints, funding restriction,
Infrastructure developed	<p>By the year 2013</p> <p>RMT has been equipped with 2 more LOUs and 5 family quarters, 2 more units of car, 10 more units of motorbike.</p> <p>Environmental Education Centre has been built and furnished with audio-video facilities and extension materials as well</p>	Reports Records	Risks: funding restriction, inflation, development programs around TNR,
Stakeholders' involvement in conservation.	<p>By the year 2013</p> <p>12 CF users' groups have been formed</p> <p>8 CF user's groups have been certified.</p> <p>16 planting campaigns</p> <p>Home gardens of 4 villages has been upgraded.</p> <p>4 workshop and 6 trainings</p>	Certificate Reports Records	Risks : Financial constraints, Security constraints, land use change, migration, staff rotation

	has been conducted. 3 village use zones have been formed.		
Staff's capacity built up.	7 trainings and 4 study tours have been conducted.	Reports	Risks : staff rotation,
Performance of RMT periodically monitored and evaluated.	10 TC meetings, 8 PCC meetings, 2 evaluations, 1 assessment on forest cover and land use change have been conducted.	Reports Records Satellite Images Meeting minutes	Risks: funding restriction, staff rotation, security constraints,

Implementation

Project Element	Indicators	Project Achievement	Schedule	Expenditure	Potential for next phase
Specific objective 1	To reduce rate of degradation, deforestation and loss of biodiversity in TNR through local communities' effective engagement in planning and implementation of conservation activities of TNR.	Realized	On time	Within the allotted budget	Good potential In future.
Output 1.1 Land conversion to shifting cultivation controlled.	By the year 2013 rate of deforestation and degradation reduced from 0.008 % to 0.004% and from 0.021% to 0.016% respectively. 5 more CF, 3 VUZ formed	According to deforestation and degradation assessment made using recent satellite scenes,	On time	As planned	Good potential for more assessment using high resolution satellites.

	25% of villages heavily dependent on TNR will be in the track to involve in conservation activities.	deforestation and degradation rate reduced.			
Output 1.2 Subsistence Hunting reduced	By the year 2013 Controlled use of local-made guns used for hunting initiated in 3 villages around TNR.	190 guns under control at 3 villages during the closed season. Re-collect during the open season when crops ripen so as to protect them from wild animals.	On time	As planned	Good initiative based on 3 villages. More villages will join in future.
Output 1.3 Subsistence logging reduced	By the year 2013 Legal extraction of timber from Village Use Zone has been exercised at 3 villages.	Extraction not ready yet. Rules and regulations under preparation and will need further action	Delay	As planned	Good initiative; need further action for replication to other villages
Output 1.4 Commercial Hunting and logging minimized.	By the year 2013 25 % of illegal logging reduced in peak theft season. 60 % restaurants will be found to be free from bush meat.	Patrolling carried out 477 times in and around TNR. Seized 278 tons of illegal timber. Checked 19 times for bush meat at restaurants and markets. Found wild boar 4 viss, Sambur 11 viss and Porcubine 1viss in 3 instances.	On time	As planned	Good control of illegal logging and hunting in future
Output1.5 Village encroachment controlled	By the year 2013 80 % of village encroachment identified.	Collect information 24 times concerning settlement of new village through the personnel from Local Operating Units at the northern and southern	Delay	Not as planned.	At least information flow in from LOUs as well as disturbance patterns in northern and

		TNR. Monitor one time only on disturbance patterns regarding human settlements based on available recent satellite images.			southern parts of TNR through satellite images.
Output1.6 Forest fire under control.	By the year 2013 50 % of villages in and around TNR has been informed the danger of fire and its impact. Participatory fire management has been established in 5 villages.	Educational talks were conducted in 14 villages. 5 villages involved in participatory fire management program.	On time	As planned	Good potential for replication in other villages. No fire incidences heard so far yet.
Output1.7 Presence and abundance of biodiversity recorded.	By the year 2013 10 biological surveys have been conducted. Presence of wildlife in 20% of TNR recorded.	Surveys carried out for Tiger Tapir Elephant Trees and Bamboo Medicinal plant Orchid Forest Dynamics research Records available for 7 biological surveys which were confined to secured areas only.	On time	Not as planned	Need to cover additional areas in south and north of TNRP in future.
Output1.8 Local People's Awareness Improved	By the year 2013 30 educational talks have been conducted in villages and schools. Extension program extended to the northernmost and southernmost communities of TNR Pamphlets in local ethnic languages distributed 8 CF Users' Group has been certified.	Almost all targets realized except 5 User' Groups had been certified.	On time	Almost as planned.	Potential for scaling up during the third phase.

	<p>3 village use zones have been formed.</p> <p>16 planting campaigns have been launched.</p> <p>4 workshops and 6 trainings have been conducted.</p> <p>60% of residents have been participated in meeting.</p> <p>16 planting campaigns have been launched.</p> <p>4 workshops and 6 trainings have been conducted.</p> <p>60% of residents have been participated in meeting.</p>				
Output1.9 Boundaries demarcated (reserve & zone)	<p>By the year 2013</p> <p>40 mile of reserve boundary demarcated.</p> <p>90 miles of zone boundary demarcated</p>	<p>51.11 miles of reserve boundary demarcated.</p> <p>16.1 miles of zone boundary demarcated.</p>	Behind schedule due to security reasons	As planned	Good potential as security situation improved in the northern part.
Output1.10 Infrastructure developed	<p>By the year 2013</p> <p>RMT has been equipped with 2 more LOUs and 5 family quarters, 2 more units of car, 10 more units of motorbike.</p> <p>Environmental Education Centre has been built and furnished with audio-video facilities and extension materials as well.</p>	<p>1 LOU under construction. 5 family quarters established. 1 more car to purchase. 10 motorbikes purchased. EE completed. Need to add some facilities for improvement.</p>	On schedule	As planned	Need additional LOU in future.
Output1.11 Stakeholders' involvement in conservation.	<p>By the year 2013</p> <p>12 CF users' groups have been formed</p> <p>8 CF user's groups have been certified.</p>	<p>All completed according to planned targets except certification of CF. Out of 8 USGs planned, 5</p>	Almost on schedule	As planned	Good potential during the next phase.

	16 planting campaigns Home gardens of 4 villages have been upgraded. 4 workshop and 6 trainings has been conducted. 3 village use zones have been formed.	USGs got certificates.			
Output1.12 Staff's capacity built up.	7 trainings and 4 study tours have been conducted.	24 trainings and 2 study tours organized	Not on schedule	As planned	Good potential for sending study tours / trainings overseas during the next phase.
Output1.13 Performance of RMT periodically monitored and evaluated.	10 TC meetings, 8 PCC meetings, 2 evaluations, 1 assessment on forest cover and land use change has been conducted.	5 TCMs, 2 PCCM, 2 evaluations, 1 change assessment in land use conducted.	Not on schedule	As planned	PCC meetings, TC meetings should be organized according to the schedule in future.

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