



E Guard Environmental Services Co., Ltd.

No.99, MyaKanThar Lane, NyeinChanYay Street, 10 Mile, Pyay Road, SawBawGyi Gone, Insein Township, Yangon, Myanmar.

Tel- 667953, 09 448001676

Email: info@eguardservices.com,

<http://www.eguardservices.com>© eGuard

TANINTHAYI NATURE RESERVE PROJECT

Mid Term Evaluation Report



E Guard Environmental Services

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I. EXECUTIVE SUMMARY

Taninthayi Nature Reserve Project is one of the long lasting projects in Myanmar, starting from the period of 2005 to the lifetime of the operation of pipelines of 30 years, before the termination of the production of gas from offshore facilities of Mottama Gas Transportation Company (MGTC) and Taninthayi Pipeline Company (TPC) in the Andaman Sea. Andaman Transportation Limited (ATL) lately joined the consortium in 2013. The project will support the planning, establishment and operation of a protected area between Dawei and Taninthayi Rivers and the Myanmar / Thai border, including TEPM, PCML and ATL pipeline areas.

The project rationale is to help establish Myanmar's remaining representative "Pristine Tropical Forest and their constituent Biodiversity" as "Taninthayi Nature Reserve". The "**Reserve**" was legally declared as "**Taninthayi Nature Reserve**" on 30th March 2005 under prevailing Myanmar Forest Policy and Laws.

MGTC (TEPM) and TPC (PCML) supported the project during the two project phases spanning from 2005-06 to 2008-2009 and 2009-2010 to 2013-14 with US\$ 1.2 million funding for each period. During 2013-14, ATL (PTTEPI) has joined the consortium and supported the project by additional funding of US\$ 0.6 million for the 4-year project period with a total funding of US\$ 1.8 million.

This project is a unique project in Myanmar, in terms of Private Public Partnership (3P's) with funds derived from the operation of gas production from the three gas companies, in the form of Payment for Environmental Services (PES), as a compensation of impacts on biodiversity, due to the activities along the pipeline corridor which covers the construction, operation and decommissioning phases.

The mid-term evaluation of Taninthayi Nature Reserve Project is from 2013-14 to 2014-15. The evaluation of the project management means evaluating how well the protected area managers and others carried out the activities necessary to fulfill the Protected Area's objectives. During the evaluation, the methodology adopted is from "Measuring Protected Area Management Effectiveness" by Miguel Cifuentes (2000).

The method identified different levels of indicators: field, variables, sub-variables and parameters. Parameters are lowest in the hierarchy and are located within sub-variables which are located within variables and which are within fields. Indicators are grouped in nine fields, viz., administrative, political, legal, planning, knowledge, current use management programs, bio-geographical characteristics and threats.

Based on Boddy (2002) a management system for Taninthayi Nature Reserve has been organized, which includes input, process, output, external environment and feedback. Input includes staff, funds, infrastructure development, technical support and material support.

Process includes monthly meetings by TNR staff, bi-monthly meetings with all stakeholders at the field level, technical committee meetings for coordinating mechanism for reviewing the progress of the project. Project Coordinating

Committee meeting provides oversight and the guidance to the project and not concerning with line management and provides direction only.

For the monitoring of the project there is an Operational Management Plan (2013) which has been approved by the Project Coordinating Committee. Project activities include boundary demarcation, extension activities, community forestry program, capacity building and research studies, etc.

The third-party financial audit was performed on 7th May 2015 and the results were quite satisfactory. Financial analysis and progress was made for the fiscal year 2013-14 and 2014-15. The key conditions for Protected Area sustainability is based on the following financial considerations: funding, diversity, security, links to conservation, administration, planning and enabling conditions.

Major outputs from this project include the following:

- Control hunting for trade
- Control commercial logging and NTFP harvest
- Control shifting cultivation
- Law enforcement monitoring
- Biological research studies
- Awareness programs implementation
- Stakeholders involvement in Effective conservation
- Capacity building for Reserve Management Team
- Monitoring and Evaluation
- Control subsistence hunting
- Control forest fire
- Control subsistence logging and NTFP harvest
- Boundary demarcation
- Infrastructure development
- Mitigate impacts on infrastructure development
- Encroachment , and
- Commercial fishing

‘Management Effectiveness Measurement Tool’ is used to evaluate the progress towards improving the management of the Protected Area. Based on the results of the evaluations it can be inferred how effective and efficient the efforts have been made for the improvement of the management of the Protected Aarea and how to ensure the accomplishment of the Protected Area objectives.

The procedure utilized a 0-4 scale scoring system. A set of conditions is constructed for each indicator with the optimal condition having the highest value. The assessment is made by assigning a simple score ranging between (0) Unsatisfactory,(1) Minimally Satisfactory, (2) Moderately Satisfactory (3) Satisfactory to (4) Very Satisfactory. A series of five alternate answers are provided against each question to help assessors to make judgments as to the level of score given.

Hence, the maximum score of major fields is presented which includes variables and sub-variables also. The scale of 5 levels (0 to 4) is related to a modified percentage ratio of ISO 10004 standard as follows

RATING	% OF OPTIMUM	SIGNIFICANCE
0	<35	Unsatisfactory
1	36-50	Minimally satisfactory
2	51-75	Moderately satisfactory
3	76-90	Satisfactory
4	91-100	Very satisfactory

The assessment scores for the performance of the TNR project is 75%. A final total percentage score from the current assessment is calculated as 75%, which indicated that the performance of TNRP is “moderately satisfactory”. However, there is still room for improvement at the later stages of the project

The following are the recommendations made during the review of the first two years of the third phase of the project, in order of priority:

Sr.	Priority	Recommendations
1.	1	REC1: Revision of salaries for local staff should be given priority, in line with the salaries in the Taninthayi Region so as to sustain the trained local staff at the Project.
2.	1	REC2: Plans should be prepared well in advance such that it will be ready in time such that no delay will occur for spending the allotted budget in a timely manner.
3.	1	REC15: Pending reports on research programs should be remined as soon as possible.
4.	1	REC8: Local communities should activiely participate with technical support on planning, implementation, monitoring and evaluation of community development program by RECOFTC
5.	1	REC9: TNR should liaise with WCS (VUZ/CBNRM), FFI (Village Use Zone Inventory) and RECOFTC (Community Forestry) to work out a Comprehensive Community Development program for a long-term approach
6.	1	REC10: TNR should liaise with RECOFTC for the development of 12 CF's which in one way or other help develop sustainable livelihood for the communities.
7.	1	REC21:The staff should be considered for transfer at least 1 year after receiving any kind of technical training essential for Reserve Management.
8.	1	REC20:The Project Director could be appointed from NWCD/other staff from FD staff but should be served for the project for at least 2 years. However, for the Park Warden it should preferably be from NWCD who has Biodiversity Conservation expeiencies than other FD staff. Average period of stay at the project should be the same at least for 2 years.

Sr.	Priority	Recommendations
9.	1	REC19: As the road from Htikhi checkpoint at the Thai/Myanmar border to Dawei is 180 km long, which is adjacent to TNRP, proper patrolling will be necessary and preventive measures such as monitoring and law enforcement should be undertaken by the new LOU of Myitta village
10.	1	REC11: Patrolling should be carried out using SMART forms and then data should be organized using standard methods of SMART applications, particularly for rangers which is very user friendly. SMART is used as a tool for measuring and evaluating patrolling of protected areas in order to improve the effectiveness of law enforcement.
11.	1	REC12: TNR should contact WCS to conduct advanced SMART training for those who have completed basic SMART training and have field experience for at least 6 months.
12.	1	REC23: Transboundary Conservation program should be developed between Government of Myanmar and Government of Thailand especially with the assistance of WCS for the conservation of tigers at the border of TNR and WEFCON which will be a good refuge for the tigers. Western Forest Complex (WEFCON) with the area of 18,000 sq. km. is a large protected forest landscape comprising 11 national parks and 6 wildlife sanctuaries. If there are still funds left for study tour program in later years, it should be organized for the visit to WEFCON at Thailand and get contact with Thailand wildlife officials and to initiate the transboundary management program in future.
13.	1	REC13: Demarcate transportation corridor once the effective width of the corridor is decided. The existing width of 100 m on each side service track and pipeline ROW is sufficient width to follow and by no means it should extend.
14.	1	REC16: Recommendations should be properly follow-up. Also recommendations made during final evaluation of the second phase is still pending and need to follow-up immediately.
15.	2	REC3: Adequate budget should be prepared and spending program is defined according to the Operation Management Plan.
16.	2	REC4: Spending should be timely and according to the plans. Budget spending should be prepared on regular basis with more emphasis on operational matters such Patrolling, Buffer Zone Management, Community Forestry and Nursery Practice..
17.	2	REC7: The access to the north and south of the TNRP is improving. To keep good contact with Mon Pyi Thit party and KNU party in order to extend the project activities in those areas.
18.	2	REC17: 90% of the planned activities should be carried out in line with the Operational Management Plan.

Sr.	Priority	Recommendations
19.	3	REC18: The management activities should be connected with other programs and be efficient systems for information exchange
20.	3	REC14: PA staff should be trained so as to be familiar with traditional knowledge.
21.	3	REC6: There should be one dedicated computer with an organized filing system backed up properly and regularly updated at Project Director's Office and Park Warden Office for good administrative support.
22.	3	REC5: There should be a complex, relatively well-organized filing system with a great deal of useful information which could be linked with the database system being developed.
23	3	REC22: As TNR is endowed with a wealth of endangered wildlife species, rich in biodiversity and may senic places such as waterfalls and mountainous trekking routes which can attract tourists, TNRP should select a pilot study village to form a Community Protected Area at the most suitable site in terms of biodiversity and natural resources and scenic beauty.

RECOMMENDATIONS MADE DURING THE FINAL EVALUATION OF THE SECOND PHASE THAT HAS NOT BEEN CLOSED OUT YET AT THE TIME OF THE REVIEW

RECOMMENDATION 10:

Need to study why deforestation and forest degradation happened in TNR together with socio-economic information and 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 remains restricted.

A consultant was assigned to conduct the change assessment study to find out the deforestation and degradation rates of the project. The report has not been received yet.

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.

Work plans approved and found to be not effective use of budget.

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.

Project Quarterly Progress Reports were found to be not distributed “in time”. This is still pending and should be sought out as soon as possible

II. BACKGROUND

Taninthayi Nature Reserve Project is one of the long lasting projects in Myanmar, starting from the period of 2005 to the lifetime of the operation of pipelines of 30 years, before the termination of the production of gas from the offshore facilities of Mottama Gas Transportation Company (MGTC) and Taninthayi Pipeline Company (TPC) in the Andaman Sea. It is aimed at supporting the creation and on-going management of a Protected Area in Southern Myanmar. Andaman Transportation Limited (ATL) lately joined the consortium in 2013. The project will support the planning, establishment and operation of a protected area between Dawei and Taninthayi Rivers and the Myanmar/ Thai border, including TEPM, PCML and ATL pipeline areas. The area encompasses approximately 1,700 km² of primarily pristine tropical and moist forest, with 75% of the area to be classified as core area.

The project rationale is to help establish Myanmar's remaining representative "Pristine Tropical Forest and their constituent Biodiversity" as "Taninthayi Nature Reserve". The intent of the project is to plan, establish and manage the '**Reserve**' using international best practices, adapted to Myanmar situation in an appropriate manner. The "**Reserve**" was legally declared as "**Taninthayi Nature Reserve**" on 30th March 2005 under the prevailing Myanmar Forest Policy and Laws.

In Myanmar, assistance for the development of Wildlife and Nature Conservation Programs had been provided by UNDP/FAO from the early 1980's through 1990's. Since then Myanmar Government has been expanding the Myanmar Protected Areas (MPA), primarily using own resources. Recently, the international Conservation NGOs participated, but only for a modest scale. The Fellow Gas Companies take this opportunity, to explore a new type of partnership and new mechanism for Joint Government/Private sector funding and operation of Protected Areas in Myanmar. This synergy between ongoing development of the natural gas production and scientific management of "Taninthayi Nature Reserve" in an ecologically sound manner was jointly funded by MGTC (Yadana Partners) and TPC (Yetagun Partners). Initially, the project will be a 4 year project with a yearly provision of budget from co-funding parties (MGTC and TPC), derived from the operation of TEPM and PCML pipelines, with the long-term goals toward the lifetime of the pipelines' operation of the 30-year period.

TEPM (MGTC) and PCML (TCP) supported the project during the two project phases spanning from 2005-06 to 2008-2009 and 2009-2010 to 2013-14 with US\$ 1.2 million funding for each period. During 2013-14, PTTEPI (ATL) has joined the consortium and supported the project by additional funding of US\$ 0.6 million for the 4-year project period with a total funding of US\$ 1.8 million. The project has been started its third four- year phase in 2013-14. This project is a unique project in Myanmar in terms of Private Public Partnership (3P's) with funds derived the operation of gas production from the three gas companies, in the form of Payment for Environmental Services (PES), as a compensation of impacts on biodiversity due

to the activities along the pipeline corridor, which covers the construction, operation and decommissioning phases.

Protected area	External organisations implementing projects and grants
Alaungdaw Kathapa NP	ASEAN Centre for Biodiversity, Wildlife Conservation Society
Chatthin WS	Friends of Wildlife, Norwegian Ministry of Environment
Gulf of Morrama Ramsar Site	Biodiversity and Nature Conservation Association
Hkakaborazi NP	Wildlife Conservation Society
Hponkanrazi WS	Wildlife Conservation Society
Htamanthi WS	Wildlife Conservation Society
Hukaung Valley WS	Wildlife Conservation Society
Indawgyi WS	ASEAN Centre for Biodiversity, Fauna & Flora International, Michael Succow Foundation, Norwegian Ministry of Environment.
Inlay Wetland WS	Friends of Wildlife, Norwegian Ministry of Environment, UN-HABITAT, UNDP, UNESCO
Lampi Island Marine NP	Biodiversity and Nature Conservation Association, Fauna & Flora International, Myanmar Environment Rehabilitation-Conservation Network, Oikos International
Lawkananda WS	Wildlife Conservation Society
Lenya NP (proposed)	Fauna & Flora International, Biodiversity and Nature Conservation Association,
Mainmahla Kyun WS	ASEAN Centre for Biodiversity, Fauna & Flora International
Minzontaung WS	Wildlife Conservation Society
Moyungyi Wetland WS	Fauna & Flora International, Norwegian Ministry of Environment
Natmataung NP	ASEAN Centre for Biodiversity, Fauna & Flora International, Norwegian Ministry of Environment, Smithsonian Institution
Popa Mountain Park	Norwegian Ministry of Environment
Rakhine Yoma Elephant Range	Wildlife Conservation Society
Shwe U Daung WS	Rufford Foundation
Shweseztaw WS	Norwegian Ministry of Environment, Wildlife Conservation Society
Taninthayi Nature Reserve	Fauna & Flora International, Motamma Gas Transportation Company/ Taninthayi Pipeline Company/ PTT Exploration and Production, Wildlife Conservation Society
Taninthayi National Park (proposed)	Fauna & Flora International.

Figure 2.1 Externally Funded Grants and Projects for Protected Areas in Myanmar

The project has been continuously monitored and evaluated since the first phase as final evaluation, by the University of Forestry in 2009. It was followed by two evaluations, mid-term evaluation from 2009 to 20011 and 2011 to 2013 as final evaluation. The current evaluation is the mid-term evaluation of the project from 2013 April to 2015 March with the terms and conditions as determined by the Project Director.

In the context of sustainability, the project should serve several aims such as biodiversity conservation, regional economic development and sharing of benefits from conservation in line with Convention on Biological Diversity (CBD).

III. TANINTHAYI NATURE RESERVE

3.1 LOCATION

The Taninthayi Nature Reserve is situated in the Dawei District, Taninthayi Region, between the Dawei River and Myanmar-Thailand border, between latitudes 14° 20' 50" and 14° 57' 55" North and between longitudes 98° 5' 10" and 98° 31' 32" East. Administratively, its location is in the Yebyu and Dawei Townships of Dawei District in the northern part of Taninthayi Region in southern Myanmar.

3.2 THE RESERVE

Taninthayi Nature Reserve is comprised of two forest reserves, the eastern part of Heinze/ Kaleinaung Reserve Forest 85,725 ha (211,836 acre) and the 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). This area is a relatively large protected area compared to other protected areas in the region. The reserve lies within Eco-region 5d, namely, the Tenasserim-South Thailand Semi-Evergreen Rainforest (WWF, 2002). This eco-region encompasses the mountainous, semi-evergreen rainforests of the southern portion of the Tenasserim Range, which separates Thailand and Myanmar.

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 the 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 the 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.

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 is of great significance as one of the most important trans-border protected areas in Asia.

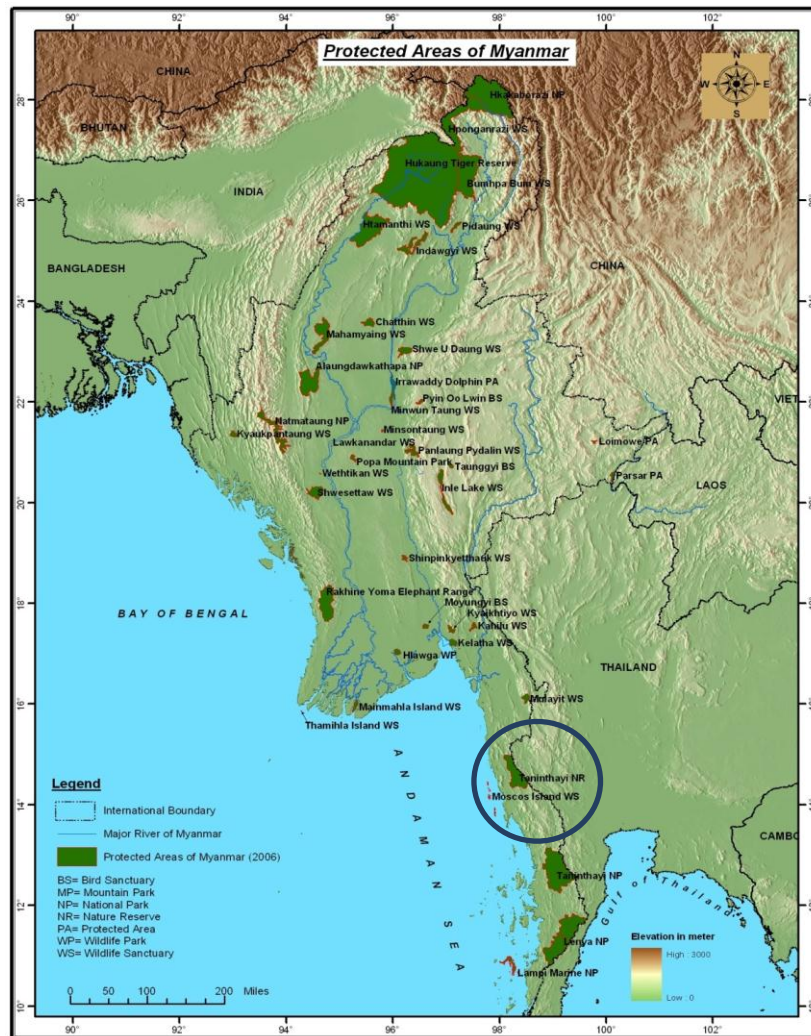


Figure 3.1 Location of Taninthayi Nature Reserve

The Taninthayi Nature Reserve is situated in the Eco-region 5d (WWF, 2002), Tenasserim South Evergreen Rainforest and consists mainly of evergreen rainforests of the southern portion of the Taninthayi range. A considerable quantity of critically endangered as well as endangered species of birds, mammals and trees have been recorded which gives an indication that TNR should be considered as an integral part of not only Myanmar's Protected Areas System but is also a global and regional conservation priority. A considerable quantity of critically endangered as well as endangered species of birds such as Plain-pouched Hornbill (*Rhyticeros subruficollis*), mammals, such as Asian Elephant (*Elephas maximus*), Asian Tapir (*Tapirus indicus*) and trees (*Dipterocarpus spp.*) have been recorded. This gives an indication that TNR should be considered as an integral part of not only Myanmar's Protected Areas System but is also a global and regional conservation priority.

3.3 RATIONALE OF THE PROJECT

The rationale of the project according to the project document (2001) is 'to effectively conserve and maintain the biodiversity of the nature reserve, while contributing to the sustainable livelihood of local communities by involving them in conservation works

and to contribute to the establishment Myanmar's Protected Areas network (total coverage 5% of total country area in the medium-term and 10% in the long-term)'

3.4 MANAGEMENT OBJECTIVES OF TNR

The management objectives of TNR as mentioned in TNR Management Plan are as follows (TNR Management Plan, 2013):

- 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, and*
- To implement the conservation activities, law enforcement activities with the aims of reducing threats to TNR.*

3.5 RESPONSIBILITIES OF THE CONSULTANT

The responsibilities of the consultant for the mid-term evaluation of Taninthayi Nature Reserve Project for 2013-14 to 2014-15 are as follows:

- To examine the relevance, scope and design of the project,*
- To review the implementation arrangements and the progress of Project activities against objectives as stated in each year and four-year plan,*
- To formulate recommendations for any corrective actions or changes in direction required,*
- To examine any other project-related matters as decided by the Coordinating Committee,*
- To provide a written report to the Coordinating Committee on the completion of the evaluation,*
- To prepare and submit the final report to TNR Project Director, and*
- To submit the final report after 30 days of primary and secondary data collection*

IV. EVALUATION METHOD

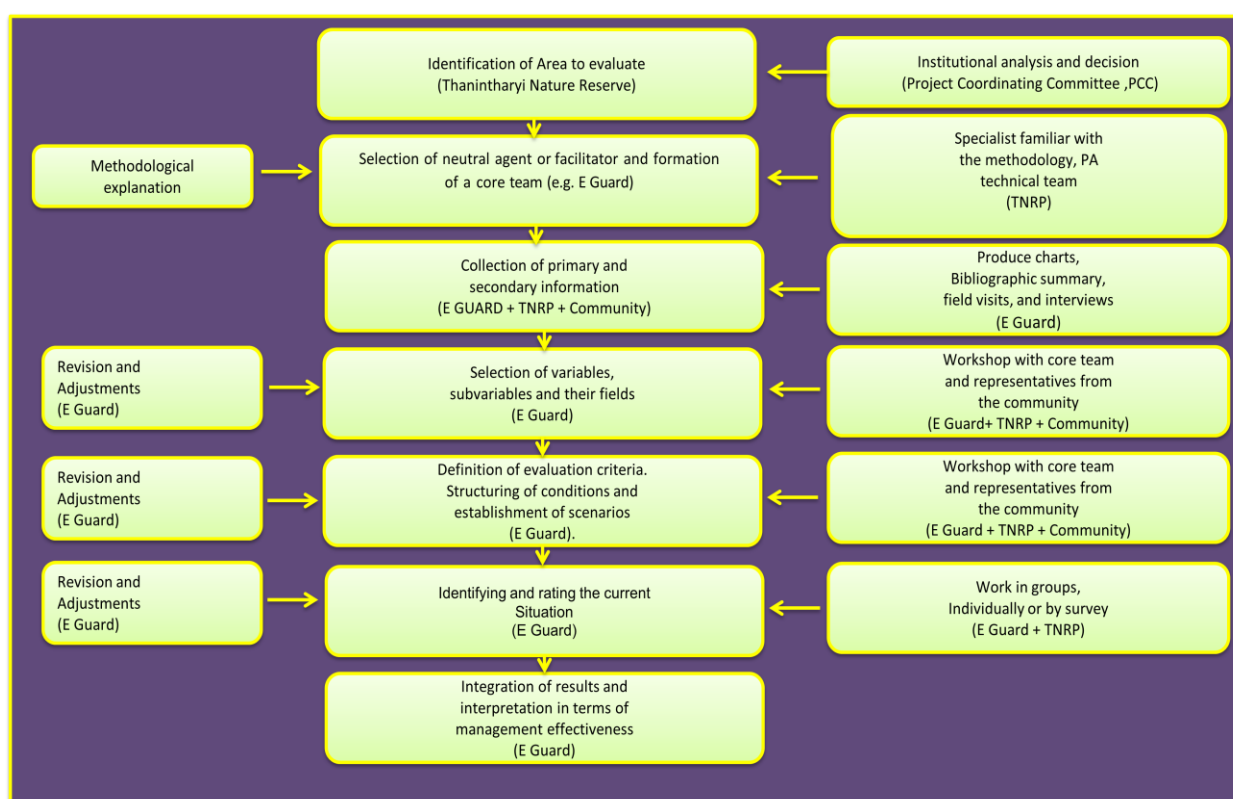
The effective management of Protected Areas is defined as the combination of actions with a legal, political, administrative, research, planning, protective, coordinating, interpretative or educational character that results in the better use and performance of a PA and the accomplishment of its objectives (expanded from Cifuentes, 1983).

Evaluating PA management means evaluating how well the protected area managers and others carried out the activities necessary to fulfill the PA's objectives. During the evaluation, the following methodology is adopted from "Measuring Protected Area Management Effectives (Miguel Cifuentes et. al., 2000).

The method identified different levels of indicators: fields, variables, sub-variables and parameters. Parameters are lowest in the hierarchy and are located within sub-variables which are located within variables and which are within fields. Indicators are grouped in nine fields, viz., administrative, political, legal, planning, knowledge, current use management programs, bio-geographical characteristics and threats.

The methodology is neither static nor dogmatic. On the contrary, it has been prepared and validated visualizing a broad spectrum of management situations and categories, for which new indicators, adjusted to the reality of the protected area being evaluated can be incorporated and evaluated with the same basic tools.

WWF methodological procedure to evaluate the effectiveness for protective area management



An example of basic Indicators to evaluate the Effective Management of Protected Areas is shown below.

Table 4.1 Basic Indicators to evaluate the Effective Management of Protected Areas

Field	Variable	Sub-variable
Administrative	Personnel	<ul style="list-style-type: none"> • Administrator • Technical Personnel • Administrative Personnel • Operational Personnel
	Finance	<ul style="list-style-type: none"> • Operational Budget • Regulatory of Budget preparing and delivery • Capacity to manage own resources • Financial accounting
	Organization	<ul style="list-style-type: none"> • Files • Organizational Chart • Internal communication • Structuring of activities
	Infrastructure	<ul style="list-style-type: none"> • Equipment and tools • Facilities for basic Management • Facilities for specific – management • Condition of facilities • Security of facilities • Boundary Demarcation • Access

Taken together the fields give a referential framework to PA management, the fields defined in this framework follows Mackinnon et al., (1990)

➤ **Administrative Field**

Includes aspect that makes it possible to measure the institutional management capacity, regardless of the management regime, which include good internal organization, personnel management, financial management and infrastructure

➤ **Political Field**

Corresponds to the existence of and compliance with the policy, laws and guidelines that support PA management.

➤ **Legal Field**

This field comprises general or specific laws and regulations that help management and guarantee the long term performance of the area.

➤ **Planning Field**

This field is concerning with a continuous process of formulating, revising and approving the objectives put fort. The evaluation analyses aspects of follow-up zoning, existence and execution of management and operative plans or other planning instruments.

➤ **Knowledge Field**

This includes knowledge of available bio-ecological, physical and cultural information. The knowledge about research carried out in the PA and how often it is carried out together give a good idea of the quantity of information generated and managed in the PA.

➤ **Management Program Field**

The combination of actions grouped into programs within the management and or operational plans that permit the PA objectives be accomplished. The evaluation is based on program design, coordination with other programs and monitoring of the implementation of plans

➤ **Current Illegal Uses Field.**

Activities that are counter to management objectives, PA regulations are undertaken a way that exceeds legal limits causing negative effects on PA.

➤ **Current Legal Uses Field**

Activities those are compatible with the PA management objectives. It also undertakes appropriately with due consideration on not to exceed the resource's capacity.

➤ **Bio-geographic Characteristics Field**

This field Includes factors that influence and can be determined in fulfilling the management objectives. The size and form of a PA can hinder or facilitate conservation efforts. The isolation of the area is related to PA's connectivity, representatives, viability, resilience and permanence.

➤ **Threat Field**

This field encompasses those factors that destabilize the ecosystems. They are natural or human factors that affect the stability of the environment and therefore whether or not the management objectives are reached.

The variables used in this evaluation have previously been identified as critical to evaluate protected area management system.

Nevertheless, depending on individual case study and available information, the evaluating team will add or drop off variables, sub-variables and specific parameters depending on the individual PAS being evaluated. This will not affect the evaluation's validity since the standardization of the rating scale and its final interpretation make it possible to evaluate management as an integral whole.

The procedure utilized a 0-4 scale scoring system. A set of conditions was constructed for each indicator with the optimal condition having the highest value. The scale of 5 levels (0 to 4) is related to a modified percentage ratio of ISO 10004 standard as follows (see appendix 5):

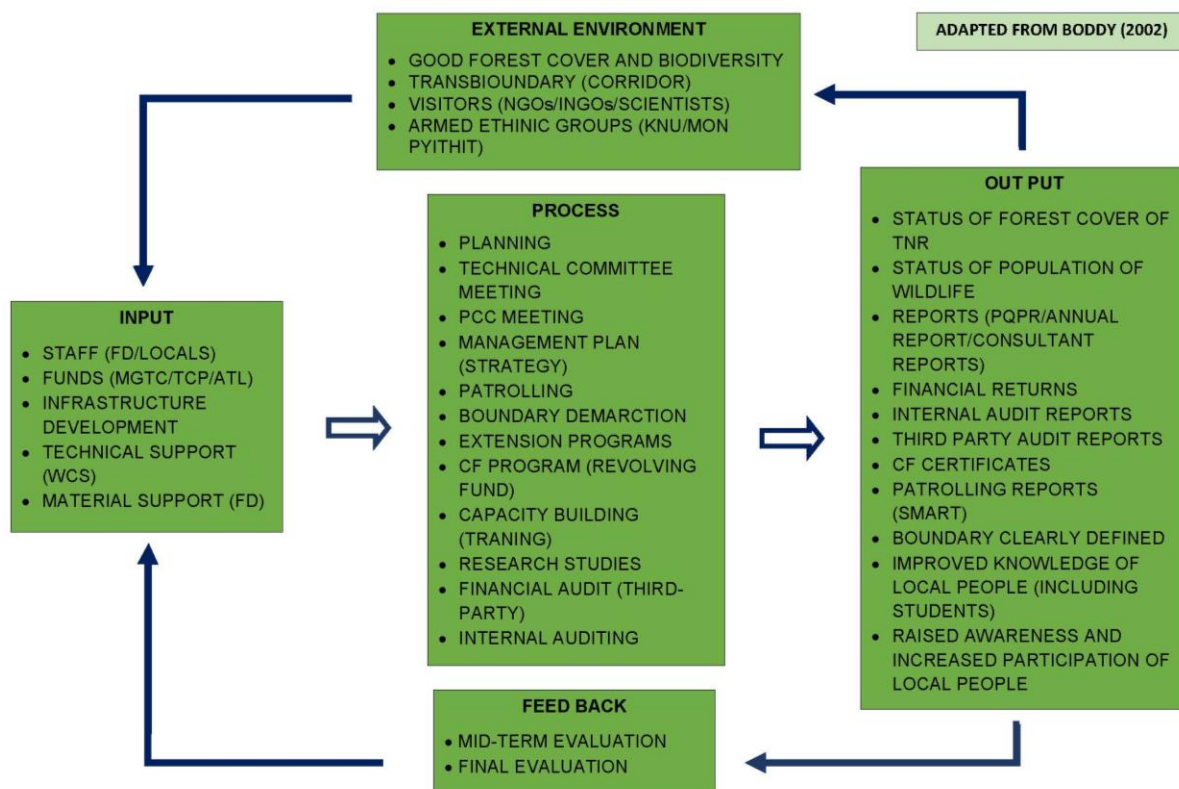
RATING	% OF OPTIMUM	SIGNIFICANCE
0	<35	Unsatisfactory
1	36-50	Minimally satisfactory
2	51-75	Moderately satisfactory
3	76-90	Satisfactory
4	91-100	Very satisfactory

Added up the values of all the fields and calculating the percentage of the optimum value allows one to determine the overall management rating for a specific protected area. The percentages obtained were interpreted in terms of management effectiveness using the 5 management levels as described above, from unsatisfactory to very satisfactory.

V. MANAGEMENT SYSTEM FOR TANINTHAYI NATURE RESERVE

As mentioned earlier the TNR project has been formulated and implementing for 10 years period and will continue up to the lifecycle period of 30 years. As one proceeds through a project lifecycle the ability to control outcomes decreases. This is due to the fact that as scope and design decisions are made, as funds are expended and as time passes, material changes in direction requires more “rework” to implement. As a project proceeds into the more substantive phases of the lifecycle project, evaluation becomes more retrospective i.e., whether activities completed were appropriate and successful. Compliance-oriented assessment are more important in the later phases of the lifecycle. It is to find out whether the workplan is achievable or not.

Based on Boddy (2002) the following model is developed for the management system of the Taninthayi Nature Reserve Project.



5.1 INPUT

The input consists of the following:

- Staff (FD+Locals)
- Funds (MGTC/TPC/ATL)
- Infrastructure Development
- Technical Support (WCS)
- Material Support (FD)

5.1.1 RESERVE MANAGEMENT TEAM (FD+LOCALS)

Reserve Management Team (RMT) consists of Forest Department staff, which can be divided into staff from Taninthayi Region and other staff from Planning Division and Nature and Wildlife Conservation Division of the Forest Department. The other staff consists of local staff from villages. They are not on permanent basis and are contracted staff based on fixed salary depending on their skills. According to the Operational Management Plan, the following are envisaged at the end of the plan period of 4 years. The breakdown is:

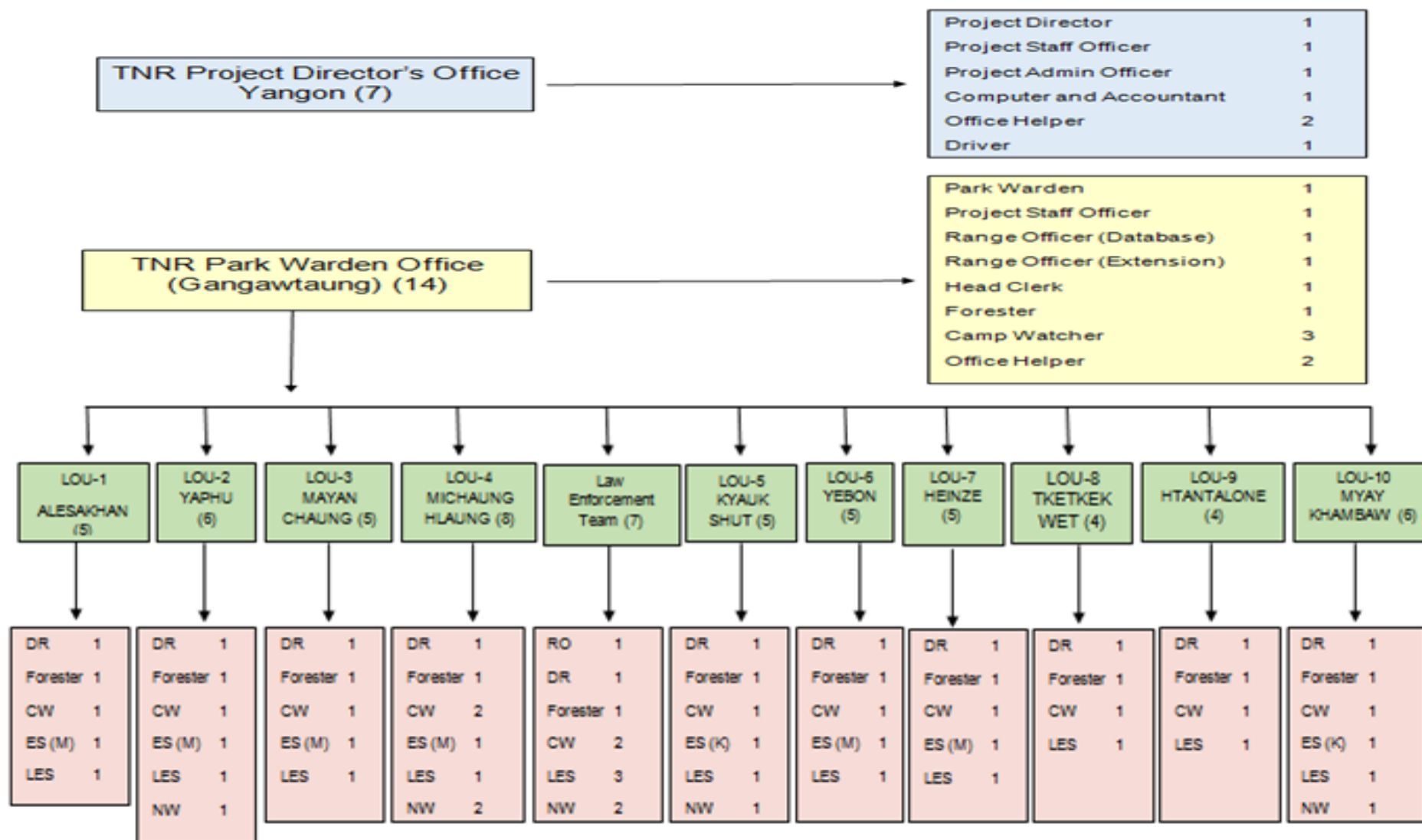
Sr.	Particulars	Number
1.	Project Director Office	6
2.	Park Warden Office	14
3.	Local Operating Units	53
4.	Law Enforcement Team	7
Total		80

The locals consist of the following:

Sr.	Particulars	Number
1.	Extension Staff	7
2.	Law enforcement Team	13
3.	Camp watchman	10
4.	Others	3
Total		33

This is a good opportunity for the locals to get jobs at TNRP depending on their skills. It was also observed that locals who got training from TNRP left the project to join higher paid INGOs, as there are a lot of INGOs offices established in 2015 in Dawei, such as WCS/WWF/FFI and lately RECOFTC in Kaleinaung village. Previously the salary from TNRP is quite attractive but now it appears to be quite low when compared to other organizations in Kanbaw and locals would like to have their salary increase. This issue has been put up to 19th Project Coordinating Committee meeting and got approval to increase the salary of locals during that meeting. However due to incomprehensible reasons that opportunity did not materialize.

PROJECT-ORGANIZATION



The staff position at certain period is also a good indicator for assessing the effective implementation of the project:

Staff position as it stands on during the period between 2013 and 2015 are as follow:

Sr.	Particulars	2013	2015	Remarks
1.	Project Director	1	1	
2.	Park Warden	1	1	
3.	Project Staff Officer	1	1	
4.	Project Admin Officer	1	1	
5.	Range Officer	3	3	
6.	Head Clerk	1	1	
7.	Deputy Ranger	8	11	
8.	Computer and Accountant	1	1	
9.	Forester	9	12	
10.	Car Driver	2	4	
11.	Office Assistant	-	3	
12.	Senior Extension Staff	-	4	
13.	Junior Extension Staff	7	4	
14.	Nursery workers	2	4	
15.	Law enforcement staff	10	13	
16.	Coxwain	1	1	
17.	Camp watcher	12	14	
18.	Office Helper	2	2	
Total		62	80	

It was observed that a new team was assigned at PD office in 2015 whereas in PW office about half the strength was transferred during the period from 2013 to 2015. During the evaluation it was observed that most of the past data and records were found to be difficult to obtain as there is no system in place for control of the past records.

5.1.2 ALLOCATION OF FUNDS (MGTC+TPC+ATL)

Since the start of the project in 2005 funds were allocated for TNRP for a total period of 4 years as US\$ 1.2 million from MGTC and TPC. The system adopted was to make cash calls for every 3 months alternatively to either MGTC or 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.

Starting from 2013 April, a new partner PTTEPI (ATL) joined the consortium and made allocation of US\$ 0.6 million for the next 4 years period that makes an overall funding of US\$1.8 million for the fiscal year 2013-14 to 2016-2017. Also the allocation is made on

yearly basis and no cash calls are needed any more on 3 monthly basis and the current practice is to provide funds one year ahead in lump sum.

The budget management system between the past and current period is that in the previous system the Director General has been empowered to pass the monthly requisition of funds and after that the Project Director has to draw the cash (US \$) from MICB bank. And then the Project Director disbursed the cash to Park Warden for implementing the activities assigned according to the approved work plan for the month.

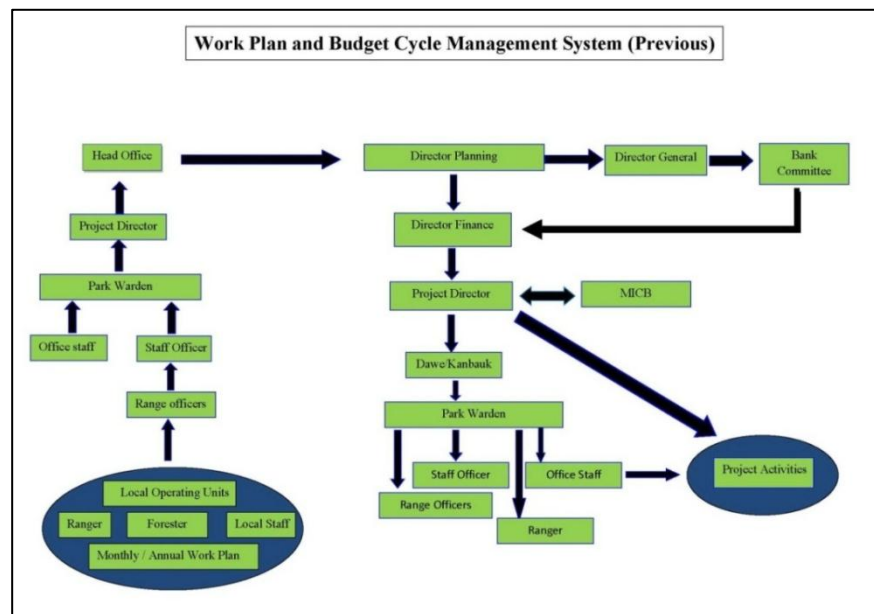


Figure 5.1 Work Plan and Budget Cycle Management System (Previous)

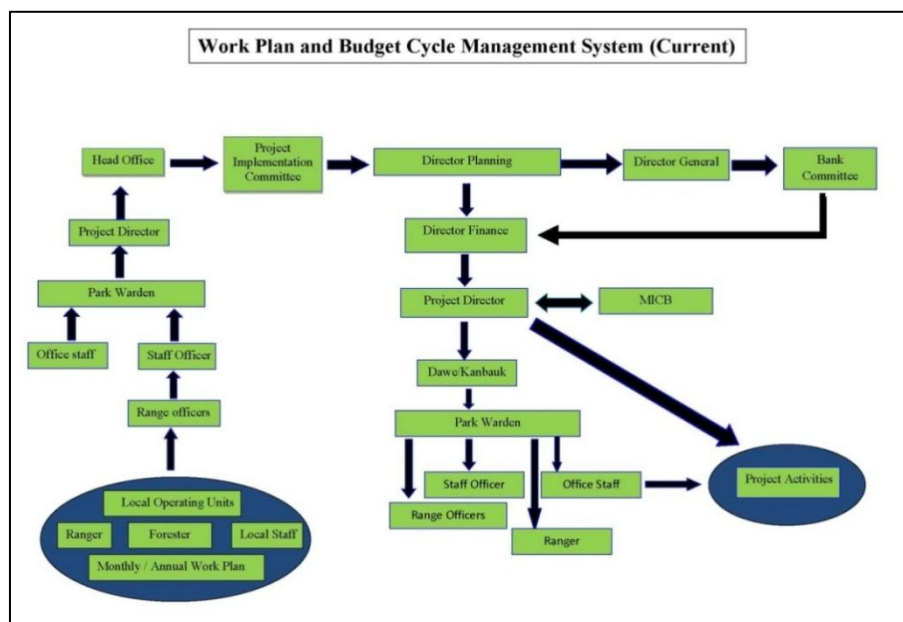


Figure 5.2 Work Plan and Budget Cycle Management System (Current)

However, in the current system before the Director General has approved the monthly requisition for the month, it has to go through Project Monitoring Team (PMT) at the Forest Department Office, Nay Pyi Taw and once approved by the PMT the Director General has to pass the monthly requisition of funds which make somewhat difficult to get funds in time for the implementation of field activities. To make the matter worse the new regulation of MICB is that during transaction of funds from the MICB Bank, US\$10,000 can be drawn within one week, rendering difficulty in timely distribution of funds for the Park Warden office. The current procedures adopted at TNRP is to conduct post-paid system and settled the cash after completion of the assigned jobs. This system is not in line with the normal payment system of pre-paid system where funds are made available before the start of the work. This system should be thoroughly studied and find ways and means for improvement in future.

5.1.3 INFRASTRUCTURE DEVELOPMENT

According to the Taninthayi Nature Reserve Operational Management Plan the following investments has to be acquired during the mid-term period of the third-phase of the project:

5.1.3.1 OFFICE AND FIELD EQUIPMENT

Office equipment such as copier machines and lap tops etc., and additional field equipments such as telecamers, telescopes, tents, compass, camera traps, GPS, digital cameras and binoculars were purchased and used for office and field studies. Solar panels were also purchased and installed at Park Warden Office and all LOUs for electricity generation.

5.1.3.2 FIELD FACILITIES

Since the inception of the third phase, the following vehicles and motorcycles were purchased and distributed to LOU personnel, Park Warden and Project Director.

Vehicles: 1 four-wheel drive vehicle (PD office) and 1 light truck (Park Warden Office)

Motor Cycles: 12 motorcycles distributed to Staff Officers and LOU in-charge

Motorboat: Park Warden Office

During the purchase of the vehicles and motorcycles it was learnt that proper procedures were being adopted.

5.1.3.3 BUILDINGS

Environmental Educating Center (ECC) was upgraded with green management principles. Also light boxes and cabinets for the storage of herbarium specimens were purchased and installed at EEC. Two new LOUs at Myin Khan Baw and Mayanchaung were constructed and one LOU at Thetkegwet was renovated. Two family quarters were also established during the period from 2013-14 to 2014-15. Maintenance operations were carried out for 6 LOUs and 2 Offices during the reporting period.

5.1.4 TECHNICAL SUPPORT

According to the agreement between TNRP and WCS the following activities were performed during the first 2-year period of the third phase:

Sr.	Particulars	Trainee	Attendees
1.	Basic Bird Watching Training	WCS	42
2.	Community Based Natural Reesource Management Training	WCS	32
3.	On-Job training on Rattan Survey Training	WCS	10
4.	Basic SMART Database Training	WCS	10
5.	Training on Wildlife Conservation and Survey	WCS	20
6.	Training on Bird Conservation	WCS	19

The following trainings were also organized by the following organizations:

1. Forest Inventory in Village Use Zone FFI
2. Training on Basic Accounting Socio-Eco (MGTC)

Also, TNRP staff organized in-house training for the following topics;

1. Map /GPS
2. SMART training for extension
3. Capacity building (Extension)
4. Capacity building (Power point presentation)
5. Installation of camera traps
6. MODIS (Forest Fire Control)
7. Capacity building (GPS/GIS)
8. Village Meeting
9. Bird Watching
10. Village Consultation Process (VCP)
11. Fire Protection and CF
12. Extension Skills

Also, a local NGO, ALARM had conducted training on Participatory Planning Approach.

5.1.5 FOREST DEPARTMENT SUPPORT

All permanent staff for TNRP has been supported by Forest Department: some from Taninthayi Region and some from NWCD and Planning Division of Forest Department, Nay Pyi Taw. The staff salary, staff accomodation in Yangon and PD Office in Yangon are provided by the Forest Department.

VI. PROCESS

6.1 PLANNING (MONTHLY MEETING)

Based on the operational management plan, monthly plans are drawn up by each LOU teams, law enforcement team and extension team. Normally, monthly meetings are held on the first day of the month. Using powerpoint presentations, the in charge of LOU team leader has to present their work being done during the previous month and also put up the plan which will be carried out during the next month. The extension team and law enforcement team have to make presentations of the work being carried out during the month. Plan for the next month is also presented at this meeting. The meeting is organized by the Park Warden and during his absence the Staff Officer takes charge on behalf of the Park Warden.

6.2 PLANNING (BI-MONTHLY MEETINGS)

Bi-Monthly meetings are held at the Park Warden office. The objective of this meeting is to get good communication among all stakeholders which include responsible persons from TNRP, MOGE representatives from PTTEPI, TEPM and Communication Officer from MOGE, together with representatives from MGTC, TPC and ATL. The issues raised during this meeting will consider during the Technical Committee meetings which are held quarterly every year

6.3 TECHNICAL COMMITTEE

Technical Committee Meetings are also one source of coordinating mechanism for reviewing the progress of the project. The major decisions approved during Technical Committee Meetings during the evaluation period were as follows:

- To construct geospatial based database system regarding TNRP
- To appoint National Consultant for monitoring of Community Forestry establishment in TNRP
- To appoint National Consultant on surveying the status of wild mammals
- To arrange study tour programme for overseas as well as in country program for capacity building of TNRP staff as well as staff from Forest Department, Dawei Region
- To consult with partner companies regarding demarcation of Transportation Corridor in the TNR Project area.
- To develop plans to be executed in line with TNR Operational Management Plan
- To construct Local Operating Units and family quarters in line with Operation Management Plan,
- To purchase motorcycles for providing transport of TNRP staff for their manoeuvrability
- To purchase one 4x4 double cab and one light-truck as mentioned in the TNR Operational Management Plan

- To review the situation of field allowances in terms of per diem daily allowances based on field activities
- To allow regular field allowances to project staff in the office of Project Director and Park Wardeen Offices during the fieldworks.
- To designate monthly payment or salaries of local project staff in scrutiny with prevailing local rates in the project area .
- To develop incentive program for all project staff in line with their performance to enhance their capacity
- During pipeline construction and operation period, PTTEPI should carry out reinstatement program such as grass seeding and slope protection measures in line with their ESHIA supplementary plan for re-routing of pipelines
- To assign as soon as possible External Consultants (WCS) for providing technical advice to TNRP managemet .
- To keep maintenance registers of machines and vehicles operating in the project.
- PTTEPI to carry out mitigation of environmental impacts in line with Environmental Management Plan (EMP) of PTTEPI.
- To have regular contribution of funds from ATL and to assign two Staff Officers one Project Staff Officer and one Environmental Officer within the framework of revised organisational strength of TNRP based on actual requirement of third four year project period.

6.4 PROJECT COORDINATING COMMITTEE

The Project Coordinating Committee (PCC) acts as “Board of Directors” providing oversight and and guidance to the project. It overseas and reviews the work being done by the RMT and safeguarding the interest of all parties. It is not concerning with line management and provides oversight and direction only.

It is stated in the project document that PCC meetings should be held at least twice a year. It was clarified during the 16th PCC meeting that in future that there should be 2 PCC meetings in a year, one at Nay Pyi Taw and the other at Yangon. PCC meetings were able to held 3 times only against twice per year at the following dates during the evaluation period:

17th PCC Meeting 15th November 2013 Venue: Grand Amara Hotel: Nay Pyi Taw

18th PCC Meeting 13th October 2014 Venue: Sedona Hotel: Yangon, and

19th PCC Meeting 30th March 2015 Venue: Grand Amara Hotel: Nay Pyi Taw.

PCC member lists has been updated starting from the 17th PCC meeting with the inclusion of 2 members from PTTEP (ATL) and consists of the following parties:

Sr.	Designation	Responsibility
1.	Director General, Forest Department, MOECAF	Chairman
2.	Director, Planning and Statistics, MOECAF	Member

Sr.	Designation	Responsibility
3.	Director, Nature and Wildlife Conservation Dept. MOECAF	Member
4.	Director, Environmental Conservation Department, MOECAF	Member
5.	Ministry of Energy, MOGE x 2	Member
6.	General Manager, MGTC	Member
7.	HSE Manager, MGTC	Member
8.	General Manager, TPC	Member
9.	HSE Manager, TPC	Member
10.	Director, ATL	Member
11.	SSHE Manager, ATL	Member

The most salient decisions made during the 17th PCC Meetings are as follows:

Sr.	Decision	Responsibility
1.	To submit the Operational Management Plan for (Phase 3) to get MOECAF approval	Reserve Management Team (RMT)
2.	To hold site-level meeting 6 times per year	RMT
3.	To classify and local extension staff with two levels senior and junior	RMT
4.	To establish new LOUs in the southern part	RMT
5.	To accomplish forest cover assessment using Rapid Eye Satellite (5m resolution)	RMT
6.	To accomplish the reinstatement activities according to EMP of Zawtika pipeline construction	ATL
7.	To approve budget allocation (2013-14 to 2016-17)	RMT
8.	To arrange signing of agreement among the Partner Companies and Forest Department	RMT
9.	To recruit more local staff and build their capacity with necessary training programs	RMT

The excerpts of decisions made during 18th PCC meeting are as follows:

Sr.	Decision	Responsibility
1.	To conduct land acquisition of Myay Khan Baw and Alesakan LOUs	Project Director (PD)
2	To construct two apartments attached family quarters and a residential unit for the Project Director	PD
3	To purchase 12 Motorcycles and two vehicles	PD
4.	To provide revolving fund to local villages after negotiation with Socio-eco team of MGTC and to leave out villages that have receive micro-finance fund from Socio-Eco team of MGTC.	PD
5.	To upload a website of TNR for local as well as international expats so as to know TNRP activities	PD
6.	To conduct database system based on Geospatial data of TNR from 2005 to 2014 for proper data storage.	PD

Sr.	Decision	Responsibility
7.	To carry out vacancy announcement for assigning National Consultants for large mammals and monitoring of Community Forests.	PD
8.	To make announcement for assigning International or National Advisory team for Community Development.	PD

The excerpts of decisions made during 19th PCC meeting

Sr	Decision	Responsibility
1.	To approve budget for 2014-15 and breakdown of the work plan for the fiscal year 2015-16	PD
2.	To increase rate of salary for local staff based on secondee rate of MOGE and local range of salary	PD
3.	To arrange two project staff officers to work on 2x2 weeks rotational basis at Yangon and Gangawtaung	PD
4.	To submit Project Quarterly Progressive Report (PQPR) to partner companies for quarterly reports of 2015	PD
5.	To make vacancy announcement for the mid-term evaluation of the third phase	PD
6.	To contribute 3,000 seedlings of Pyinkado (<i>Xylia xylocarpa</i>) and Mahawgani (<i>Swietenia microphylla</i>) to CSR department of MGTC for the water conservation program	PD
7.	To initiate Participatory 3 D modeling as a tool for Protected Area management System and effective CF program implementation in particular	PD
8.	To approve new 18 access ways of ATL through joint effort of MOGE, ATL and TNRP	PD
9.	To make an agreement among partner companies and approval by MOGE for demarcation of Transportation Corridor	MOGE, MGTC, TPC and ATL
10.	To submit completion reports of study tours for domestic and abroad	Project Director
11.	To make presentation for the progress of database system preparation and development at the next Technical Committee meeting	Project Director

6.5 OPERATIONAL MANAGEMENT PLAN FOR TANINTHAYI NATURE RESERVE

The Operational Management Plan for Taninthayi Nature Reserve was developed by the National Consultant and approved during the 17th PCCmeeting. The implementation plan to be undertaken as management actions for the 4 year period from 2013-2014 to 2016-17 are stated below:

- Control hunting for trade
- Control commercial logging and NTFP harvest
- Control shifting cultivation
- Law enforcement monitoring
- Conduct biological research
- Implement education and awareness raising program
- Engage stakeholders involvement in effective conservation
- Strengthen capacity building for reserve management team
- Monitoring and evaluation
- Control subsistence hunting
- Control forest fires
- Control subsistence logging and NTFP harvest
- Conduct boundary demarcation
- Upgrade infrastructure development
- Mitigate impacts of infrastructure development
- Encroachment - villages, plantations and mining
- Control commercial fishing in the core zone

For monitoring and evaluation purposes there is a system in place at TNRP, the following are instrumental for monitoring of the project:

- Monthly meeting for TNRP staff for reviewing activities carried out during the month and plans for next month
- Project Quarterly Progress Report (PQPR) with percentage accomplishments against planned targets
- Technical Committee Meetings (TCM) for reviewing technical matters on the project progress to be in line with annual plan of operation
- Project Coordinating Committee for acting as "Board of Directors" to provide oversight and overall guidance to the project and safeguarding the interest of all stakeholders

In addition to that within the 4 year plan period third party evaluations are to be performed : mid-term period after two years and the final evaluation for the remaining two years.

6.6 BOUNDARY DEMARCATION

Boundary demarcation is one of the activities that has been conducted starting from the very first year of the project. Due to security reasons the program has to be extended up to the end of second phase. With the improving security conditions in the south, boundary demarcations were completed in the south. During March 2013 the Project Director has consulted with "Mon Pyi Thit party" and with their cooperation, the northern

boundary of the project was completed. The boundary demarcation of the remaining Village Use Zone and Transportation corridor are still in progress despite the fact that there is no clear cut decision on the width of the transportation corridor from the parties concerned.

Concerning the width of transportation corridor, it was stated in the Operation Management Plan (2013-14 to 2016-17) that 100 m width on both sides of the service track as well as pipeline Right of Way (ROW) was designated as the transportation corridor, when the ROW deviates from the service track. In an article regarding Natural Gas Pipelines, it is stated that gas pipes range from 24 to 36 inches in diameter have right of way widths up to 200 feet (Johnson, et.al., 2011) depending on the size of the pipelines. Also, it is stated that natural gas pipelines can impact the environment in several ways and in order to mitigate this kind of impact ROWs are generally cleared up to a width of 100 feet. The general practice is at least 50 m of the ROW, centered on the pipeline is generally kept open, though vegetated with grass to control erosion and to facilitate monitoring, maintenance and repairs of the pipeline (Johnson, et.al., 2011). According to U.S. Fish and Wildlife Service (2014) it is stated that ROW widths are determined by the pipeline diameter and material as well as terrain and site-specific conditions. ROW width generally varies from 75 feet (22.9 m) to 150 feet (45.7 m) depending on the pipe sizes. Gulf Interstate Engineering, Texas (1999) has recommended that to ensure safe working conditions and to minimize environmental impacts, GIE proposes four baseline widths that are based on pipe diameter as:

Pipe Diameter	ROW (width) Feet	ROW width (meter)
8-16	80	24
18-24	95	29
30-36	110	33
40-42	125	38

The ROW recommended in the Operation Management Plan as 100m on both sides of the service track and ROW is even too wide, when compared with best practices so far for pipeline corridor as adopted in Oil and Gas installations.

6.7 EXTENSION ACTIVITIES

During the evaluation period from 2013 April to 2014 March the following extension programs has been conducted.

Sr.	Month	Presenter	Location		Attendees	
			School	Village	School	Village
1.	April 2013 to March 2014	Park Warden, Extension team and Range Officer	18	18	1738	1326
2.	April 2014	Park Warden, Extension	8	41	842	2269

Sr.	Month	Presenter	Location		Attendees	
			School	Village	School	Village
	to March 2015	team and Range Officer				
		Total	26	59	2580	3595

6.8 COMMUNITY FORESTRY PROGRAM

During the revision of the district forest management plans in Myanmar, Community Forest Working Circle was included as a new category of working circles and treated the same category as Local Supply Working Circle. The key difference of LSWC and CFWC is that LSWC is managed by Forest Department to satisfy the needs of local communities whereas CFWS is managed by the local community.

In line with the government policy to eradicate shifting cultivation practices, in the Taninthayi Nature Reserve Project, 12 User Groups were formed for practising Community Forestry with the active participation of rural community to improve their livelihood and alleviate poverty. During 2011 certificates for CF's were awarded to 5 USGs in TNR. The remaining 7 User Groups were awarded with CF certificates in 2014 and altogether there are 12 User Groups formed for the following reasons:

- Watershed conservation for water resources
- Securing land tenure and improved livelihood status
- Opportunity for improved farm lands.
- Proper conservation of woodlots in CF areas

Status of Community Forestry in TNRP

Sr.	Village	Location	Areas (acres)	CFUG	Certified Date
1.	Yarphoo	HZ/KLA RF Compt. 26,27	591	70	1-12-14
2.	Thayarmon	HZ/KLA RF Compt. 1,2,4	1052	54	28-7-11
3.	Migyaunglaung	HZ/KLA RF Comp 25,26,27	3332	76	28-7-11
4.	Zinba 1	HZ/KLA RF Compt. 23,24	2167	62	28-7-11
5.	Zinba 2	HZ/KLA RF Compt. 52, 53, 54	878	30	28-7-11
6.	Zinba 3	HZ/KLA RF Compt. 32, 32	1766	43	12-4-14
7.	Kyautshut	Luwine RF compt. 1,2,5	2161	86	12-4-14
8.	Yebon	Luwine RF Compt. 1,2,5	936	56	28-7-11
9.	Hnankye 1	Luwine RF. Compt. 63	136	24	12-4-14
10.	Hnankye 2	Luwine RF. Compt. 63	404	79	12-4-14
11.	Oak Tha Yan	Luwine RF. Compt. 72	403	35	28-8-14
12.	Thetke Kwet	Luwine RF. Compt. 67, 69	150	36	12-4-14
	Total		13796	671	

There are already 671 USG members with an area of 13,796 acres. All CF area are in the Village Use Zone of TNR, except Thayarmon, which is situated outside the Village Use Zone, with the objective of conserving the catchment area for supply of water resources.

On 4-12-2015 a workshop was organized at Environmental Education Center (ECC) and CF USG' were invited and discussed about their experiences so far achieved and way forward. Eighteen USG's members (one chairman and 1 member) from Zinba, Kyaukshut, Migyaunglaung, Thetkegwet, Zinba (3), Yebon, Thayarmon, Yaphu and Okthayan participated at the workshop.

The following is the findings from the workshop:

The activities in the Community Forests were conducted with the assistance of TNRP staff, starting from site survey to drawing up of CF management plans and follow up programs. The tree species preferred by the USG for planting out in the field are pyinkado and mahawgany species. For their conservation forests normally no trees are allowed to cut. However, with the approval of CF Chairman timber trees are allowed to cut for construction of homes and pole-size timber for electricity poles. Commercial extraction is so far not allowed up to now. In the agro-forestry blocks hill rice and vegetables are grown as intercrops. If there are any conflicting issues they normally get it solved between themselves. During the end of the year CF USGs have prepared annual reports and through TNRP assistance, sent to Forest Department Dawei Region in line with CF regulations. There is a good communication and relationship among CF USGs and TNRP staff. One problem concerning growth of tree species in CF plot is that though mahawgani seedlings were growing faster than pyinkado, they are highly susceptible to attack by insects once they reached the height of 5-6 feet.

CF Committee meetings are held once a month regularly and USG's meetings were organized once every two of three months. There were fire incidences during 4 years of CF establishment. There was fire incidence in CF of Zinba (3) in the agroforestry plot. This was due to the weaknesses of not having sufficient width of the firelines, They extended the fireline width last year and due to that effort, there was no fire incidence last year. Currently firelines were constructed before the start of the fire season in March.

In CF areas the growth of bamboo was so good that there were bamboo extraction on a commercial scale. TNRP had provided training on bamboo utilization for small and medium scale enterprises in 2013. TNRP also provided training on bamboo charcoal making technology but so far there is no market potential for that product.

CF UGS's gave promise that they will help assist TNRP for conservation of forests and wildlife and willing to look after the camera traps installed in the forests. Most of the hunters had handed over their local made guns to the authorities. What they requested

to do for the local communities is to organize extension and educational programs to help stop illegal logging and poaching and if possible to broadcast televised programs as the situations of communications is much better now (TVs, Mobile phones and electricity, solar power).

Concerning revolving fund, a lump sum of MMK 50 lakhs had been allotted to Yebon in 2013. CF members can become loaners for 2 lakhs at one time and the selection is made based on their wealth and recommendations by 2 gurantees. They have to payback the interest for the loan money at the rate of 2%. At the moment the revolving fund is 77 lakhs. Due to this good progress the program has been extended to Zinba and Kyaukskut in 2015. For accounting purposes Socio-Eco of MGTC arranged training to Finance Committee members from the said villages.

Concerning potential cash crops one of the CF members from Zinba start raising tapioca (cassava) plants as intercropping inside CF plantations. He tried this crop as he has heard that there will be a cassava factory to be established in Dawe Special Economic Zone (SEZ). However, there is no market yet. Previously TNRP organized workshops once every 3 months and through these workshops, they got one potential crop such as Shan Dog fruit. So they would like to request TNRP to organize such kind of workshops more often.

6.9 CAPACITY BUILDING

Normally there are two types of trainings at TNRP for capacity building of staff: one orgnized by WCS, ALARM and FFI, Socio-eco of MGTC and the other in-house training organized by TNRP staff. WCS training covers the following aspects:

Advance SMART training, field data collection, installation of camera traps, database and data entry, Basic SMART database, GPS and SMART form filling and Community Based Natural Resource Management (CBNRM). Forest inventory was organized by FFI and training on basic accounting was conducted by Socio-eco MGTC.

TRAINING

Sr.	Topic	Trainer	Remarks
1.	Advanced SMART training	WCS	In Yangon
2.	Basic Bird Watching	WCS	
3.	Field data collection (Environmental, Social and Natural Resources)	WCS	
4.	Installation of camera traps and database and data entry	WCS	
5.	Basic SMART database	WCS	
6.	Installation of Camera Traps	WCS	
7.	Basic Bird Watching	WCS	
8.	GPS and SMART form filling	WCS	
9.	Community Based Natural Resource Management (CBNRM)	WCS	

Sr.	Topic	Trainer	Remarks
10.	Participatory Land Use Planning	ALARM	
11.	Forest Inventory	FFI	
12.	Training on Basic Accounting	Socio-eco MGTC	

IN-HOUSE TRAINING

Sr.	Topic	Trainer	Remarks
1.	Map/GPS	TNRP	
2.	SMART training for Extension	TNRP	
3.	Capacity Building (Extension)	TNRP	
4.	Capacity Building (Power point presentation)	TNRP	
5.	Installation of camera traps	TNRP	
6.	MODIS (Fire Control)	TNRP	
7.	Capacity Building (GPS/GIS)	TNRP	
8.	Village Meeting	TNRP	
9.	Bird Watching	TNRP	
10.	Village Consultation Process	TNRP	
11.	Fire protection and CF	TNRP	
12.	Extnsion Skills	TNRP	

6.10 RESEARCH STUDIES

According to the Operational Management Plan of 2013-14 to 2016-17 the following research studies has to be carried out during the period from 2013-14 to 2014-15:

- Conduct primate Survey-Taninthayi Langur
- Medicinal Plant Survey
- Rattan Survey
- Orchid Survey
- Socio-economic and Livelihood Monitoring
- Wild Mammals survey using camera traps

In addition to that with the following studies were initiated as additional programs during the evaluation period:

- Consultancy on Community Forestry
- Geospatial Database System for Taninthayi Nature Reserve
- To initiate Participatory 3 D Modeling as a tool for Protected Area Management System

Though the project was designed in late 2000 with the initiation of WCS, 'The Biodiversity Consultancy' was contracted to independently review the TNRP such that it can serve as a model for future success of Public Private Partnerships (3Ps). Their

vision on the project is just a compensation model with the payment from three gas companies to the Forest Department for implementing conservation activities. They strongly reviewed the project as “not developed as a biodiversity offset”

The review stated that the project has broadly met the stated goals and objectives:

- *Financial commitments from the companies has been met*
- *There is limited criticism from the stakeholders on pipeline biodiversity impacts*
- *A protected area has been established and managed since 2005 and initiatives for community development of the surrounding communities performed.*
- *The capacity building for the FD staff has improved.*

Key government decision makers treated the project as a successful project and viewed as an environment for developing as an effective national model in future.

However, current best practices for compensating for industry impacts on biodiversity resources is based on International Finance Cooperation Performance Standard 6 (IFC PS6, 2012) and the Business and Biodiversity Offsets Program standard (BBOP, 2012). The aim of BBOP is to help investors to conserve biodiversity in an ecologically effective and economically efficient manner as they pursue their business goals.

Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant and negative impacts on biodiversity during project development where appropriate prevention and mitigation measures have been taken. Ultimately, the goal of biodiversity offsets is to achieve no net loss and preferably, a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity.

BBOP helps implement biodiversity offsets by advocating for strict adherence to their "mitigation hierarchy" - this is:

- **Avoidance:** measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.
- **Minimization:** measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.
- **Rehabilitation/restoration:** measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimized.
- **Offset** measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimized and/ or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the

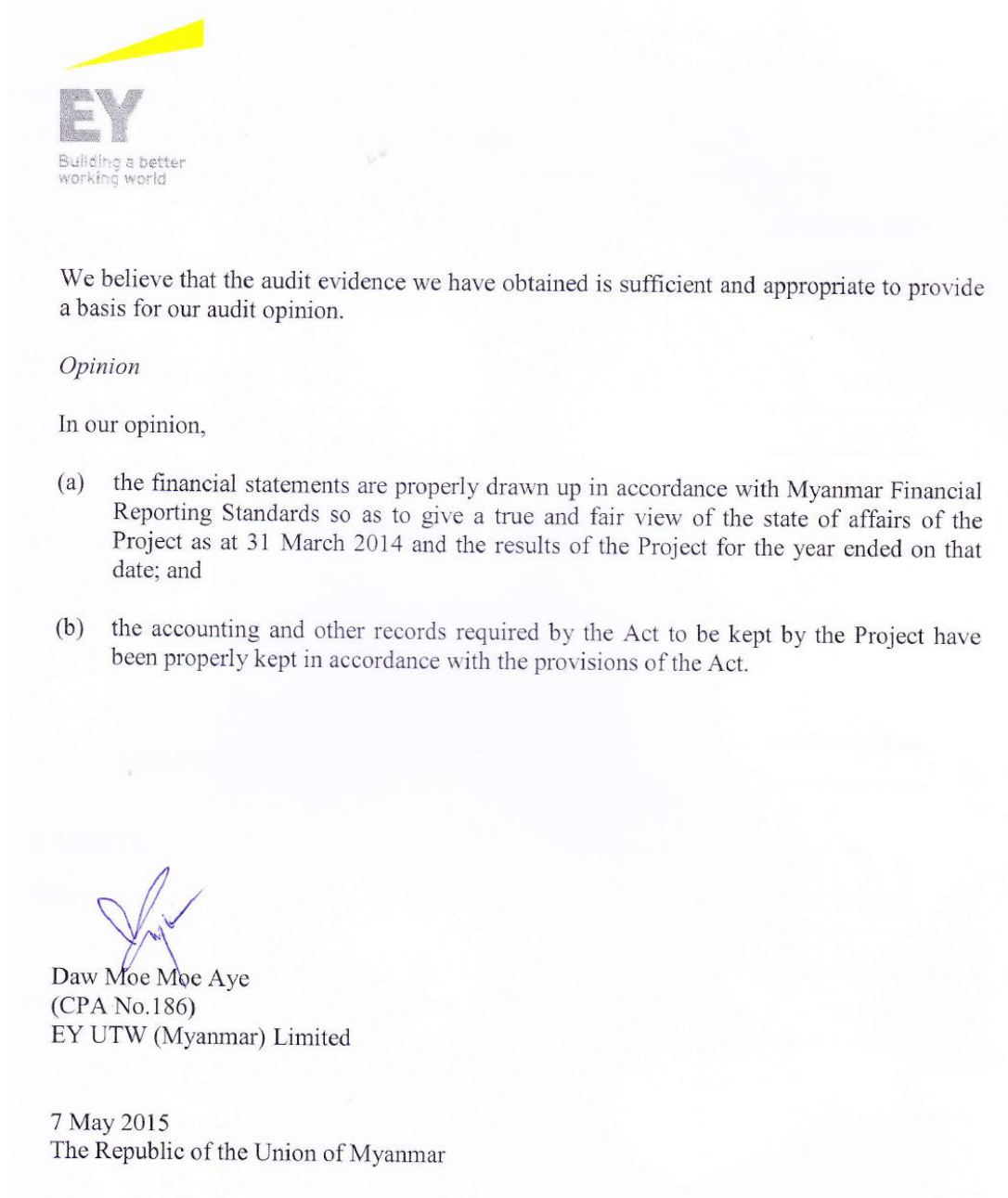
form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

Conformance to the mitigation hierarchy is one of the ten best practice Principles established by BBOP - these are:

1. No net loss
2. Additional conservation outcomes
3. Adherence to the mitigation hierarchy
4. Limits to what can be offset
5. Landscape Context
6. Stakeholder participation
7. Equity
8. Long-term outcomes
9. Transparency
10. Science and traditional knowledge

Though the Environmental Conservation department had enacted the Environmental Conservation Law in 2012, the three gas companies, MGTC, TPC and ATL had prepared their EIA (MGTC, Yadana Development Environmental Impact Assessment, 1997), EIA (PPML, Onshore Biophysical Environmental Assessment, 1999) and ESHIA (PTTEPI, ESHIA of Zawtika Onshore Gas Transportation System, 2009) reports according to their Corporate Social Responsibility (CSR) requirements. During the pipe laying operations across the forested area in the Taninthayi Region (and now designated as Taninthayi Nature Reserve) by mitigating impacts due to tree felling operations and disturbance to wildlife due to the pipe laying operations using heavy machineries. MGTC and PPML had done their reinstatement activities long ago to mitigate the pipe laying impacts with no impacts any more with stable land without landslides or soil erosion. Whereas PTTEPI had to prepare a supplementary study for re-routing of pipelines in 2013 in line with the Environmental Conservation Law (2012) and during the process one of the Environmental Officer from TNRP was designated for monitoring the activities to find out whether the reinstatements operations followed the stated procedures or not.

6.11 FINANCIAL AUDIT



The third-party financial audit was performed on 7th May 2015 for TNRP for the period of 1st April 2013 to 31st March 2014. Audit comments on the audit is as follows:

There is still need for conducting one more third party audit for the second year for the mid-term period of 2014 April to 2015 March.

6.12 FINANCIAL ANALYSIS AND PROGRESS

6.12.1 BUDGET ALLOCATION FOR 2013-14 TO 2014-2015 AT TNRP

No.	Particulars	%	2013-2014	%	2014-2015
	Opening Budget		0.00		259831.1
	For the Year		450,000.00		450,000.00
			450,000.00		709831.10
	Expenditure				
1	PERSONNEL				
1.1	External consultancy- Project evaluation				
1.2	External consultancy- Technical Advisor (2 mm)		-	4.12	24,000.00
1.3	National consultancies			3.19	18600.00
	I) Community Forestry		-		
	ii) Dynamics Research				
	iii) Rattan Survey		-		
	iv) Orchid Survey				
	vi) Medicinal Plant Survey		-		
	vii) Land use changes				
	viii) Management Plan formulation		1200.00		
	Subtotal - Personnel	0.63	1200.00	7.31	42600.00
2	INVESTMENTS				
2.1	Office Equipment	1.32	2519.00	3.68	21458.00
2.2	Field Equipment	1.78	3383.00	4.64	27040.00
2.3	Vehicles		-	6.56	38273.00
2.4	Facilities Construction		-	14.62	85240.00
2.5	Infrastructure Maintenance	3.40	6457.00	7.83	45629.00
	subtotal - Investments	6.50	12359.00	37.33	217640.00
3	OPERATING COSTS				
3.1	Nursery Practice	3.47	1229.00	1.16	6741.00
3.2	Boundary Demarcation	2.86	730.00	0.73	4245.00
3.3	Patrolling	1.86	5971.00	1.89	11013.00
3.4	Communications	1.53	3081.00	1.16	6772.00
3.5	Vehicle fuel and maintenance	10.26	5115.00	4.35	25342.00
3.6	Training	1.24	523.00	3.96	23111.00
3.7	MGTC/TPC logistical support	0.90	2605.00	1.59	9265.00
3.8	Staff allowances	38.1	138299.00	22.08	128726.00
3.9	Field survey/ Mapping	2.43	628.00	2.23	12979.00
3.10	Socio-economic	3.73	1989.00	2.17	12679.00

	surveys, Workshops, Public education				
3.11	Project Coordinating Committee Meeting	0.42	2054.00	0.86	5028.00
3.12	Outreach/ Buffer Zone development Programs	1.27	445.00	7.44	43384.00
	subtotal - Operating Costs	90.8	172669.00	49.62	289285.00
4	CONTINGENCIES				
4.1	Signboards	2.07	3941.00	5.74	33477.92
	Subtotal- contingencies	2.07	3941.00	5.74	33477.92
	Closing Budget		259831.10		126828.18
	Total Project Cost	100.0	190169.00	100.00	583002.92

6.12.2 YEARLY EXPENDITURE (USD)

No.	Particulars	2013-2014 (Planned)	2013-14 (Actual)	2014-2015 (Planned)	2014-15 (Actual)
1	OPENING BALANCE	0.00	0.00	259831.1	
2	PERSONNEL	25200.00	1200.00	45600.00	42600.00
3	INVESTMENTS	93700.00	12359.00	59700.00	217640.00
4	OPERATION COSTS	322480.00	172669.00	337700.00	289285.00
5	CONTINGENCIES	8620.00	3941.00	7000.00	33477.00
6	CLOSING BUDGET	-	2598311.10		126828.18
	TOTAL PROJECT COST	450000.00	190169.00	709831.1	583002.92

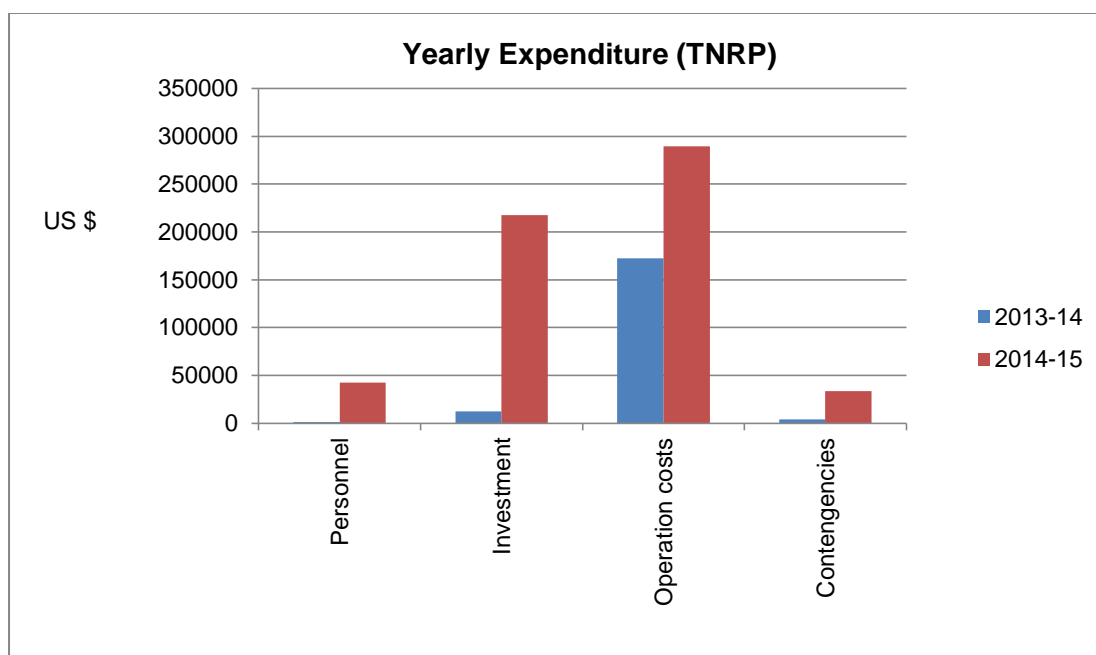


Figure 6.1 Yearly expenditure of TNRP for 2013-14 and 2014-15

Table 6.12.2 and Fig.1 indicates that although the budget allocated for 2013-14 is US\$ 450, 000, the actual spent amount was only US\$ 190,169 that is 42% the budget allotment.

The closing balance of US\$ 259831.10 is probably due to unspent budget for the project personnel such as not being able to spend funds on the appointment of technical advisors and national consultants. Also, according to the management plan, budget allotment for vehicles and facilities construction were not spent during 2013-14 financial year. The funds left over from 2013-14 US\$ 259831.10 were accrued to 2014 -15 budget as opening balance.

6.12.3 INVESTMENTS

No.	Particulars	2013-2014	2014-15	Total	%
2.1	Office Equipment	2519	21458	23977	10.43
2.2	Field Equipment	3383	27040	30423	13.23
2.3	Vehicles	-	38273	38273	16.64
2.4	Facilities Construction	-	85240	85240	37.06
2.5	Infrastructure Maintenance	6457	45629	52086	22.64
Total Investments		12359	217640	229999	

In terms of investment, during 2013-14, only US\$ 12, 359 (5%) could be spent and funds allotted for the purchase of vehicles and facilities construction were left over for

next year. During 2014-15, the remaining 95% were spent including the left over budget for previous year.

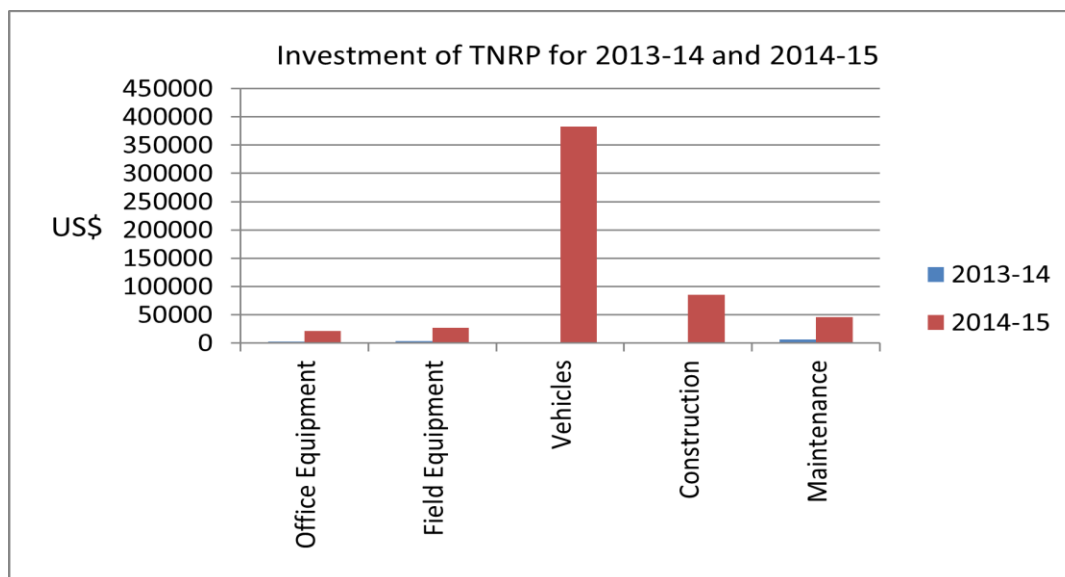


Figure 6.2 Investment of TNRP for 2013-14 and 2014-15

6.12.4 OPERATION COSTS

No.	Particulars	2013-2014	2014-2015	Total	%
3.1	Nursery	1229	6741	7970	1.73
3.2	Boundary	730	4245	4975	1.08
3.3	Patrolling	5971	11013	16984	3.68
3.4	Communications	3081	6772	9853	2.13
3.5	Fuel and maintenance	15115	25342	40457	8.76
3.6	Training	523	23111	23634	5.11
3.7	logistical support	2605	9265	11870	2.57
3.8	Staff allowances	138299	128726	267025	57.80
3.9	Survey/ Mapping	628	12979	13607	2.95
3.10	Extension	1989	12679	14668	3.18
3.11	PCCM	2054	5028	7082	1.53
3.12	Buffer Zone	445	43384	43829	9.48
Total		172669	289285	461954	100.00

It can be observed from the above statement that major operations like boundary demarcation, patrolling, extension, buffer zone management were not able to perform against targets in 2013-2014 according to the Operational Management Plan. Major spending was found to be staff allowances, fuel, and maintenance only. Specifically, for buffer zone management only US\$ 445 was spent for the whole year. However, for 2014-15 the funding spent for buffer zone management was US\$ 43,829, for patrolling US\$ 16,984, fuel and maintenance US\$ 40,457 and survey and mapping US\$13,607, which indicates that funds are more effectively used for operational purposes in 2014-15.

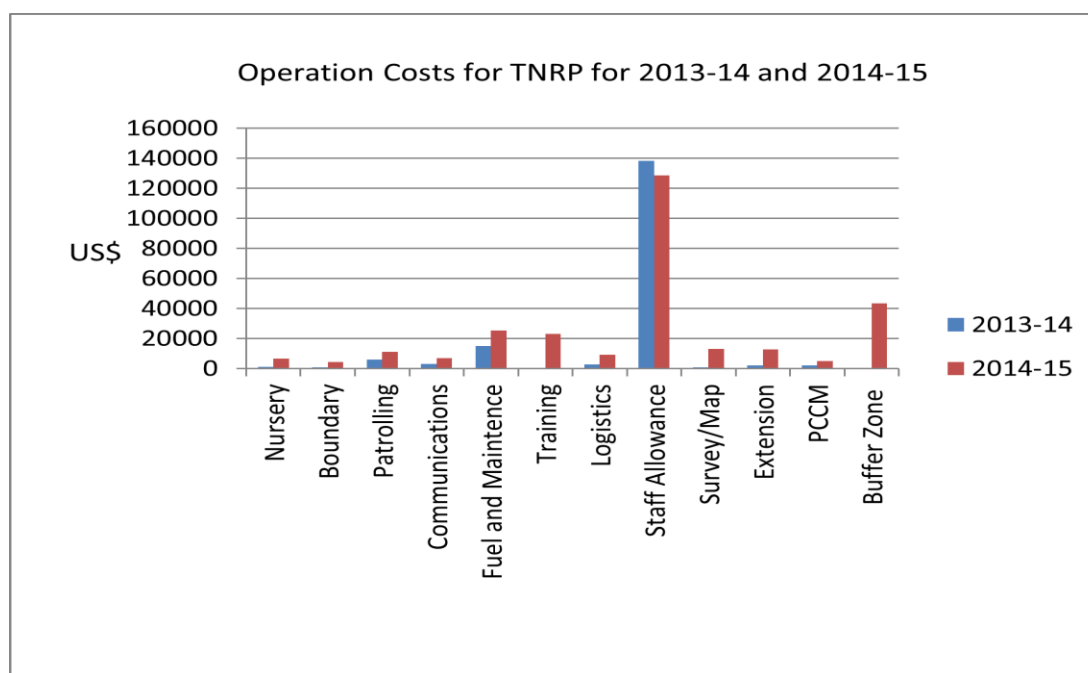


Figure 6.3 Operation Costs for TNRP for 2013-14 to 2014-15

6.12.5 MAIN OPERATION EXPENDITURE

No.	Items	Total Expenditure	Percentage
1	Personnel	43800	5.66
2	Office Equipment	23977	3.10
3	Field Equipment	30423	3.93
4	Vehicles	38273	4.95
5	Facilities Construction	85240	11.02
6	Infrastructure Maintenance	52086	6.74
7	Nursery Practice	7970	1.03
8	Boundary Demarcation	4975	0.64
9	Patrolling	16984	2.20

No.	Items	Total Expenditure	Percentage
10	Communications	9853	1.27
11	Vehicle fuel and maintenance	40457	5.23
12	Training	23634	3.06
13	Staff allowances	267025	34.54
14	Field survey/ Mapping	13607	1.76
15	Logistical support	11870	1.54
16	Public education	14668	1.90
17	PCCM	7082	0.92
18	Buffer Zone management	43829	5.67
19	Signboards, Contingencies, others	37418	4.84
20	Other cost		
TOTAL Project Cost		773171.00	

6.12. 6 PROJECT DIRECT COST AND INDIRECT COSTS

The following table shows that the projects direct and indirect costs in the year 2013-14 and 2014-15.

Sr.	Particulars	2013-14		2014-15	
	Items	Direct	Indirect	Direct	Indirect
1	Personnel		1200.00		42600.00
2	Investments	12359.00		217640.00	
3	Nursery Practice	1229.00		6741.00	
4	Boundary Demarcation	730.00		4245.00	
5	Patrolling	5971.00		11013.00	
6	Communications	3081.00		6772.00	
7	Vehicle fuel and maintenance		15115.00		25342.00
8	Training		523.00		23111.00
9	MGTC/TPC logistical support		2605.00		9265.00
10	Staff allowances	107819.00	30480.00	98245.00	30480.00
11	Field survey/ Mapping	628.00		12979.00	
12	Socio-economic surveys, Workshops, Public education		1989.00		12679.00

Sr.	Particulars	2013-14		2014-15	
	Items	Direct	Indirect	Direct	Indirect
13	Project Coordinating Committee Meeting		2054.00		5028.00
14	Outreach/ Buffer Zone development Programmes	445.00		43384.00	
15	Signboards, Contingencies, others	3941.00		33477.00	
	Total	136203.00	53966.00	434496.00	148505.00

In terms of project direct costs and indirect costs it is well accepted that direct costs should surpass indirect cost in order to have the project to be functional. For 2013-14 the direct cost is (60%) and the indirect cost is (40%) while for 2014-15 the direct cost is (66%) and the indirect cost is (34%) which indicates that the project is functional during the evaluation period.

6.12.7 KEY CONDITIONS FOR TNR FINANCIAL SUSTAINABILITY



To manage the Protected Areas effectively in Myanmar, the amount of budget available is the most important condition to be assured. However, it is realized that most of the PA in Myanmar appears to be insufficient in funds and not effective in management.

It is stated that there are seven important financial conditions that are required for the effective PA management (Emerton, Lucy et. al., 2015).

- FUNDING: *Securing an adequate amount of money to cover PA costs.*

Since 2005, the two gas companies MGTC and TCP contributed US\$ 1.2 million for every 4 years period until 2013. Then another gas company ATL joined the consortium and supported additional US\$ 0.6 million. The overall contribution reached US\$1.8 million for the next 4 years, which is adequate amount of funds to cover PA costs. According to financial analysis during 2013-14, only 50% of the allotted fund had been spent and the balance of US\$ 259,831.1 was accrued to the next year. During 2014-15, the opening balance was US\$ 709,831.1 and the expenditure was US\$ 583,002.92 or 82%. Still the balance of US\$ 126,828.18 (18%) was accrued to the next year. Hence, the allotment of funds is more than adequate to cover PA costs.

- DIVERSITY: *Building a broad funding portfolio which spreads risk.*

At the moment the TNRP phase three has been designed with a budget of US\$ 1.8 million over 4 years. PA funding has been totally rely on the gas companies with varying production periods: MGTC with 30 years production period; starting from 1998; TPC with 20 years production period starting from 1999: ATL with 15 years period starting from 2014. This situation is quite risky as the funding is solely depending on gas resources, which is non-renewable. A recent situation is that TPC production is declining and can revoke the provision of funds at any time, earlier than expected. From the government side, the Forest Department pays staff salaries from the central budget and also provides permanent staff salary, accommodation and Project Director's office in Yangon. As many international organizations made visits to TNRP it is the right time to seek for potential sources of funding such that if one diminishes or fails, there should be additional funding to fill in the gap.

- SECURITY: *Ensuring stable and secure budgets for the future.*

The security of funds also need guarantee over a longer time period than financing on 4 years basis. According to the Agreement made between Party A (FD), B (MGTC) and C (TPC), on 4th Day of March 2004 '*any party can terminate with six month's written notification to the other parties before the end of each period of 4 years*'. It was also mentioned in the amendment that '*should either Party B or C cease operations in the Union of Myanmar, aforementioned Party shall be entitled to withdraw from the Agreement at any time by simple notice with immediate effect to remaining two parties*'. It is also mentioned in the Amendment I, that "*termination by either PARTY B or Party C does not pose*

upon the remaining Party (B or C) any obligations to increase its funding to offset the reduced funding caused by termination by the other party. The remaining Party will have the option to reconsider its position” in accordance with the statement above.

The Amendment I, of the agreement was made in 25th January 2010. On 21st March, 2014, Party D (ATL) mentioned their desire to enter into the Agreement and the remaining Parties are willing to renew the Agreement for a new period of four years and amend certain terms and conditions of the Agreement. According to Article 6: BUDGET of the Amendment II, it was mentioned that “ expenditure for the entire duration of additional four years period shall be equal to US\$ one million and eight hundred (1.8 million US \$). Such budget contribution shall be divided equally among Parties “B” , “C”, and “D” under the same terms and conditions set out in the Article 7.2 of the Agreement”. Thus ensuring stable and secure budgets seems to be not certain in the future.

- **LINKS TO CONSERVATION:** *Ensuring that PA management needs and biodiversity conservation goals drive fund-raising, financial allocation and spending.*

During 2013-14 fiscal year overall spending for the project is only 50% of the allocated budget of US\$ 450,000.00. Out of US\$ 25100.00 allocated for personnel only US\$ 1200.00 was spent for one national consultant for the preparation of TNR Operational Management Plan. Actually, the Operation Management Plan had to be drawn up by the Project Director before the completion of plan period in March 2013, according to the Operation Management Plan of TNRP for the period of 2009-2013. Due to its delay in finalization of the plan and as the plan need approval from the Office of the Attorney General of the Union, the project had to set a bridge period of 6 months, unnecessarily. Due to this effect, most of the project actives were not being operated, according to the plan and consequently 50% of the funds were not been able to spend in time. No biological research activities were conducted and WCS consultative activities were also stranded. Hence, fund spending is not likely to meet the effective biodiversity conservation targets set in the management plan. It is not fit to the purpose and activities which are of highest priority to biodiversity conservation such as Buffer Zone Management was not effectively performed during the year.

However, in 2014-15 the spending was comparatively more than 2013-14 (82.13%). For personnel, External Consultancy WCS was assigned together with

National Consultancies for various studies. Also, in terms of investment 2 LOU were constructed and maintenance of infrastructure was made. Two vehicles and 10 motorcycles were also purchased. Still US\$ 126,828.18 was left as balance in 2014-15. The balance is due to the following facts:

- RECOFTC had not applied for the vacancy of external consultancy for Community Forestry. Also, some of the National Consultants for biological studies were shift to 2015-16 financial year
 - Excess in facilities construction was due to increase in exchange of Myanmar Kyat to US\$ exchange rate
 - Though patrolling had been performed according to the target some of the field activities were done concurrently and due to cost savings some funds were left from the operation costs.
 - Excess in cost of fuel was due to decline in petrol prices and also new motorcycles were purchased quite late.
 - Field allowances were calculated with full strength and due to vacancies still existing there was surplus of funds.
- ADMINISTRATION: *Improving cost-effectiveness, allocation and spending.*

From the administrative point of view, in 2013-14 only US\$ 12359 out of allocated fund of US\$ 93700 could be spent. Some field equipments and office equipment were purchased, while funds for purchasing vehicles, motorcycles and also for facilities constructions were not spent at all. This greatly affects the administration by not being able to establish 2 new Local Operation Units as well as lack of facilities for mobility of staff for carrying out conservation activities. Workshops and socioeconomic surveys were not being implemented on a full scale. The most outstanding issue was the spending for Outreach Buffer Zone Management which indicated the fact that only US\$ 445 was spent against the financial target of US\$ 25,200. This indicates that there is a disconnection between financial planning and on the ground conservation needs. However, cost-effectiveness of financial allocation and spending in 2014-15 was improving.

- PLANNING: *Taking a strategic approach to identifying funding needs and options.*

For planning purpose the Operational Management Plan had been developed for 4 years period starting from 2013-14 to 2016-17 and need approval from the Office of the Attorney General of the Union. Once approved the Project Director has to prepare work plan for the year against the one developed in the Operation Management Plan and worked out annual budget plan for the concerned period and forward to Director General, Forest Department for final approval.

- **ENABLING CONDITIONS:** *Strengthening the broader economic and legal context.*

Across tropical developing countries, the typical costs of effective PA management may average between US\$ 185/km²/year (James et al.2001) and USD 644/km²/year (Blandford et al. 2003). Studies in other ASEAN countries indicated the funding level at between US\$ 82-119 for basic operations and US\$ 74 to 355 for optimal management (see the following table). Generally, in Myanmar calculated, funding for PA from international agencies on an area basis, is on an average US\$ 26/km²/year for the period from 2010/11 to 2013/14. For the same period, spending on PAs from the Union funds is just under US\$ 3 million or US\$ 25/km²/per year. It can be concluded that current PA funding in Myanmar is clearly far below the other ASEAN countries. However, funding in TNRP is US\$ 265/km²/year, which is supposed to be well funded project and almost in line with funding in some ASEAN countries.

Estimates of PA Annual Funding Levels and Needs from ASEAN Countries are as follows:

Country	Cost	Current USD/km ²	2015 Myanmar USD/km ²	Source
Cambodia	Basic funding level	100	82	Cutter and Hean 2010
Cardamom landscape	Adequate funding level	144	119	Grieg Gran et al. 2010
	Optimal funding level	159	131	
Indonesia	Actual public spending (National Parks)	97	38	McQuistan et al. 2009
	Actual public spending (Nature Reserves)	133	53	
	Optimal funding level (National Parks)	279	111	
	Optimal funding level (Nature Reserves)	895	355	
Lao PDR	Actual public spending	42	52	Emerton 2006
Malaysia	Actual public spending	992	97	Emerton 2013a
Philippines	Actual public spending	49	39	Mansourian and Dudley 2008
Thailand	Actual public spending	228	43	Emerton 2013b
	Optimal funding level	337	74	Leangcharoen 2011
Viet Nam	Actual public spending (Central PAs)	1,678	896	Emerton 2011
	Actual public spending (Provincial PAs)	617	329	

VII. OUTPUTS

In line with the Operational Management Plan, it is envisaged that the following outputs were achieved during the evaluation period from 2013 April to 2014 March.

Output 1: Control hunting for trade

- Confiscating 125 muzzle loaders and discussion of local decision makers in 15 villages, such as Yebon, Laukthine, Hnankye , Heinze , Mile (60) village.
- 10 traps, nets and snares were destroyed by patrolling staff during the two years period. And also 1 pitfall had been destroyed.
- The extension team had educated 18 times against the target of 10 times to locals to control muzzle loaders
- 27 effective mobile patrolling were carried out at wildlife trafficking points.
- 20 times of co-operation with agencies of Myanmar Police Force and Village Administrator were conducted against the target of 6 times..
- GIS and Database specialist as data analyst among Local Extension Staff has been recruited to assist SMART system for effective patrolling
- 31 Notice boards were installed at strategic locations against 6 planned,
- 2 times of Transboundary Survey of Illegal Wildlife Trade and Illegal Logging had been implemented by Environmental Officer in Htee Khee and Three Pogada Pass

Output 2: Control commercial logging and NTFP harvest

- 6 logs (4 cubic tons) and (39.80) cubic tons of illegal sawn timbers were confiscated by Patrolling Team during 187 patrols conducted in 2013-14 and 2014-15.
- Out of six collaborative mechanisms to be held with stakeholders and local Forest Department staffs, 4 times have been organized within the year.

Output 3: Control shifting cultivation

- 43 times of discussion and education to decision makers at local level, village administrators and mass organizations were conducted in order to increase awareness of the project with stakeholders at local level.
- For CF, 64 times of monitoring and 35 times of discussions had been made at 12 CF User groups
- 33,660 seedlings were distributed for rehabilitation program for planting out denuded areas as reforestation program.

Output 4: Law Enforcement Monitoring

- SMART database has been used for monthly reporting of law enforcement monitoring.
- SMART database system training was held at Yangon (Advanced) and Gangaw Taung Office (Basic).

Output 5: Conduct Biological Research

- Tanintharyi Languor research had been carried out by FFI during the fiscal year of 2013-2014.
- 7 months of installation of camera traps and 10 month recording of wildlife habitat and their behavior had been conducted in the areas of all LOUs.
- 3 times of forest resource inventory was carried out in the Zinba (1),Kauk Shut and Hnan Kyae CF area.
- National Consultant for Rattan, Medicinal Plants and Orchids has been assigned for biological researches from January to end of march.
- National Consultant for Socio-economic studies had carried out data collection for socio-economic studies of local people to evaluate impact on local people due to the project activities.
- National Consultant for Community Forestry had been assigned to develop establishment of community forests in the buffer area of project.

Output 6: Implement Education and Awareness Raising Program

- 24 times of environmental education programs has been implemented for students in primary, middle and high schools. Altogether 2,582 attended.
- 53 times of awareness raising activities were conducted for 2,909 villagers.
- 8 times of awareness raising cooperation with local authorities were conducted.
- Livelihood training of bamboo handicraft making technologies for local people had been given to promote value added products in local area

Output 7: Engage Stakeholders Involvement in Effective Conservation

- 34 times of local stakeholders such as NMSP, KNU, Forest Department, Partner Companies, GOs, NGOs had been engaged so as to enhance effective conservation in TNR area.
- 3 new local staffs within organizational strength of 36 local staff have been appointed in line with the development of LOUs in the fiscal year 2013- 2014.
- Awarding ceremony for best local staff as incentive program advised by WCS had been held on 31st December 2013.
- In order to have good transparency with the media, RMT has conducted interviews with the 7 days, the Voice, the Yangon Times and the Daily Eleven Journals.

Output 8: Strengthen Capacity Building for Reserve Management Team (RMT)

- Capacity building training was held 9 times to extension and law enforcement staff
- GPS application for mapping training was carried out at PW office.
- 1 Range Officer and 6 extension staff attended SMART LEM database training
- One Wildlife Survey training was conducted.
- MODIS technology training was conducted for effective control of forest fires.

Output 9: Monitoring and Evaluation

- Reserve Management Team(RMT) including Project Director had inspected LOU 36 times in all of LOUs in the fiscal year of 2013-14 and 2014-15
- 1stProject Coordinating Committee Meeting has been accomplished at the IBC, Yangon on 15th November, 2013.
- 6 times of Site Level Meeting was held at the Office of Park Warden in Gantgawtaung.
- 12 times of regular monthly meeting had been implemented at the Environmental Education Center in Michaunglaung village.

Output 10: Control Subsistence Hunting

- 44 times of environmental awareness talks in 12 villages were made by Park Warden and his extension team so as to increase awareness of local communities
- Law enforcement and patrolling were conducted effectively 33 times by all LOU against the target of 22 times within one year.
- Camera trap surveys were done at open season for 7 months with captured images from camera traps
- 6 Village Use Zones had been established against 5 targeted villages
- 125 muzzle loaders were controlled in the 15 villages in the vicinity of TNR

Output 11: Control Forest Fires

- Starting from October 2013 forest fire warnings had been circulated timely to prevent from forest fire occurrences.
- Three villages such as Yebon, Kyaukshut and Zinba had been included in the fire management model villages in order to monitor forest fire using MODIS
- Project staff monitor construction of fire breaks 27 times during the year
- 13.55 miles of fire break lines were constructed as inspection paths along the boundary of TNR

Output 12: Control subsistence logging and NTFP harvest

- 37 times of patrolling for law enforcement against 24 target times had been conducted
- Subsistence logging and NTFP harvest were controlled regularly during 12 months in collaboration with extension team and Law enforcement team
- For CF program 64 times of monitoring and 35 times of discussion for community forestry establishment had been conducted in the 12 villages.

Output 13: Conduct Boundary demarcation

- 32 boundary pillars had been renovated or repaired
- 42.15 miles of boundary inspection path were constructed along the western part of TNR.

Output 14: Upgrade Infrastructure development

- Maintenance of LOUs, EEC and Nursery had been carried out.
- Upgrading of EEC had been done.
- One new boat was purchased for patrolling.

Output 15: Mitigate impacts of infrastructure development

- Environmental Monitoring was performed 28 times for backfilling, reinstatement and re-vegetation work such as grass seeding of ROW of Zawtika Gas Pipeline for Re-route 2 and 4 to find out whether it was in line with EMP of PTTEPI.
- Awareness talks were performed 7 times for decision makers from local authorities and local infantries.
- Collaborative mechanisms had been developed 10 times among relative partners such as Regional, District and Township Forest Department and partners such as MGTC, TPC, ATL and MOGE including Environmental Committee Meetings.

Output 16: Encroachment- villages, plantations, mining

- In Myaykhanbaw, Yaphu and Heinze area 6 times of patrolling and 3 times of discussion were made with local communities for prevention from further encroachment of villages
- Cash crop such as lime, dog fruit and agar wood seedlings were distributed to enhance local livelihood.
- Six times of collaboration with stakeholders (KNU, New Mon State Party) were carried out.
- 9 times of educational talks were held for development of Village Use Zone.

Output 17: Control Commercial Fishing in the Core Zone

- 12 months effective patrolling had been carried out at potential streams such as Kin chaung, Zinba chaung and Dawe River during the fiscal year.
- Fishing gears were destroyed 6 times during the evaluation period



Trip of Union Minister of MOECAF in TNRP



Deputy Union Minister of MOECAF trip in TNRP



Trip of Regional Minister of forest and Mine in TNRP



Regional Director Met CF's UGs



Long Patrolling



Inspection at Restaurant



Meeting with Stakeholders (KNU Party)



Village Consultation Process at LOU



Technical Committee Meeting



Site Level Meeting



Park Warden conducting extension
Technical Committee Meeting



Biological studies in TNR



Surprised Check



Mapping with participation of villagers



Map of village use Zone
Technical Committee Meeting

7.1 FLORA

There are 384 tree species found in the TNR flora survey of which (3) are critically endangered species, (4) endangered species and (6) vulnerable species according to IUCN Red List (Nyo Maung et.al., 2011). The list of critically endangered species and endangered species are mostly of *Dipterocarp* tree species.

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

7.2 MAMMAL

In terms of Mammal species the last survey carried out was in 2008 (Ye Htut, et.al. 2008). 67 Mammal species has been recorded in TNR, based on track and sign and questionnaire surveys. Endangered mammal species likely to be found in TNR are Asian Elephant, Tiger, Tapiar, Serow, Gibbons, Gaur and Bears.

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

7.3 BIRD

The list of bird species recorded during the bird survey (Nay Myo Shwe et.al.2008) included 244 species of which 10 are near threatened and 3 vulnerable species. Near threatened species Great Hornbill, Red-throated Barbet and Blue-rumped Parrot and White-rumped Falcon while vulnerable species include Blue-banded Kingfisher, Plain-pouched Hornbill etc.

IUCN RED LIST FOR BIRDS						
Category	CR	EN	VU	NT	DD	Total
Myanmar	7	10	21	83	1	122
TNRP	-	2	4	9	-	19

7.4 FOREST COVER STATUS

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

The land cover status of TNR was assessed in three areas: TNR area, 10 km buffer of TNR area and outside of TNR.

Myat Su Mon (2012) had made studies on deforestation and forest degradation in the areas mentioned above and the results are as follows:

Deforestation Rate%	Outside TNR	10 km Buffer	TNRP Area
1990-2006	0.006	0.011	0.008
2006-2010	0.149	0.076	0.001
1990-2010	0.031	0.019	0.004

Forest Degradation Rate%	Outside TNR	10 km Buffer	TNRP Area
1990-2006	0.009	0.024	0.021
2006-2010	0.205	0.135	0.014
1990-2010	0.040	0.033	0.012

The deforestation and degradation rate confined to the TNR area indicated that the forest cover at the middle part of TNR was improving whereas forest cover in the northern part and southern part of TNR was found to be decreasing, most probably due to shifting cultivation, illegal logging and mining activities.

In order to find out the current deforestation and degradation rate, one consultant was assigned to determine the rate of change of vegetation cover of TNR during 2010 and 2015 period and due to incomprehensible reasons the consultant could not able to finalize the report in time.

7.5 TRANSBOUNDARY CONSERVATION PROGRAM WITH THAILAND

Taninthayi Nature Reserve Project is connected to Tenasserim-WEFCOM landscape with its eastern boarder. Camera-traps indicates that more than 100 adult tigers have been photographed in this landscape over the last 5 years. Tenasserim WEFCOM is about 25, 000 km² on Thai side and represents a globally important, transboundary landscape with Myanmar for tigers. This landscape is one of the potential two landscapes viz., Tenasserim_WEFCOM and Dong Phrayayen-Khao Ya Forest Complex (DP-KY) with about 8 adult tigers photographed in this landscape. This sort of wild tiger recovery program is dependent on landscape scale conservation intervention with effective control of cross-border trade and effective law and policy reforms for reach the objective of wildlife conservation, particularly tiger conservation. During the second-phase of the project some staff from TNRP had got a chance to visit WEFCOM on a study tour program. It is well observed from the google earth photos that the forest condition of the Myanmar side is comparable better than Thai side at the transboundary site and will be a good refuge for the existing tiger population. There a SMART patrol system been in place which is similar to the one introduced by WCS in TNRP as well as other PA's in the country. Experience in Thailand indicates that capacity of park rangers is very important for Tiger Program. Military style training alone is not enough for wildlife protection. Instead rangers has to be equipped with up-to-date technology. WCS has trained TNRP park rangers to SMART based patrol system and is now operational in TNR. WEFCOM is a center to support regional capacity for wildlife conservation, particularly tiger conservation with training programs for wildlife population estimate techniques, wildlife ecology and wildlife occupancy survey also.

7.6 ORGANIZATIONS VISITING TNRP DURING THE PERIOD FROM 2013 APRIL TO 2015 MARCH

INTERESTED ORGANIZATIONS VISIT TO TNRP

Sr. No	Organization	Number of trips
1	TBC	1
2	AFD	1
3	WCS	6
4	RECOFTC	2
5	WWF	6
6	Fauna and Flora International	1
7	New York Botanical Garden	3
8	OKINAM	1
9	FOMIC	1

Sr. No	Organization	Number of trips
10	ALARM	4
11	Singapore Botanical Garden	1
Total		27

Note: see details in appendix 3.

7.7 ARMED ETHNIC GROUPS (KNU PARTY/MON PYITHIT PARTY)

During the second phase of the project, it was decided to purchase the Rapid Eye satellite data of 2013, to determine the forest cover status in the northern part of the TNR and also to find out the encroachment due to settlements inside, which is under the jurisdiction of Mon Pyithit Party. The results indicated that the closed forest in the northern part of the TNR is 63%, Open forest consists of 17.87% while scrubland accounts for 9.92%. Agriculture/Taungya is 0.40%. As the northern part of TNR is under the control of “Mon Pyithit Party, there are villages located inside the project area. Information received from LOU staff and villagers indicated that there were 9 villages inside the “Core Zone”.

On the other hand, the southern part of TNR consists of 63% closed forests , 17.87% of open forest, 9.92 % of scrubland and 0.40 % consisting of agriculture/taungya, According to local information there is only 1 village encroached inside the southern part of TNR, which is under the control of Karen National Union (KNU).

During the recent period it is learnt that the staff from TNRP has good relationship with Mon Pyithit Party and KNU, particularly after the signing of ‘Peace Agreement’ with the Government.

7.8 FOREST DEPARTMENT (TANINTHAYI REGION)

The relationship with TNRP and Forest Department, Taninthayi Region is that the Buffer Zone Area in the northern part of TNR is within the jurisdiction of Forest Department Taninthayi Region. TNRP Buffer Zone Area (Village Use Zone) was designated starting from the western boundary and extends 1.7 km (1 mile) towards the villages in the west or towards the peripheral area inside the TNR boundary in the east. Within that Village Use Zone, User Groups were formed and application for Community Forestry was made to the Regional Forest Department. With the approval of the Director, Taninthayi Forest Region, 12 CF were awarded to 12 User Groups in the TNRP area

Another relationship with the Taninthayi Regional Forest Department is that TNRP has to hand over illegal logging confiscations during their law enforcement patrols for legal actions. The Director of Taninthayi Regional Forest Department also attends special meetings with armed ethnic parties such as Mon Pyi Thit Party and KNU concerning illegal logging matters.

VIII. EVALUATION RESULTS FOR THE OVERALL MANAGEMENT OF TANINTHAYI NATURE RESERVE PROJECT

Management Effectiveness Measurement is a tool that can be used to establish a monitoring system, if it is adopted as a routine, sequential practice. In this process, it compares the current situation with the optimum scenario. The overall evaluation illustrates the progress towards improving the management of the protected area using the same criteria and conditions to ensure an accurate comparison of evaluation results. Based on the results of the evaluations it can be inferred how effective and efficient the efforts have been the improvement of the management of the PA and how to ensure the accomplishment of the PA objectives by reviewing the existing staff at the time of evaluation period (2015-2016)

Personnel: The variable evaluates four subvariables: *administrator, technical personnel and operational personnel*. The administrator is responsible for directing area management. Technical and administrative personnel all with a University degree or specialized technical training that are incharge of administrative decision-making and policies. Operational personnel include Park Rangers, administrative support staff, maintenance staff and others. The optimal conditions and the set of conditions, measured by each indicator can be changed and adjusted according to the PA management regime.

Quality: is considered for the PA Director or Administrator, technical and administrative personnel based on the education level, initiative and experience. For the operative personnel the rating criteria are: education, experience, in their field and their protected areas, with skills and training acquired for PA management.

Quantity: Quantity compares the optimum quantity of personnel with the number of existing personnel that are based permanently in the PA, It is calculated on the percentage of the existing personnel.

Funding: This variable evaluates four sub-variables: *annual operational budget, regulatory of fund transference and financial accounting system*.

Operating budget: is evaluated by the amounts received in a determined period, compared to optimum budget according to the operational management plan.

Transfer of Funds: considers transfers of budget items by deadlines in the financial plans.

Management Capacity: is evaluated taking into consideration the ability maintain good contacts funding sources to obtaining long-term financial and technical support.

Institutional Capacity: refers to the capacity of the PA administration to manage its financial-resources.

Budget management: refers to the capacity of PA administration to prepare adequate budgets and effectively manage program expenditures.

Spending Capacity: It is concerned with PA's spending capacity. Control and Auditing mechanisms: it evaluates accounting systems and regularity of financial controls.

KEY: 0=UNSATISFACTORY 1=MINIMAL SATISFA. 2=MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.	Personnel					Funding				
	Quality	Quantity	Operating Budget	Transfer of Funds	Management Capacity	Institutional Capacity	Budget Management	Spending Capacity	Control and Auditing	
	TOTAL	2.88	3	4	3	3	2	2	3	3
	AVERAGE SCORE	2.94					2.8			
	OPTIMUM TOTAL	4.0					4.0			
	% OF OPTIMUM	73.5%					70%			

Note: See detail scoring system in Appendix. 5

Organization: composed of the following components: filing system, institutional structure, internal communication and rules and procedures.

Filing Systems: evaluates the existence, organization, usefulness and information availability with respect to financial and administrative movements.

Orgational structure: This is evaluated by consideration of the functional structure of the organization.

Institutional structure: This is evaluated on whether the organizational chart clearly define the management objectives or not..

Internal communiction: refers to the aay information and decisions are transmitted with regard to planning and carrying out activities in the area.

Rules and Procedures: refers to the existence of procedures and standards that guide administrative efforts.

KEY:	Organization				
	Filing System	Institutional structure	Organization Chart	Internal Communication	Rules and Procedures
0=UNSATISFACTORY 1=MINIMAL SATISFA. 2=MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.					
TOTAL	2.0	3.0	4.0	3.0	3.0
AVERAGE SCORE	3.0				
OPTIMUM TOTAL	4				
% OF OPTIMUM	75%				

INFRASTRUCTURE: For infrastructure the following variables are considered: *equipment and tools, facilities for basic management (heating, ventilation, humidity, cleanliness), building safety and basic services (fresh water, lights, sewage), accessibility and boundary demarcation.*

Equipment and tools: are evaluated on quality, quantity and maneuverability of the equipment and tools..

Facility: refers the hygiene and healthiness of the physical buildings to create an appropriate working environment.

Safety: refers to the safety of the physical structures for management , protection and user services.

Basic Services:evaluates the combination of basic services that make it possible to carry out regular activities and attend to user needs.

Accessibility: refers to the route of access that permit the PA personnel to arrive at strategic points to ensure good management.

Boundary demarcation: refers to the location and marking of PA boundaries. Evaluation is based on the percentage of the perimeter that is marked.

KEY:	Infrastructure					
	Equipment and Tools	Facility	Safety	Basic Services	Accessibility	Boundary Demarcation
0=UNSATISFACTORY 1=MINIMAL SATISFA. 2=MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.						
TOTAL	3	3.5	3.0	3.0	2	2.5
AVERAGE SCORE	2.83					
OPTIMUM TOTAL	4.0					
% OF OPTIMUM	70.8%					

POLICY: is measured on the following variables such as *community support and participation, mother institution, PA system administration and external support.*

Community Support and Participation: is defined by the existence of a positive relationship between the community and the PA. and on the understanding that both the PA and the community, benefit from the type of relationship.

Mother Institution: refers to the rating of the highest body in the system hierarchy.(ministry, national institute, NGOs, Community organization.

PA system Administration: evaluates the executive division for the PA system such as regional or district directors or divisional head whether it offers efficient technical, financial, political and human resources support to PA

External Support: refers the support from local, national or international non-governmental organizations in terms of support mechanism and the support duration.

KEY:	Policy Support			
	Community Support and Participation	Mother Institution	PA System Administration	External Support
0=UNSATISFACTORY 1=MINIMAL SATISFA. 2= MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.				
TOTAL	3.5	3	3	3
AVERAGE SCORE	3.1			
OPTIMUM TOTAL	4.0			
% OF OPTIMUM	77.5			

LEGAL FIELD: the following variables are evaluated: *Possession or domain, Conflicts and Clarity of regulations and Applications.*

Possession or Domain: The rating is based on the percentage of the area that has recognized and accepted % of possession of domain.

Conflicts: The rating is based on the existence and extent of conflicts over land ownership.

Clarity of Regulations: refers to the existence of laws, decrees, agreements, regulations that make it possible to for the government to have jurisprudence over the management of natural resources that permit their clear understanding and application.

Application: refers to the compliance to law/regulation by the PA users and PA personnel to enforce these.

KEY:	Legal Uses			
	Possession or Domain	Conflicts	Clarity of Regulations	Application
0=UNSATISFACTORY 1=MINIMAL SATISFA. 2=MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.				
TOTAL	3.0	3.0	3.0	3
AVERAGE SCORE	3.0			
OPTIMUM TOTAL	4.0			
% OF OPTIMUM	75%			

Illegal Uses: are based on *illegal logging, poaching, encroachment of villages, and mining activities.*

KEY:	Illegal Uses				
	Illegal Logging	Poaching	Encroachment of villages	Encroachment of plantations	Mining Activities
0=UNSATISFACTORY					
1=MINIMAL SATISFA.					
2=MOD. SATISFACT.					
3=SATISFACTORY					
4=VERY SATISFACT.					
TOTAL	3	3	3	3	3
AVERAGE SCORE	3.0				
OPTIMUM TOTAL	4				
% OF OPTIMUM	75%				

Planing field: involve the following variables: *PA management Plan, Planning team characteristics, Plan implementation compatibility with other plans, operational plan, Zoning and Boundary Limits.*

Management Plan: is evaluated by means of the following variables: existence of the plan and how to update it, characteristics of the planning team and plan implementation.

Planning Team Characteristics: involve the make up of the team in charge of preparing or revising the management plan. It is necessary to identify the team whether it consists of multidisiplinary team, community, specific technical group or individual planning by a specialist.

Plan Implementation: Plan implementation is evaluated by percentage of planned and proposed activities carried out.

Compability with Management Plan with other Plans: the evaluation is performed on how integrated and compatible the PA's management plan is with other regional plans, especially with regards to zoning and defination of institutional responsables.

Operational Plan: Similar to the management plan, an operational plan is evaluated by the following variables: existence of the plan and how to update it and plan implementation.

Zoning: is evaluated on the following fact that established regulations are understood and PA staff are familiar with the specific regulations applied to the zones.

Boundary Limits: Evaluates the recognition and respect for the PA boundaries and to assure that boundries are legally defined , recognized in the field and respected.

KEY:	Planning						
	Management Plan	Planning Team Characteristics	Plan Implementation	Compatibility with Other Plans	Operational Plan	Zoning	Boundary Limit
0=UNSATISFACTORY 1=MINIMAL SATISFA. 2=MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.							
TOTAL	4	3	3	3	4	3.5	4
AVERAGE SCORE	3.5						
OPTIMUM TOTAL	4.0						
% OF OPTIMUM	87.5						

RESOURCE INFORMATION: The following variables are evaluated: socio-economic information, biophysical information, legal information, research, monitoring and feedback and traditional knowledge.

Socioeconomic and biophysical information: evaluates the information and how to up-date it in relation to protected area and zone of influence.

Legal information: refers to the availability of and knowledge of laws, regulations and procedures relative to protective area management.

Research: Research should be conducted with the PA's management needs and the information generated is applied.

Monitoring and Feedback: refers to the capacity of the protected area to design and use monitoring systems to identify changes in the systems being managed and to make appropriate decisions to deal with the changes.

Traditional Knowledge: The understanding and use of traditional community knowledge would aid better PA management.

KEY:	Resource Information				
	Socio-eco and Biophysical Information	Legal Information	Research	Monitoring and Feedback	Traditional Knowledge
0=UNSATISFACTORY 1=MINIMAL SATISFA. 2=MOD. SATISFACT. 3=SATISFACTORY 4=VERY SATISFACT.					
TOTAL	3	3	3	3	2
AVERAGE SCORE	2.8				
OPTIMUM TOTAL	4				
% OF OPTIMUM	70%				

MANAGEMENT PROGRAM: the following are the main variables to evaluate the management program: Design, implementation of planned activities, illegal uses, legal uses size, form, connectivity, vulnerability and threats.

Design: refers to the way that the management programs have been defined and structured.

Implementation of planned activities: refers to implementation of the management programs as defined in the operation management plan.

Illegal uses: include lumber extraction, non-renewable resource extraction, extraction of flora and fauna, plundering of cultural resources, poaching agriculture and cattle ranching, fishing etc and are evaluated according to activities involving environmental impact.

Legal Uses: legal uses are evaluated taking into concentration the management category, characteristics of the protected area and the impact on resources. In TNRP the following operations are prohibited logging, mineral extraction, extraction of flora and fauna, hunting , commercial fishing and building of infrastructure.

Size:: minimum area necessary to sustain a viable population and predators with biggest home range.

Form: approximate shape of the area and its fragmentation.

Connectivity: the distance between one protected area and another influences on the flow and survival of the protected populations it contains.

Vulnerability: rates the vulnerability of species to biological invasions or disturbances and the level of impact.

Threats: The field occurs natural and human factors that effect the protected environment's stability and the fulfilment of the management objectives.

KEY:	Management Program					
	Design	Implementation of planned activities	Illegal Uses	Legal Uses	Vulnerability and Connectivity-Size, Form, Threats	
0=UNSATISFACTORY						
1=MINIMAL SATISFA.						
2=MOD. SATISFACT.						
3=SATISFACTORY						
4=VERY SATISFACT.						
TOTAL	3	3	3	3	3.5	3
AVERAGE SCORE			3.08			
OPTIMUM TOTAL			4.0			
% OF OPTIMUM			77.0			

OVERALL SCORE FOR TANINTHAYI NATURE RESERVE PROJECT FOR 2013-14 TO 2014-15

KEY:	Personnel	Finance	Organization	infrastructure	Policy Support	Legal uses	Illegal Uses	Planning	Resource Information	ManagementP Program	Total Reached	Optimum Total	% of optimum
<35% Unsatisfactory													
36-50% Minimally Satisfactory													
51-75% Moderately Satisfactory													
76-89% Satisfactory													
>90% Very Satisfactory													
Taninthayi Nature Reserve	2.9	2.8	3.0	2.83	3.1	3.0	3.0	3.5	2.8	3.08	30.01	40	75.03%
Optium Total	4.0	4.0	4.0	4.0	4.0	4.0	4	4.0	4.0	4.0			
% OF OPTIUM	72.5%	70%	75%	70.8%	77.5%	75.0%	75.0%	87.5%	70%	77.00%			

Evaluating rating for the Assessment of Taninthayi Nature Reserve Project.

RATING	% OF OPTIMUM	SIGNIFICANCE
0	<35	Unsatisfactory
1	36-50	Minimally satisfactory
2	51-75	Moderately satisfactory
3	76-90	Satisfactory
4	91-100	Very satisfactory

The assessment scores for the performance of the TNR project is presented in table above. The assessment is made by assigning a simple score ranging between (0) Unsatisfactory, (1) Minimally Satisfactory, (2) Moderately Satisfactory (3) Satisfactory to (4) Very Satisfactory. A series of five alternate answers are provided against each question to help assessors to make judgments as to the level of score given. Questions that are not relevant to TNRP are omitted.

Hence, the maximum score of major fields are presented which include variables and sub-variables also. A final total % score from current assessment can be calculated as 75.03% which indicated that the performance of TNRP is “moderately satisfactory”. However, there is still room for improvement at the later stages of the project.

IX. DISCUSSION

The mid-term evaluation study was conducted using “Measuring Protected Area Management Effectiveness (Miguel Cifuentes et al., 2000). The overall score of 75% indicating that the project is moderately satisfactory; however, there is still room for improvement.

9.1 Project Governance

Project governance is the management framework with which project decisions are made. Project governance is a critical element of any kind of project where the accountabilities and responsibilities are associated with organization arrangements in the development of projects. For instance, the organization chart provides a good indication of who in the organization is responsible for any particular operational activity the organization conducts. But unless an organization has specifically developed a project governance policy, no such chart likely to exist for project development activity. Hence, the role of project governance is to provide a decision-making framework that is logical, robust and reputable to govern an organization’s capital investments. In this way an organization will have a structured approach in conducting its project activities.

Three Pillars of Project Governance

The following three pillars are framework for supporting decision-making process:

- Structure
- People, and
- Information

Structure: This refers to Project Steering Committee, which may include various stakeholder groups and perhaps user groups. Additionally there may be a programme board governing a group of projects, like Project Monitoring Team (PMT) which is possibility some form of decision-making group. In this way the project’s governance can be integrated within the wider governance arena.

People: The effectiveness of the committee structure is dependent upon the people who are involved in the governance committee.

Information: This is concerned with provision of information for decision-makers by regular reporting to the committee about issues and risks that has been reported by the Project Manager, such as Project Quarterly Progress Report (PQPR).

Project governance frameworks should be based on the following principles:

Principle 1. Ensure a single point of accountability for the success of the project

The most fundamental project accountability is accountability for the success of the project. A project without a clear understanding of who assume accountability for it success has no clear leadership. With no clear accountability for the project success, it

will slow the project during the crucial project initiation phase, since there is no one to make the important decision necessary to place the project in a firm footing.

Principle 2. Project ownership

The project has many stakeholders and effective project governance must address their needs. Moreover, organizations establish a governance of project committee, which identifies the existence of projects.

Principle 3. Ensure stakeholder management and project decision making

There is no question that project activities, project decision making and stakeholder management are essential to the success of the project. Whatever stakeholder management mechanism that is put in place must adequately address the needs of all project stakeholders

Principle 4. Ensure project governance and organizational governance structures.

The project governance framework established for a project should remain separate from the organization structure. This will ensure a project decision-making body empowered to make decision in a timely manner.

If you consider the above mentioned statements against the governance of TNRP there is a new organizational set up with additional staff (previous 62 against current 80), which is one of the highest staff assigned among the Protected Areas staff in the country. The Project Coordinating Committee takes the role of project governance by providing decision-making framework that is logical, robust and reputable to govern the capital investments. There is also a structured framework such as Technical Committee for providing solutions for technical matters as well as Project Monitoring Committee (PMC) at the Forest Department headquarters at Nay Pyi Taw for monitoring the project progress.

In terms of people, Project Coordinating Committee (PCC) consists of a variety of stakeholders from Forest Department, Environmental Conservation Department, Myanmar Oil and Gas Enterprise (MOGE) and also senior staff from 3 Oil and Gas companies such as MGTC, TPC and ATL.

At the field level, it was observed that local communities who are members of CF User Groups are in close coordination with TNRP staff for solving management problems encountered at the village level through meetings, trainings and workshops.

The Project Coordination Committee (PCC) acts as 'Board of Directors' providing oversight and guidance 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. Project Director, stationed at Yangon, handle the project management while Park Warder Office at Gangawtaung

Office and LOUs are handling day-to-day problems at site level and report back to Project Director's Office in Yangon.

9.2 Community Forestry

One outstanding achievement during this assessment period is the receipt of additional 7 CF certificates in 12 April 2014 and 28 August 2014 in addition to 5CF certificates already received during the early stages of project in 2011. Reserve Management Team with the assistance of Yadana Socio Eco Team made a review to the members of Yebon CF for the outcome of the provision Kyat 5 million on 6th October 2014 as revolving fund. Livelihood support program had been initiated at Yebon CF by TNRP since 2013 and it appeared to be successful, as it has been extended to additional 2 villages, Kyaukshut CF and Zinba (3) CF with the revolving funds of MMK 50, 00,000 for each CF.

During 6th July 2013, the Regional Minister for Forests and Mines, Taninthayi Region had visited Yebon CF UG's and discussed about the implementation activities. A team from Regional Community Forestry Training Center (RECOFTC) had met with user group members concerning the experiences about CF from 19th to 21st January 2014. One of the project staff and member of Users Group attended "Training of Community Forestry to improve livelihood" by RECOFTC at the CFDTTC on 7th to 11 July 2014.

In the mean time, Flora and Fauna International (FFI) discussed with User Groups of Community Forests for conducting inventory studies at village level on 11th July 2014. The actual demonstration on inventory of forest resources was carried out by FFI on 29th August 2014 and a follow up workshop was on 30th August 2014.

The Deputy Union Minister of MOECF had inspected project activities of TNRP on 17th March 2014. Likewise, the Union Minister for the Ministry of Environmental Conservation and Forestry had met members of Users' Group of Community Forests at the Environmental Education Center of Michaunglaung village on 19th July 2014. He addressed how Forest Department is assisting for the establishment of CF and the benefits accrue to them through livelihood improvement and the legal status for them to own the forestland for 30 years. Likewise,

As bamboo is a potential resource for the local population, training on 'Bamboo Production Making Technology' was organized which was attended by members of User Groups from 6 villages on 9th May 2014 with the aim at using the available resources of the Village Use Zone.

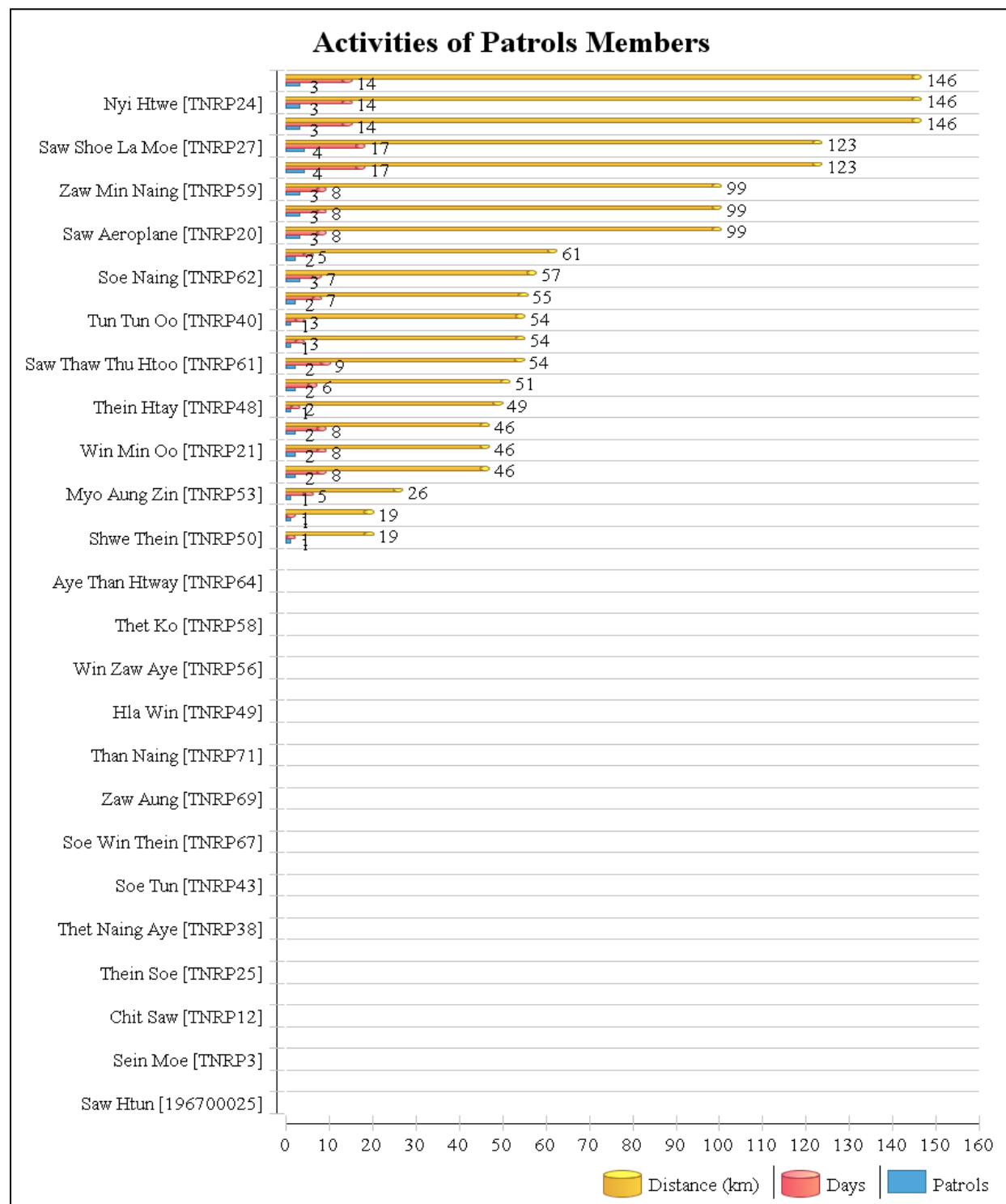
The final evaluation report of TNRP clearly mentioned that CF management plans had been prepared by the consultants after negotiating with USGs at the meetings. It was well understood that USGs had difficulties in follow up the plans. It was also mentioned in the report that staff training and additional skills using participatory approaches developed by RECOFTC will certainly improve the situation in the third phase. Unlike WCS, there was no MOU signed between MOECF and RECOFTC for the time being.

Hence, RECOFTC could not be able to sign the agreement in the evaluation period of the third phase. RECOFTC is the “Center for People and Forests” with a capacity for training and CF implementation and has trained for more than 45, 000 people from more than 27 countries. It is quite evident that through ‘Community Forestry’ local livelihoods can be assured, reducing deforestation and improving forest condition and strengthening good governance. As, international organizations like WCS, RECOFTC and FFI are engaged for the development of the communities, TNRP need more effort on co-ordination and co-operation of these organizations to achieve the desired goal.

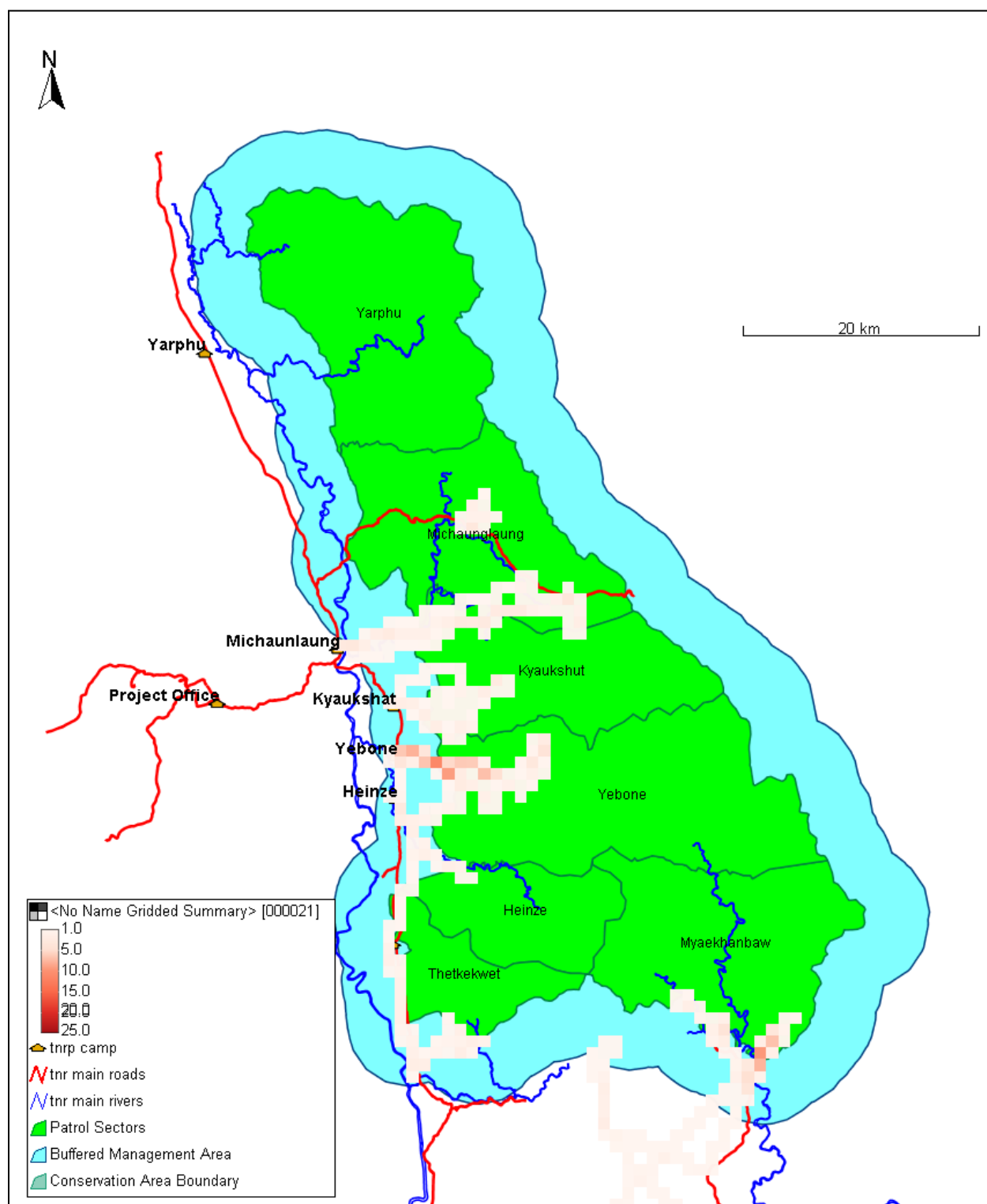
9.3 Law Enforcement

TNRP has conduct law enforcement activities regularly by patrolling in an around TNR along the service track and surprised checks were carried out at bus stations, market places and food stalls concerning seizure of wild meat and food. In order to assist law enforcement monitoring WCS has introduced Spatial Monitoring and Reporting Tool (SMART) a tool for measuring and evaluating patrolling of protected areas in order to improve the effectiveness of law enforcement. SMART is user-friendly when compared to MIST which need skills like GIS technology. Anyone with basic computer skills can handle such kind software with a few days training. A basic course for SMART Managers to use SMART database enabling them to make data entry, data querying, data analysis, reporting and monitoring to support law enforcement activities effectively. This course was attended by Law Enforcement Team leader and 8 law enforcement members from TNRP. The main goal was to review all patrols conducted and set up comprehensive patrolling plan using existing data and management plan of TNRP. The output of progressive report from SMART program is mentioned below:

Progressive Report for Patrolling in TNR



Map Showing Patrol Coverage in TNR area



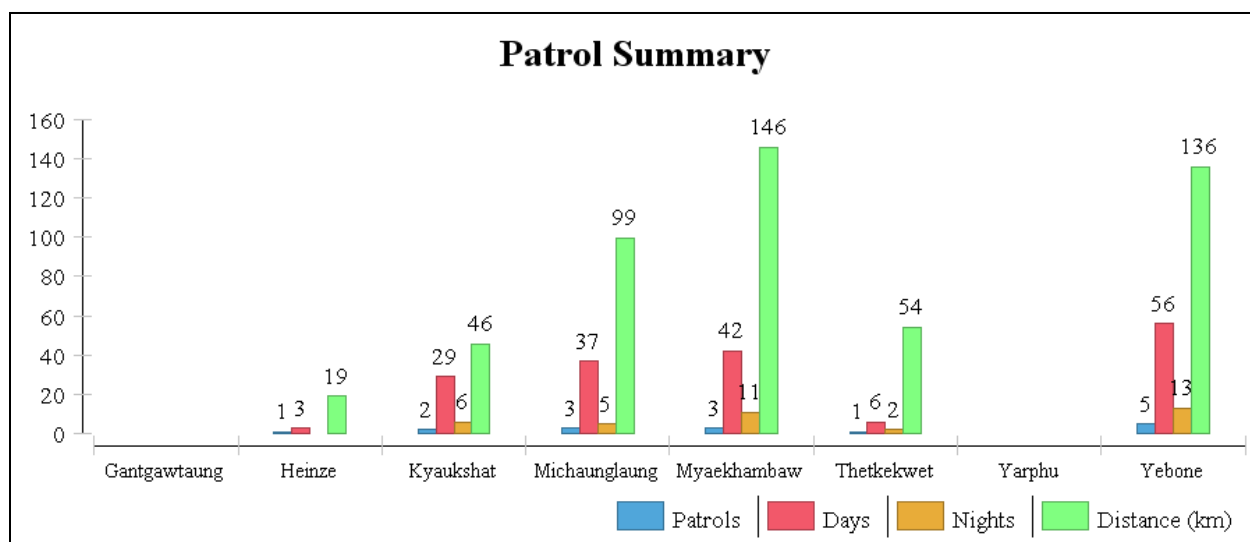


Figure 9.1 Patrol Summary of Local Operating Units

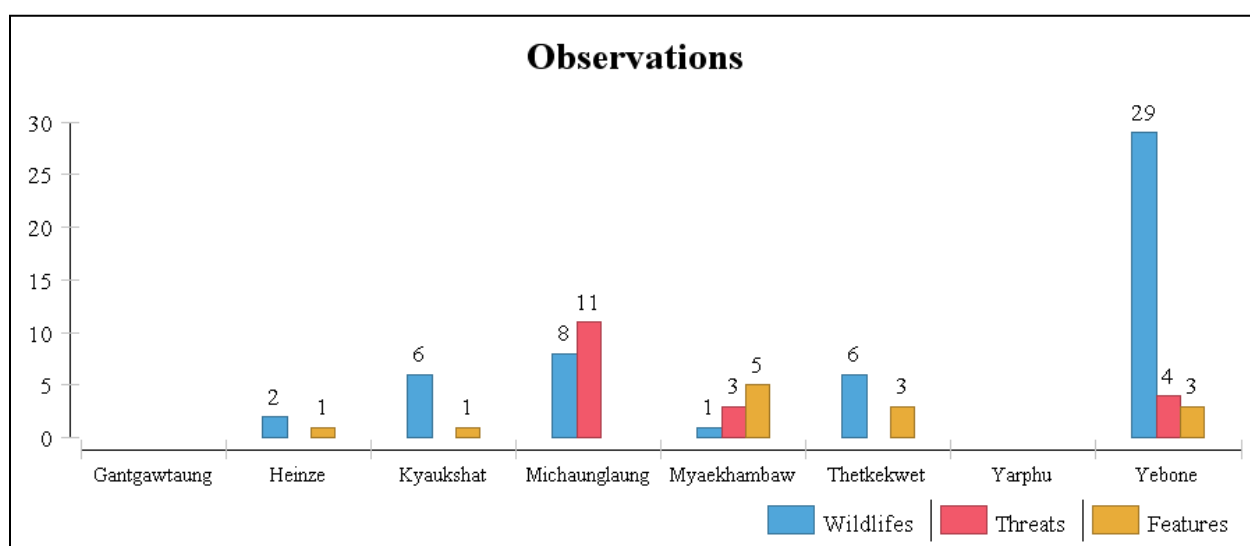


Figure 9.2 Observation in TNR area

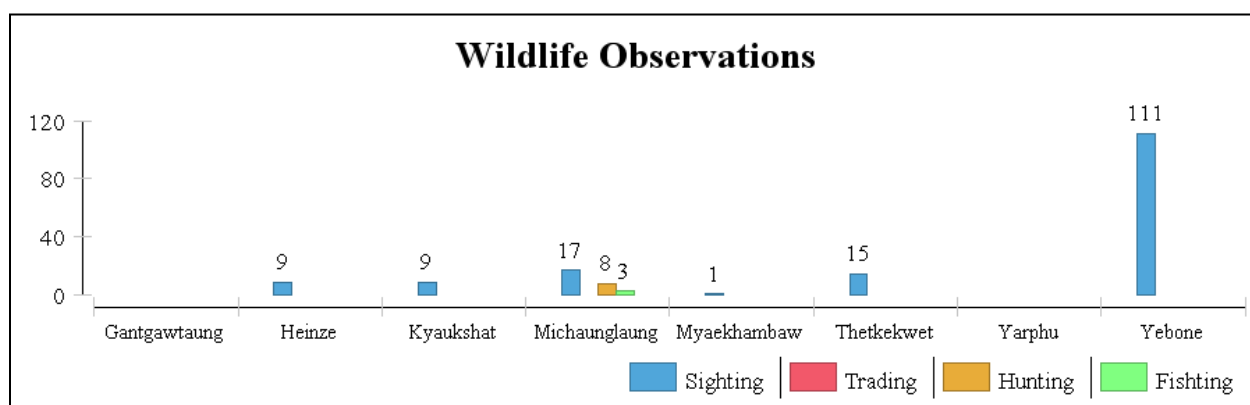


Figure 9.3 Wildlife Observation of Local Operations Units

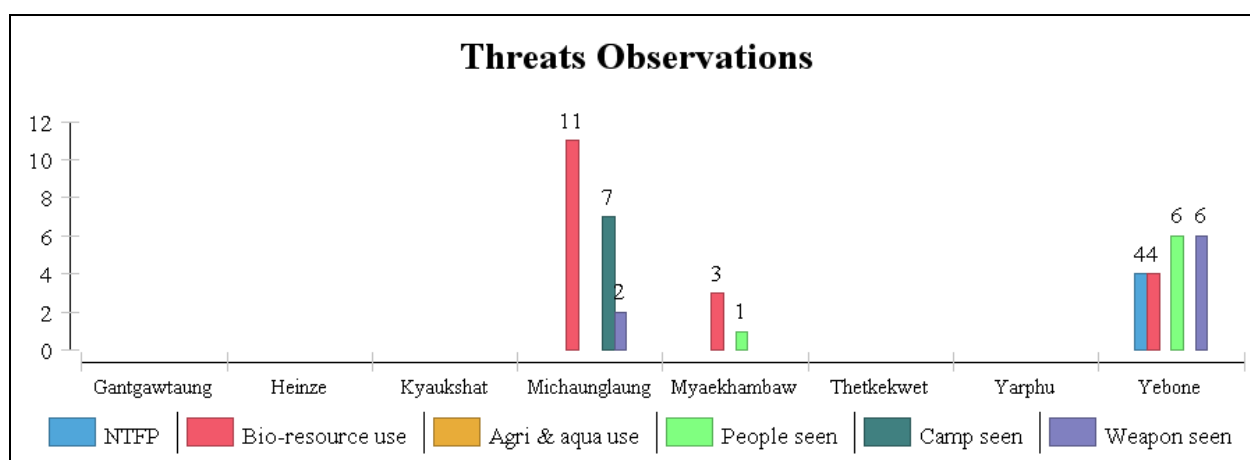


Figure 9.4 Threats Observation in TNR area

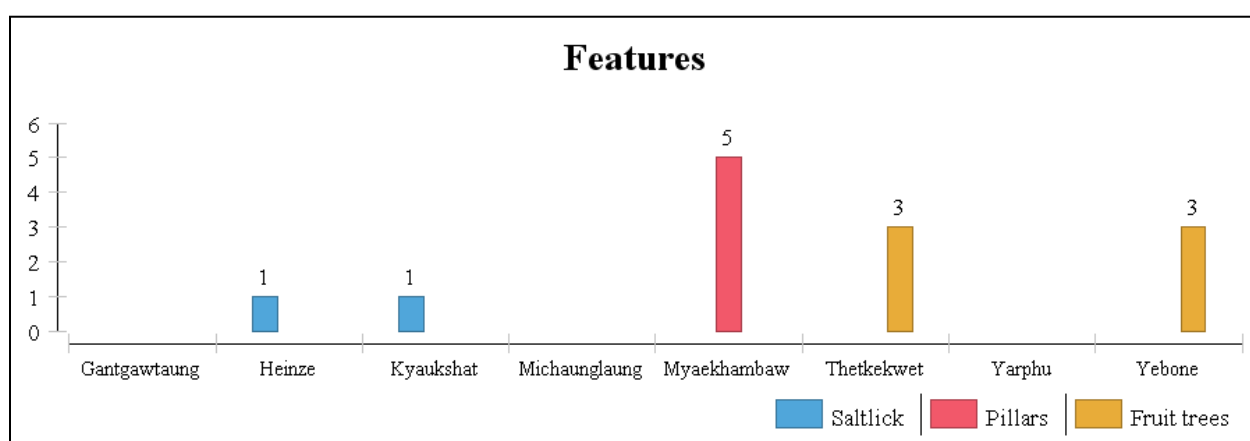


Figure 9.5 Feature Observation in TNR area

Table 9.1 Patrol Summary of Local Operating Unit

LOUs	Number of Patrols	Number of Days	Distance (km)	Number of Hours	Number of Nights	Person - Hours	Person - Days
Yarphu							
Kyaukshat	2	8	45.84	46.3	6	165.5	29
Michaunglaung	3	8	99.44	64.4	5	293.2	37
Yebone	5	18	135.65	245.1	13	863.6	56
Heinze	1	1	19.06	3.1	0	9.2	3
Myaekhambaw	3	14	145.57	315.6	11	946.8	42
Thetkekwt	1	3	54.05	17.4	2	34.8	6
Gantgawtaung							

Table 9.2 Counts of Observations of Threats, Wildlife's and Features in TNR area

LOUs	Count Observations Threats	Count Observations Wildlife	Count Observations Features
Yarphu			
Kyaukshat		6	1
Michaunglaung	1 1	8	
Yebone	4	2 9	3
Heinze		2	1
Myaekhambaw	3	1	5
Thetkekewet		6	3
Gantgawtaung			

Table 9.3 Threat Observations in TNR area

Station	Observation Category 1	Observation Category 2	Observation Category 3	Observation Category 4
Myaekhambaw	Biological Resource Use	Logging & Timber Harvesting	People Seen	
Myaekhambaw	Biological Resource Use	Logging & Timber Harvesting	Transportation Seen	
Myaekhambaw	Biological Resource Use	Logging & Timber Harvesting	Log & Timber Seen	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Seen	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Seen	
Michaunglaung	Biological Resource Use	Fishing & Harvesting Aquatic Resources	Fishing Gear Seen	

Table 9.4 Threat Observations in TNR area

Station	Observation Category 1	Observation Category 2	Observation Category 3	Observation Category 4
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Weapon Seen	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Seen	
Yebone	Biological Resource Use	NTPF Collection	People Seen	
Yebone	Biological Resource Use	NTPF Collection	Weapon Seen	
Yebone	Biological Resource Use	NTPF Collection	Weapon Seen	
Yebone	Biological Resource Use	NTPF Collection	NTPF Seen	
Michaunglaung	Biological Resource Use	Fishing & Harvesting Aquatic	Camp Seen	
Michaunglaung	Biological Resource Use	Fishing & Harvesting Aquatic	Camp Seen	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Destroyed	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Seen	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Destroyed	
Michaunglaung	Biological Resource Use	Wildlife Hunting & Collecting Terrestrial Animals	Camp Seen	

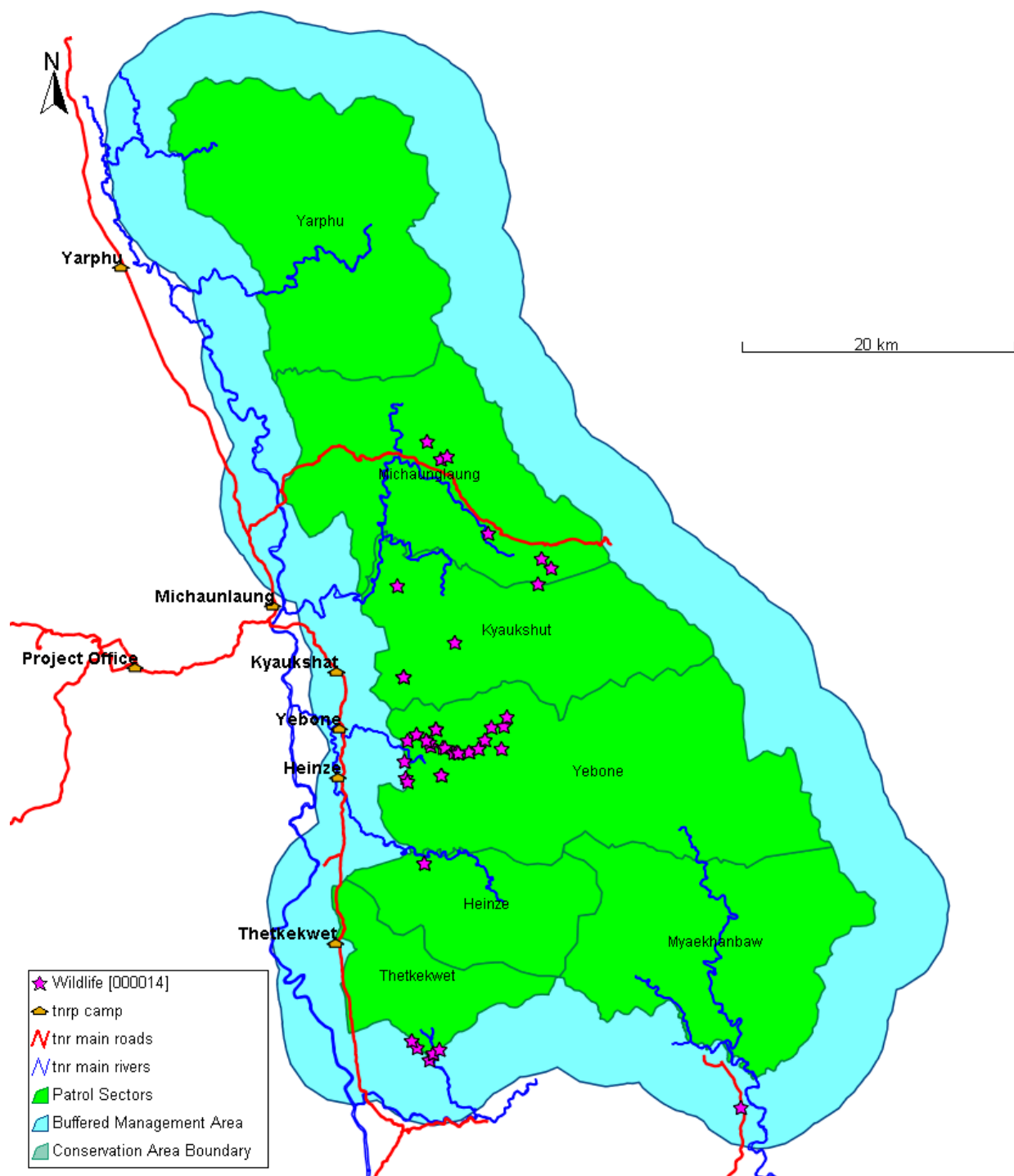
Table 9.5 Wildlife Observations of Local Operating Unit in TNR area

Station	Wildlife Observation	Wildlife Sighting	Mammal Species	Aves Species
Michaunglaung	Track	1	Sambar Cervus unicolor	
Michaunglaung	Track	2	Sambar Cervus unicolor	
Kyaukshat	Sighting	1	Macaque spp	
Yebone	Track	2	Small cat spp	
Yebone	Sighting	1		Asian Fairy-bluebird Irena puella
Yebone	Call	3	White-handed Gibbon Hylobates lar	
Yebone	Sighting	3	Macaque spp	
Yebone	Dung	3	Asian Elephant Elephas maximus	
Yebone	Sighting	2		Oriental Pied Hornbill Anthracoceros albirostris
Yebone	Sighting	3	White-handed Gibbon Hylobates lar	
Yebone	Sighting	6	Macaque spp	
Yebone	Sighting	3	Macaque spp	
Yebone	Dung	2	Eurasian Otter Lutra lutra	
Yebone	Sighting	7	Macaque spp	
Yebone	Sighting	3	White-handed Gibbon Hylobates lar	
Yebone	Sighting	1	Red Muntjac Muntiacus muntjak	
Heinze	Track	4	Sambar Cervus unicolor	
Heinze	Track	5	Red Muntjac Muntiacus muntjak	
Michaunglaung	Dung	3	Asian Elephant Elephas maximus	
Michaunglaung	Carcas	1		
Michaunglaung	Dung	4	Asian Elephant Elephas maximus	
Kyaukshat	Track	2	Porcupine spp	
Kyaukshat				
Kyaukshat	Track	1	Red Muntjac Muntiacus muntjak	
Kyaukshat	Track	3	Eurasian Wild Pig Sus scrofa	

Table 9.6 Wildlife Observations of Local Operating Unit in TNR area

Station	Wildlife Observation	Wildlife Sighting	Mammal Species	Aves Species
Kyaukshat	Track	2	Small cat spp	
Yebone	Dung	1	Bear spp	
Yebone	Call	1	Red Muntjac Muntiacus muntjak	
Yebone	Dung	1	Bear spp	
Yebone	Sighting	1		
Michaunglaung	Carcass	1		
Michaunglaung	Sighting	4	Otter spp	
Michaunglaung	Sighting	1		Great Hornbill Buceros bicornis
Thetkekhet	Wallow	1	Eurasian Wild Pig Sus scrofa	
Thetkekhet	Dung	1	Small cat spp	
Thetkekhet	Track	1	Sambar Cervus unicolor	
Thetkekhet	Track	1	Red Muntjac Muntiacus muntjak	
Thetkekhet	Track	1	Sambar Cervus unicolor	
Thetkekhet	Sighting	10		Greater Necklaced Laughingthrush
Yebone	Sighting	1	Taninthayi Langur	
Yebone	Dung	1	Langur spp	
Yebone	Sighting	12	Taninthayi Langur	
Yebone	Dung	2	Langur spp	
Yebone	Carcass	1	Eurasian Wild Pig Sus scrofa	
Yebone	Dung	1	Otter spp	
Yebone	Dung	1	Langur spp	
Yebone	Sighting	2	White-handed Gibbon	
Yebone	Sighting	10	Stump-tailed Macaque	
Yebone	Sighting	7	Stump-tailed Macaque	
Yebone	Sighting	20	Pig-tailed Macaque Macaca nemestrina	
Yebone	Dung	10	Asian Elephant Elephas maximus	
Myaekhambaw	Sighting	1		

Map Showing the Wildlife Observation in TNR area



Concerning observation of wildlife and wild plant trade at Htee Khee and Phunamrom villages that are located between Thailand and Myanmar, the Environmental Officer of TNRP had made a visit to Myanmar/Thai border in line with the recommendation in the Operational Management Plan from 22nd to 25th February 2015. Also, the Environmental Officer had observed wildlife and wild plant trade at Three Pagoda Township and Sankhraburi Province from 20th to 23rd March, 2015.

One significant achievement of the Law Enforcement Program is the gun control program. Normally local people hold muzzle-loaders (local-made guns) to keep away wild animals from damaging their crops. After discussions with local people from 15 villages in the vicinity of TNR, 125 local-made guns were handed over to the nearest police stations. This kind of cooperation with local communities assures the control of guns for preventing illegal poaching in the TNR area.

For effective management of the Village Use Zone, WCS had introduced Village Consultation Process (VCP) and Village Development Zone (VDZ) and to build capacity of TNRP staff, “Community Based Natural Resource Management” (CBNRM) training was organized by WCS on 29-11-2014 to 2-12-2014. The objective of this kind of training is that RMT will act as facilitators rather than taking the leading role in the management process. .P3DM modeling, a kind of participatory approach was introduced quite recently for effective planning of the Village Development Zone with more visualization of the local terrain and assets for the local people. One staff from TNRP was trained at ECODEV and TOT program was organized for the participation of villagers.

9,4 Research Studies

Concerning research studies, the Operational Management Plan had indicated that the following were to be conducted within the plan period:

- Conduct primate survey (*Taninthayi Langur*)
- Occupancy survey for large mammals (Tiger, Tapir and Elephant)
- Forest Dynamics Survey
- Medicinal Plant Survey
- Rattan Survey
- Orchid Survey

9.4.1 Community Forestry

In addition, during the evaluation period monitoring on the Community Forests in the TNRP area was instigated. A Community Forestry Consultant was assigned from March to June 2013. The study was completed and the consultant had submitted the report. In his report, he suggested that the staff from Local Operating Units should be deeply involved in formation, tending and management of plantations in line with the Community Forest Management Plan. He also mentioned that in every LOU nurseries

should be established with tree seedlings of Pyinkado and also to raise 1 year old seedlings as reserves for the next year.

He also recommended to secure the sustainable livelihood of local communities, nurseries for cash crop species like cashew nut, betal nut, durain and agar-wood has to be established in every Community Forests. He also urged that workshops should be held for Forest Users' Groups quarterly to share their information, experience and knowledge and cooperate among Community Forestry User Groups. He also criticized that Forest Users' Groups are mainly interested in getting secure land tenure in the CF and consider forest conservation as second priority, which definitely need to change their mindset through training, workshops and meetings. He also observed that there is conflict on the equitable land sharing which need urgent solution with the assistance of Forest Department Taninthayi Region and the Reserve Management Team of TNRP. CF User Groups' are interested to grow Pyinkado, native species rather than exotics like Mahogany as well as cash crop seedlings like Shandanyin (*Parkia leiophylla*) for agro-forestry plantations. He also advised that under CF program, more varieties of cash crop seedlings should be raised through consultation with FUG's well in advance such that the required species and number of seedlings can be readily available at the time of planting out. He finally concluded that Community Forestry at TNRP is in good progress at participation, awareness of CF and nature conservation; however, there is still weakness in monitoring, reporting, documentation, agro-forestry practice and establishment of community forest plantations.

9.4.2 Occupancy Survey of Wild Mammals

A national consultant was assigned to conduct the 'Occupancy Survey of Wild Mammals' and 'Primate Survey' during the early part of the third phase. However, the consultant could not complete the assignment on medical grounds due to his sickness.

9.4.3 Medicinal Plant Survey

A medicinal plant survey was conducted from December 2014 to March 2015 in TNRP by a study team. Previously 2 survey teams had carried out research studies in 2013 March to June and followed by a team from July to October 2014. During this survey 243 medicinal plants were collected. The objective of this survey is:

- to document the locally available medicinal plants in Taninthayi Nature Reserve and its surroundings
- to prepare herbarium specimens for TNRP, Forest Research Institute, Yezin and Universities of Dawe and Yangon
- To document detail for the method of preparation to be used as medicine
- To find out the trade potential of locally available medicinal plants in the Taninthayi Region

The following methods were adopted during the study period:

- Interview with knowledgeable people such as elderly people, monks and medical practitioners about locally available medicinal plants
- Visit markets and asked about the source of vegetables, fruits, roots and tubers etc which have medicinal value
- Collect information regarding the medical practices using medicinal plants in the study villages.

Medicinal plants were collected in the following villages such as Heinze, Kyaukshut Yebon Migyaunglaung , Kalonta and Thetkegwet villages. Among the medicinal plants collected the most interesting plants are Phalar and Kanzaw which have been collected for trade.

9.4.4 Rattan Survey

Rattan survey was carried out from December 2014 to March 2014 for 4 months. The following areas such as Thetkegwet, Heinze, Yebon, Kyaukshut, Migyaunglaung and Zinba are explored for rattan survey. During that trip the consultants had a chance to work with Dr. Andrew Henderson, from New York Botanical Garden, who is a specialist in Rattan.



Rattan Survey Team at Work in
Thetkegwet village



Drying of Rattan in the sun



Rattum bundles ready for export

According to the past records Taninthayi region has the highest number of rattan with 20+ species. It has a unique ecosystem with evergreen and equatorial types of forest which harbours a good growth of rattan species. The recent publication on Checklist of the trees , shrubs,herbs and climbers by W.John Kress et.al (2003) had indicated that there are 15 rattan species in Taninthayi Territory. The study has identified the following species:

***Calamus* species**

1. *Calamus acanthospathus* Griff.
2. *Calamus axillaris* Becc.
3. *Calamus erectus* Roxb
4. *Calamus latifolius* Roxb.
5. *Calamus longisetus*Griff.
6. *Calamus oxleyanus*Teysm& Binned ex. Miq.
7. *Calamus palustris* Griff.
8. *Calamus peregrinus* Furt.
9. *Calamus platyspathus* Mart. ex Kunth.
10. *Calamus tenuis*Roxb.
11. *Calamus viminalis*Willd.

***Daemonorops* species**

12. *Daemonorops jenkinsiana* (Griff) Mart
13. *Daemonorops kurziana* Becc.

Korthalsiaspecies

14. *Korthalsialaciniosa* (Griff.) Mart.

Myrialepsisspecies

15. *Myrialepsisparadoxa* (Kurz.) J.Dransf.

Plectocomiaspecies

16. *Plectocomiaelongata* Mart. and Blume.

Plectocomiosis species

17. *Plectocomiosisgeminiflora* (Griff.) Becc.

It was stated that Rattan species are found at different altitudes in TNRP area. The species are found growing widespread in the TNRP area with good species diversity at lower altitudes along the banks of streams and rivers and found less and less species as the altitude gets higher.

A field guidebook was also prepared by the consultant, which will help assist the survey teams during the field studies. When discussed with local people it was learnt that cottage industries of rattan used to exist about 20 years ago. However, the earnings

from rattan cottage industries fetch small amount of income when compared to planting of rubber, phalar and oil palms and eventually become less interest in such kind of business. The consultant would like to continue research studies with the objective of establishing rattan plantations from seeds produced from mature wild rattan plants. The research studies should not be limited to a certain period but on a longer scale of 2-3 years continuously.

9.4.5 Orchid Survey

An orchid survey was conducted in 2014-15 in the TNRP by a consultant team as a continuum of the same study in 2012, where *Calanthe punctats* was found to be a new species never recorded for science.

During the first trip of orchid survey in 2014 a total of 40 species were identified and recorded. The location of orchid survey was shown in the following map which covers the area of Yekan taung, Khotama chaung area and Yaphu area.



Scenic beauty of Yekan Taung



Crinum which is very similar to Thai's endemic *Crinum thaianum*

During the second survey in January 2015 the following number of species of orchids were collected.

Study Area	Species Collected
Kyaukshut village	9
Thetkegwet village	8
Kalatonetar village	10
Hlay Khar taung	18

The third orchid survey was conducted in February 2015. Dr. Hubert Kurz from Singapore Botanical Garden joined the team. On the way from Yebon to Sakhangyi camp 12 species of orchids were collected.

The fourth orchid survey was conducted in March 2015 around Myinkhanbaw area. During that period 50 Herbarium specimens were recorded.

During the 4 survey periods in 2014-15 altogether 109 specimens were collected,

9.4.6 Socioeconomic economic Survey and Livelihood Monitoring

The consultant was assigned for two months duration for conducting socioeconomic survey and livelihood monitoring at TNRP. The objective of the survey is to monitor 10 villages in which socioeconomic survey was carried out during phase I and phase II periods. The villages where the survey was conducted are Yapyu, Thayarmon, Mayanchaung, Migyunglaung (Old), Zinba, Kyaukshut, Yebon, Heinze, Hnankye and Wunpo. During this survey, 2 additional villages in the southern part of TNR, Kaloneta (Dawei village) and Seilkphyone were included.

The methodology applied is to use both quantitative and qualitative approaches. Interviews with head of village administration or members to get the village profile data.

Interview with household head or members was done by using questionnaire survey forms. Focus group discussions were made in 6 CF UGs. Interview with Yebon CFUG concerning with microcredit scheme was also done.

Data collections were made at respective villages and CF areas. Data collection started in November 2014 and completed in December 2014. Altogether 12 villages were included in the survey.

Preliminary data analysis was made from the data collected and the results are as follows:

- Most of the households made their living by cutting bamboos
- They are mainly found in Zinba, Yebon and Nhankye villages.
- Collection of NWFP such as Phalar, Wa-U and Danyin is main source of household income in Kalonetar. Migyaunglaung, Yebone and Kyaukshut.
- Number of CF is 5 in 2011 July and 11 in Nov 2014.
- Out of 11 CFUSGs, Migyaunglaung, Yebon and Zinba (3) CF members clearly understood that CF is managed by communities themselves.
- Member fees, revenue from collection of forest products are mobilized in Migyaunglaung, Zinba and Yebone and in Kyaukshut revenue from collection of forest products.
- Extent of land ranging from 6 acres to 21 acres per household is allocated to 45 CFUG members for agro-forestry.
- Members of household are allowed to collect bamboo without prior notice to management committee for the personnel use.
- For harvesting timber for local use prior permission from management committee is needed.
- In Migyaunglaung according to annual report about 3000 bamboos and 330 bucket of dog fruit were collected from CF for household consumption.
- In Kyaukshut CFUG as of ecosystem services there are two water pipelines originated from the natural ponds in the CF.
- One was donated by Socio-eco Department of Total Company and the other donated by TNRP in 2014 supplying domestic water to 55 household in the village.
- Yebon CFUG collect revenue of K 4000,000 from bamboo cutting and K 62, 500 from collecting Danyin
- CF of Zinba CFUG (3) has 400 acres of natural bamboo forest from which about 30,000 stems of bamboo can annually be harvested under systematic management.
- The effective communication between project staff and CFUG is regular and quite satisfactory in Yebon CFUG, moderate in Kyaukshut, Zinba and Migyaunglaung but weak in Thayarmon and Hkankye(3).

- Micro-credit scheme of Yebon CFUG is in good progress with the accumulation of funds from K 5000,000 in 4/2013 to K 6200,000 in 3/2014. Rather than in the form of grant, TNRP should support as revolving fund, which must be returned to the project once funds accumulated and CFUG can run on their own without dependency on TNR project. In order to run the micro-credit fund properly accounting training was provided to 7 members of Yebon CFUG by Socio-Eco Department of MGTC..
- Concerning CBNRM, WCS introduced CBNRM in Nov. 2014. It is felt that there is an outstanding issue to be addressed between WCS and RMT on the way forward for VUZ development. A model village should be selected and replicate it to other villages in the end.

9.4.7 Database and Geospatial System

Database and Geospatial System was developed by AutoMate Company during the evaluation period. The objective for developing this system is:

- To document the existing records from TNRP in English and Myanmar as well as photographs for future references.
- To find out the required information by name, species, location, year and IUCN Red List as well as CITES appendix
- To link the data from database and search the location on the map in a geo-reference position
- To store the reports, research papers, handouts in a digital format so that it can be retrieved easily and stored easily in book form.

The system is a user-friendly format and can be handled by anyone with basic computer knowledge. RMT has already applied permanent domain name to Myanma Post and Telecommunication Enterprise although Bagan Innovation Company allowed temporary domain name of website for TNRP. In conformity with this database system RMT should keep data systematically with database system which can be observed easily from international organizations. Moreover, a website should be launched as soon as possible so as to observe and monitor implementation of project activities.



Figure 9.6 TNRP Database Output

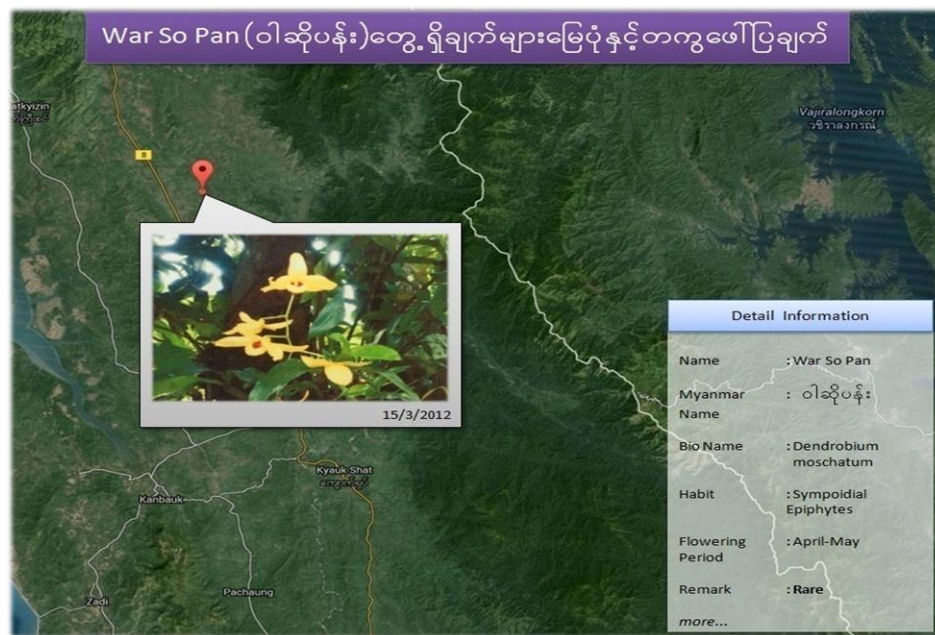


Figure 9.7 Database Output

9.5 Study Tour to Cambodia and Other Protected Areas in Myanmar

Six members had visited Cambodia as a study tour program in consultation with WCS from 7th March to 12th March 2015. The team was headed by the Project Director and consisted of 1 project staff officer and 1 Range Officer from TNRP, 1 staff officer from Forest Department, Dawe District, 1 staff Officer from Lampi Marine National Park and Landscape Coordinator of Southern Forest Complex from WCS. The study period was from 7th to 12 March 2015. The objectives of the trip are:

- to observe governance and legislation of community based biodiversity conservation, protected area management and ecotourism mechanism
- to study the involvement of community and their benefit sharing
- To exchange knowledge and experience to assist the effective management of TNR

One trip worth mentioning was the visit to Community Protected Area management by the villagers from Tmatboey village, which is a model of Community Based Protected Area in Cambodia. It was established in 2003, supported by the Ministry of Environmental Conservation and WCS-Cambodia. It was not legally constituted, but recognized by the government, due to the performance and effective management by the community.

The extent of the Community Protected Area is 1,773 ha and is part of Kulen Promtep Wildlife Sanctuary situated in northern plain land of Cambodia. The management committee consists of 7 members elected democratically by election. The other members are grouped into small patrol teams and the Village Development Fund covers the expenses of the patrol teams. The tourists mainly visit the Community Forest to watch mainly critically endangered bird species Ibis and other birds as well as doing research. The price for accommodation, food and guide as entry fees to the PA is as follows:

- 15 USD per night per bed
- 10 USD per day for food
- 5 USD per guide, and
- 30 USD per group for entry fees to the PA

The entry fees of 30 USD for bird watching and visit within the protected area goes to Village Development Fund. The community uses this fund for the developed of education and maintenance of road and bridges. The former hunters serve as guides and allowed to receive payment for guide service. The catering team is provided with USD 5 each. The remaining fund is used for maintenance.

The local people rely for their livelihood by organic farming of rice. They give up chemical fertilizers due to the negative impact on Ibis and other bird species. One agency named Samson Mlup Prey buys the rice produced by the farmers who cultivate

within the protected area by organic farming and pay higher price than other rice and distributed to the market as” **Ibis Rice**” brand.

There are local people who owned Dipterocarp trees who earn their living by extracting Dipterocarp resin. Such trees are also important for nesting and for sleeping. Local people who owns such kind of trees has to fix 2 feet high metal plate on the trunks of those trees to protect Ibis’s against predating by other animals. Management Committee pay 5 USD per week to the local people and for the whole nesting period of three months they will receive 60 USD for the whole breeding period.

Likewise, another Protected Area which is also practicing Payment for Ecological Services (PES) is Preah Vihear Protected Area, The area extent is 190, 027 ha. The area is under the management of the Ministry of Agriculture, Fishery and Forestry with 41 staff. There are 30 villages within the PA. Local people mainly rely of rain-fed cultivation of paddy, extraction of Dipterocarp resin and production of NTFP. Tourist usually visit this area to watch critically endangered bird species such as Ibis, vulture and white winged duck. There is no permanent guest house lodging in the PA but there are camping sites, and the services of camping are as follows:

- 10 USD per bed per night
- 10 USD per day for food
- 5 USD per day for cooking
- 8 USD per day for guide
- 30 USD for entry fee if the winged duck can be found
- 15 USD for entry fee if winged duck cannot be found
- Besides that, the tourists who want to watch vultures have to pay 200 USD for a buffalo or an ox which has to be killed to feed the vultures.

In terms of benefit sharing, the entry fees of 30 USD for bird watching and visit within PA goes to Village Development Fund. The community uses this fund for the development of education, health and maintenance of village road and bridges. The former hunters served as guides. Like Tmatboey Community PA they also adopt the Payment for Ecosystem Services (PES) which mutually benefits farmers, resin extractors and management committee.

9.6 In-Country Study Tour Program

The in-country tour program to accrue the knowledge on how Protected Areas of the Nature and Wildlife Conservation Department of the Forest Department are managed, three forest staff and three local staff had visited Alaungtawkathapha National Park, Min Sohn Taung Wildlife Sanctuary, Law Ka Nandar Wildlife Sanctuary and Hta Man Thi Wildlife Sanctuary from 23rd February to 11th March 2015. During the study tour the staff had learned how patrolling programs are organized and activities concerning with extension programs as well as how research studies are carried out in National Parks

and Wildlife Sanctuaries of NWCD. They also shared their experiences to staff of NWCD.

X. CONCLUSION AND RECOMMENDATIONS

In line with sustainable development of a society, it is quite clear that protected areas play a critical role in maintaining a balanced overall land use and economic development. Protected areas benefit society in the following manner:

- Maintaining ecological processes on which natural ecosystem depends
- Preserving species diversity and genetic variation
- Maintaining the productive capacity of ecosystems
- Preserving historical and cultural characteristics important to the traditional lifestyles and well being of local people
- Safeguarding critical habitats that sustain species
- Providing opportunities for community development, scientific research, education, training, recreation and tourism
- Mitigating the threat of natural disaster
- Providing environmental goods and services, and
- Maintaining sources of national pride and human inspiration

According to Imbach and Godoy (1992) PAs are also reservoirs for wild populations of animal and plant species native to the region, whose economic and ecological potential should be included into the surrounding production systems.

It is thus necessary to enquire what progress has been made in the form of actions, processes and activities that would allow PA like TNR to continue functioning well or to improve their operations. How can weaknesses be identified and what are the problems or critical issues that must be resolved to achieve adequate management of TNR? What actions can be taken as improve upon deficiencies?

The method adopted for reviewing PA Management is the evaluation method developed by De Faria, 1993. In this process the most important management variables (indicators) were grouped into fields (macro-indicators) and throughout the evaluation process the indicators were compared to PA conservation objectives to ensure they fulfill required evaluation needs.

The method uses a 0-4 .scale scoring system. A set of condition was constructed for each indicator with the optimal condition having the highest value.

The method identified different levels of indicators: parameters, subvariables, variables and fields. Indicators were grouped in 9 fields: administrative, political, legal, planning, knowledge management program, bio-geographical characteristics and threats.

10.1 PERSONNEL

For personnel, the scores are based on the following parameters:

For quality (score 2.88),

- Level of education

- Experience
- Skills and training

For quantity (score 3) the level of scores are based on % of staff existing against sanctioned strength.

For personnel the average score received is 2.94 which is about 73.5% indicating moderately satisfactory status. The strength of TNRP staff during the third phase of the project is increased from 62 to 80 which is due to the opening of the new LOUs in the northern and southern parts of the reserve.

The existing staff level when comparing with some of the important Protected Areas in Myanmar is found to be quite sufficient (Myint, Aung, 2007).

Sr.	PA Name	Area (km ²)	Permanent staff	Local staff	Total staff	Staff/ (km ²)
1.	TNRP	1700	32	48	80	0.05
2.	Alaungtau Kathapha	1581	99	30	129	0.08
3.	Hkakaborazi	3812	4	12	16	0.004
4.	Htamanthi	2151	26	15	41	0.02
5.	Rakhine Yoma ES	1756	10	11	21	0.01
6.	Inle Wetlands	642	13	8	21	0.03
7.	Indawgyi Wetlands	775	5	0	5	0.01

With more job opportunities coming up due to involvement of INGOs offices in Dawe Region such as WCS, WWF, FFI and RECOFTC, some of the trained local staffs started leaving to more remunerative places and some are waiting to leave soon.

Recommendation 1:

Revision of salaries for local staff should be given priority, in line with the salaries in the Taninthayi Region so as to sustain the trained local staff at the Project.

10.2 FINANCE

For finance, the following factors are considered for the assessment:

- Operating Budget (score 4)
- Transfer of funds (score 3)
- Management Capacity (score 3)
- Institutional Capacity (2)
- Budget Management (2)
- Spending Capacity (3)
- Control and Auditing (3)

For finance, the average score is 2.8, or 70%, which is moderately satisfactorily. The drawback is due to **Institutional Capacity** (2) which refers to 'the personnel have basic

knowledge of finance. 'There is a referential accounting framework that has functional deficiencies. The financial planning is deficient.'

Budget Management (2) is also deficient, by indicating that 'budgets fall short of sufficient structures; the spending programs are deficient or undefined'.

If you check the budget structure in 1 April 2013 to 31 March 2014 it is as follows:

Sr.	Description	Total Budget (US\$)	Expenditure (US \$)	%
1.	Personnel	24,000	1200	5.00
2.	Investment	93700	12359	13.18
3.	Operation Cost	319660	172669	54.01
4.	Contingencies	12640	3941	31.17
Total		450,000	190,169	42.26

It can be clearly observed from the above table that budget management is not appropriate, as only 42.28 % could be able to spend from the newly allotted budget of US\$ 450,000.00. The main operation cost also shortfall by spending 54.01% of the allotted budget. This may probably be due to the delay in approving the Operational Management Plan in time for the third phase of the project period from 2013 April to 2017 March. Also, for the delay in assigning external consultants like WCS and RECOFTC. A closing balance of US\$ 116, 649 could become a wrong impression on the project management for not properly managed according to the Operation Management Plan, especially when yearly budget allotment has transferred to TNR from the very first month of the budget year and not on cash call period of 3 months as before.

Recommendation 2: Plans should be prepared well in advance such that it will be ready in time with no delay for spending the allotted budget in a timely manner.

Recommendation 3: Adequate budget should be prepared and spending program are defined according to the Operational Management Plan.

Recommendation 4: Spending should be timely and according to the Operational Management Plan. Budget spending should be prepared on regular basis with more emphasis on operational matters such as Patrolling, Buffer Zone Management, Community Forestry and Nursery Practice.

10.3 ORGANIZATION:

For organization, the following factors are assessed:

- Filing system (2.0)
- Admin support (3.0)
- Organization Chart (4)
- Internal Communication (3.0)
- Rules and Procedures (3.0)

For organization, the average score is 3.0 or 75%, which indicates that it is moderately satisfactory. The score for filing system to be 2.0 is due to the fact that there is no proper filing system in place and no follow up procedures for the filing system when one leaves the project, The files are incomplete and disorganized making it difficult to access and use them.

Recommendation 5: There should be a complex, relatively well-organized filing system with a great deal of useful information which could be linked with the database system being developed.

Recommendation 6: There should be one dedicated computer each with an organized filing system backup properly and regularly updated at Project Director's Office and Park Warden Office for good administrative support,

10.4 INFRASTRUCTURE

For infrastructure the following parameters are assessed:

- Equipment and tools (3)
- Facility (3.5)
- Safety (3.0)
- Basic services (3.0)
- Accessibility (2)
- Boundary demarcation (2.5)

For infrastructure, the average score is 2.83 or 70.8% which indicates that it is moderately satisfactory. The PA has several access routes that are open more than half the year. Employees use these routes to patrol the area. However, the northern part is the Monpyi Thit area while the southern part is under KNU. However, after Peace Agreement the access is improving and PW has in good terms with the parties.

Recommendation 7: The access to the north and south of the TNRP is improving. It is advisable to keep good relationship with Mon Pyi Thit party and KNU party in order to extend the project activities in those areas.

10.5 POLICY SUPPORT

For policy support the following parameters are assessed:

- Community Support and Participation (3.5)
- Mother Institution (3)
- PA system administration (3)
- External Support (3)

The average score of the policy support is 3.1 or 77.5 which means that it is satisfactory. The awarding of additional 7 CF certificates by the Taninthayi Forest Department is a good policy support for the local communities. With the 5 CF certificates in hand already, total CF extends to a total of 12 CF certificates. The visit to

the CF User Groups by H.E. U Win Tun Union Minister, Ministry of Environmental Conservation and Forestry was a good policy support for the local communities. RECOFTC is now stationed at Kaleinaung village and ready to enhance Community Support and Participation within a few months time .

Recommendation 8: Local communities should actively participate with technical support on planning, implementation, monitoring and evaluation of community development program to be introduced by RECOFTC in the near future.

Recommendation 9: TNR should liaise with WCS (VUZ/CBNRM), FFI (Village Use Zone Inventory) and RECOFTC (Community Forestry) to work out a Comprehensive Community Development program for a long-term approach.

10.6. LEGAL USES

For the legal Uses the following parameters are assessed:

- Land tenure (3.0)
- Conflicts (3.0)
- Clarity of regulation (3.0)
- Application (3.0)

The average score of the legal uses is 3.0 or 75% which indicates satisfactory. Though TNR receives 12 CF certificates, it is realized that the USG's are not quite clear about the laws and regulations, guaranteeing their sustainable use as well as their livelihood development. The participation of RECOFTC in the near future will develop capacity program and help develop FUG's to use Community Forestry to its full potential and using the forest resource at TNR to improve the livelihoods.

Recommendation 10: TNR should liaise with RECOFTC for the development of 12 CF USGs which in one way or other help develop their sustainable livelihood.

10.7. ILLEGAL USES

For the illegal Uses the following parameters are assessed:

- Illegal logging (3.0)
- Poaching (3.0)
- Encroachment of villages (3.0)
- Encroachment of plantations (3.0)
- Mining Activities (3.0)

The average score of the legal uses is 3.0 or 75% which indicates satisfactory

Recommendation 11: Patrolling should be carried out using SMART forms and then data should be organized using standard methods of SMART applications, particularly for rangers which is very user friendly. SMART is used as a tool for measuring and evaluating patrolling of protected areas in order to improve the effectiveness of law enforcement.

Recommendation 12: TNR should could contact WCS to conduct advanced SMART training for those who have completed basic SMART training and have field experience for at least 6 months.

10.8.PLANNING

For the planning the following characters are assessed:

- PA Management (4)
- Planning Team Characteristics (3)
- Plan Implementation (3)
- Compatibility with other plans (3)
- Operational Plan (4)
- Zoning (3.5)
- Boundary limit (4)

The average score of the legal uses is 3.5 or 87.5% which indicates satisfactory. The management plan had been developed by a consultant in a timely manner. It is to be revised every 4 years period. For future revision of the management plan, it should be revised by a multidisciplinary team with the participation of the communities. There should be annual plan of operation which is to be implemented by the PA administration. TNR has defined zones: Core Zone, Village Use Zone, Integrated Buffer Zonne and Transportation Corridor. There are established regulations and PA staff should be familiar with specific activities applied to each zone. Boundary demarcation is in good progress. However, transportation corridor needs proper demarcation activities once the width of the corridor is determined by the concerned parties.

Recommendation 13: Demarcate transportation corridor once the effective width of the corridor is decided. The existing width of 100m on each side of service track and pipeline ROW is sufficient width to follow and by no means it should extend.

10.9 RESOURCE INFORMATION

For the resource information the following parameters are assessed:

- Socio-eco and Bio-physical information (3)
- Legal Information (3)
- Research (3)
- Monitoring and Feedback (3)
- Traditional Knowledge (2)

The average score of the legal uses is 2.8 or 70% which indicates moderately satisfactory. The traditional knowledge from neighbouring communities is documented during the medicinal plant research carried out during the last 2 years. However, few PA staff is familiar with it and its use in PA management is limited. It was also realized that a lot of recommendations were made at respective findings / meetings but is not properly follow-up. Concerning research programs it is realized some of the research

programs are found to be not completed in time. Programs such as socio-economic study, forest cover assessment study and biological research study are still pending at the reporting time of mid-term evaluation period.

Recommendation 14: PA staff should be trained so as to be familiar with traditional knowledge.

Recommendation 15: Pending research programs should be reminded as soon as possible.

Recommendation 16: Recommendations should be properly follow-up. Also, recommendations made during final evaluation of the second phase is still pending and need to follow immediately. The following are the recommendations still pending from the final evaluation of the second phase (see detail in appendix IV):

1). Need to study why deforestation and forest degradation happened in TNR together with socio-economic information and 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 remains restricted.

A consultant was assigned to conduct the change assessment study to find out the deforestation and degradation rates of the project. The report has not been received yet.

2). 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.

Work plans approved and found to be not effective use of budget.

3). 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.

Project Quarterly Progress Reports were found to be not distributed in time. This is still pending and should be sought out as soon as possible.

10.10 MANAGEMENT PROGRAM

For the management program the following parameters are assessed:

- Design (3)
- Coordination (3)
- Illegal Uses (3)
- Legal Uses (3.5)
- Site, Form, Connectivity and Vulnerability (3)

The average score of the legal uses is 3.08 or 77% which indicates satisfactory.

Recommendation 17 90% of the planned activities should be carried out in line with the Operational Management Plan.

Recommendation 18: The activities should be connected with other programs and be efficient systems for information exchange.

10.11 THREATS

Among the threats defined in the management plan, the following threats should be taken immediate action:

- Illegal Hunting
- Illegal Logging, and
- Village Encroachment

The newly constructed road between Dawei Special Economic Zone and Thailand has passed through the Dawna Tenessarim Landscape, harboring a rich array of endangered wildlife, which lies very close to the southern boarder of TNRP. The area is connencted to Western Forest Complex of Thailand. Roads constructed across forested landscapes will threaten wildlife for the ability to move around landscape in search for food, shelter or to mate. Normally, road construction leads to physical change in land cover along the route due to the replacement of natural habitats which is non-reversible and threatens species survival. Roads that provide access to previously undisturbed areas could lead to an increase in poaching and illegal wildlife trade.

Construction of new transport infrastructure could lead to secondary impacts such as changes in landuse and new human settlements, especially in the remote areas. Especially the influx of refugees settling back to their previous settlement is a very high potential threat to the Reserve.

A recent visit to the Myanmar/Thai border for the survey of illegal trade of Wildlife and Plants is worth mentioning in regard to potential threats related to the construction of Dawe-Thailand road:

Survey on the Illegal Trade of Wild animals and Plants in the Myanmar / Thailand Border

With the aim at investigating Illegal Trade of Wild Animals and Wild Plants in Myanmar / Thailand border, the Park Warden and one of the local staff had made a survey with the following objectives:

- To find out the illegal wildlife and wild plants trade at the eastern boundary of TNRP
- To find out how wildlife and forest products are extracted and used at the Thai side
- To conduct market survey and acquire prevailing price of Wildlife and Wild plants on Thai side
- To incorporate these findings in drawing up management plans in future

The survey was carried out from 22nd February to 25th February, 2015 for 4 days. It was performed in Htikhi checkpoint, Thai border checkpoint, Phunanyun village and villages close to Kanchanaburi along the eastern boundary of TNRP. Also visited places that were assumed to have illegal trade of wildlife and wild plants.

The trip was started from Park Warden Office, Gangaw Taung to Dawei and then proceeded to Htikhi checkpoint at the Thai/Myanmar border which is 180 km from Dawei. The road is the new road constructed for Dawe Special Economic Zone which connects Dawe and Htikhi gate at Myanmar/Thai border. This area is under KNU control and there are several border checkpoints from KNU at KM point 115 and KM 125.

The road from Dawe to Myitta is an asphalt road while the rest is unpaved metal road. Along the way there are road construction camps from Thai-Italian road construction company as well as those dwelling in the dense forests.

As the road is a mountain road there are very steep slopes climbing up and down the ridges and valley bottoms.



Road construction machineries



Road connecting Dawei and Thai

Most of the food stalls along the road sell wild meat such as monkeys, sambar and barking deer but not at this season. They have to buy from KNU soldiers. For example, in Sinphyudaing village there are 4 food stalls and they all sell wild meat and there is nobody to control this kind of business, despite the fact that KNU has posted signboards prohibiting killing of wildlife. However, along the road it can be observed that KNU soldiers in uniforms poaching with telescopic guns.



Curry from monkey meat



Road-side food stall



Signboard for prohibiting Wildlife Trade by KNU

It was also observed from this trip that there are illegal logging activities along the road and they are using elephants for dragging logs from the forests to roadside for trucking. Due to its remoteness and lack of legal control, KNU is extracting logs and rattan at their own discretion.



Elephants for logging



Logging Trunck along the road

The price of wild meat for sambhur , wild boar and porcupine costs Baht 800 per kg while 1kg of wild barking deer costs Baht 1200 per kg. These wild meats can readily available around the Htikhat border checkpoints. When investigating whether there is any kind of wildlife trade in Thailand, it is learnt that though cooked meat is not allowed to carry across the Htikhat border checkpoint, live wildlife is allowed to bring into Thailand. Other than wildlife business there are also a ivory curving business.

When enquiring illegal wildlife trade and illegal logging information from 1 hunter, 2 local Myanmar people, 1 staff from border checkpoint and 2 Myanmar restaurant owners, it was learnt that are souvenir shops of wildlife parts and there is also Tiger Temple where tiger parts are sold.

Findings and Conclusions

1. It was found out that most of the food staff at villages close to the border checkpoint buy and sell wild meat freely. Wildlife is shot and killed by Mon and Karen ethnic armed groups and are engaged in that business for acquiring funds for their armed ethnic groups.
2. Restaurants opened around Htikhat checkpoints can easily buy and cook wild meat such as monkey, wild boar and sambhur from markets open once every 7 days. Cooked wild foods are not allowed to bring into Thailand. However, live wildlife are allowed to bring into Thailand for raising as pets.



Wild Sambhur Curry



Restaurant with wild meat

3. According to investigating at Phyunanyun village during the 1990s there was illegal trade of tiger, elephants, bear, barking deer, sambhur and bison and their parts like carcass, tusks, bones and liver in Thailand organized by Mon and Karen soldiers. However, starting from last 7 years (2008) this kind of trade was completely stopped. For the case of tigers, if you sell a tiger to Thai Tiger Temple it will fetch Baht 10, 000 while the brokers will get double the profit. The decline in tiger population in Myanmar is due to the existing market of tiger trade in Thailand.

4. Thai hunters can handle good quality guns and they are using modern methods of poaching. Due to this kind of advantage, there is illegal hunting at the border of Myanmar and Thailand where legal control of wildlife is non-existing. For this reason, the Thai Government is not advocating the illegal trade of wildlife at Thai side.

5. Despite the fact that KNU has posted signboards prohibiting killing of wildlife, along the Dawe-Thai road, 4 KNU soldiers roaming around the road, equipped with guns and snipers.

6. At the Myanmar side in Myittha sub-township, according to the restaurant owners 1 viss of sambhur will cost MMK 12,000, 1 viss of wild boar will cost MMK 9000 while 1 viss of dried sambhur will cost about MMK 60,000. (1 kilogram = 0.6 viss)

It was observed from the study that there is cross border illegal wildlife trade not only for subsistence but also for commercial scale. Those people who are engaged in wildlife trade at the border hold registration cards for both countries and they can speak both languages fluently. Moreover, there is no boundary demarcation along the Myanmar/Thai national boundary, which is also the eastern boundary of TNRP, that is not demarcated yet. This will become a new threat for the effective management TNRP as the staffs have a feeling that what they are trying to conserve is for the betterment for those residing in the neighboring country

Recommendation: 19 As the area is adjacent to TNRP and as new LOU of Myittha village is established proper patrolling will be necessary and preventive measures such as monitoring and law enforcement should be undertaken.

10.12 PERSONNEL MANAGEMENT

Since the initiation of the TNR Project, so far seven Project Directors has been assigned for the project. Only one full-fledged director was appointed as Project Director in line with the requirements of the project document (2001): *‘to be an **experienced Reserve Director** from the **Myanmar Protected Areas System** and or an experienced forester with a well-grounded understanding of conservation issues’*

Sr.	Name	NWCD	Others	Duration of PD
1.	U Thiri Tin	-	x	4 years
2.	U Zaw Win Myint	-	x	2 years
3.	U Tint Swe	-	x	2 years 7 months
4.	U Win Maw	-	x	9 months
5.	U San Aung	-	x	14months
6.	U Khin Maung	-	x	2 months
7.	U Win Naing	-	x	5 months to date

Note: see details in appendix

The following Park Wardens has been assigned for the project for assisting the Project Director in all aspects of planning and operation of the Reserve and will have primary responsibility for on-the-ground implementation.

Sr.	Name	NWCD	Others	Duration of PW
1.	U Tint Swe	-	x	
2.	U Min Maw	-	x	19 months
3.	U Than Naing	-	x	14 months
4.	U Hla Myo Aung	x	-	4 months to date

During the project period of 10 years, 7 Project Directors were appointed and it was observed that the duty period varies from 2 months to 4 years. It was also noticeable that though preference for the appointment of Project Director is from NWCD: no one from NWCD was appointed as Project Director, so far.

As for the Park Wardens, among 4 PW, one Park Warden is from NWCD and the rest from other department of the Forest Department. Average period of staying at TNRP is from 14-19 months

Recommendation 20: The Project Director could be appointed from NWCD/or other staff from FD staff but should be served at the project for at least 2 years. However, for the Park Warden it should preferably be from NWCD who has Biodiversity Conservation knowledge and experiences other than FD staff who are not conversant with conservation matters. Average period of stay at the project should be the same at least for 2 years.

Concerning transfers of TNRP staff during the evaluation period there were 14 TNRP staff joined TNRP and 14 staff left TNR (see details in appendix).

Designation	In		Out	
	FD	NWCD	FD	NWCD
Director (FD)	1	-	-	-
Project Director	1	-	2	-
AD	1	-	--	-
SO	1	-	-	-
Range Officer	1	1	-	-
Ranger	1	4	-	3
Forester	-	2	-	3
Accountant	1	-	-	-
Total	7	7	2	8

Period	In		Out	
	FD	NWCD	FD	NWCD
May 2013	1	-	1	9
June 2013	4	1	2	1
March 2014	1	-	-	-
January 2015	1	6	1	-
Total	7	7	4	10

The staff who left TNRP after serving for 1 year and 7 months, during the period from 2013 May to 2015 January. During the first phase of the project the staff of the first phase (2005-2009) was completely replaced by a new team since the start of the second phase. This kind of transfer is not desirable and WCS highlighted that transfers should be considered, only at least one year after receiving any kind of technical training this is essential for reserve management (Final Evaluation Report, TNRP , 2013). The transfer of staff during the present evaluation is in line with WCS suggestion and advice.

Recommendation 21: The staff should be considered for transfer at least 1 year after receiving any kind of technical training essential for Reserve Management.

10.13 STUDY TOUR PROGRAM

The study tour program to Cambodia for senior officials as well as other Protected Areas of Myanmar for junior staff as well as local staff is quite interesting. In Cambodia some of the protected areas are managed by the local people in the form of Community Protected Area with the concept of Payment for Ecological Services (PES) where the local people who are involved in conservation activities like birdwatching and extractives like dipterocarpus oil can have a share in USD for protecting the ecological resources through funds made available from tourists for their ecotourism visits. Moreover, the village itself will get the entry fee to PA which they can use for the development of the community like education, health and maintenance of bridges and roads.

Another kind of mechanism for Payment for Ecosystem Services learned from the study program is the 'Ibis Rice' production system using organic farming which leads to fetch better income compared to traditional farming using chemical fertilizers. The Tmatboey Community Protected Area attempt to conserve the natural forest close to their village

by their own management system in 2003. Due to their concerted effort for conserving the forest resources the number of Ibis which is critically endangered bird species significantly increase within 10 years. As a result, economics of local people not only improve individually but also in the whole community as well due to creation of job opportunity for local people as well as their income increase.

Recommendation 22: As TNR is endowed with a wealth of endangered wildlife species, rich in biodiversity and may senic places such as waterfalls and mountainous trekking routes which can attract tourists, TNRP should select a pilot study village to form a Community Protected Area at the most suitable site in terms of biodiversity and natural resources and scenic beauty.

Recommendation: 23 Transboundary Conservation program should be developed between Government of Myanmar and Government of Thailand especially with the assistance of WCS for the conservation of tigers at the border of TNR and WEFCON which will be a good refuge for the tigers. Western Forest Complex (WEFCON) with the area of 18,000 sq. km. is a large protected forest landscape comprising 11 national parks and 6 wildlife sanctuaries. If there are still funds left for study tour program in later years, it should be organized for the visit to WEFCON at Thailand and get contact with Thailand wildlife officials and to initiate the transboundary management program in future.

The following are the recommendations made during the review of the first two years of the third phase of the project, in order of priority:

Sr.	Priority	Recommendations
1.	1	REC1: Revision of salaries for local staff should be given priority, in line with the salaries in the Taninthayi Region so as to sustain the trained local staff at the Project.
2.	1	REC2: Plans should be prepared well in advance such that it will be ready in time such that no delay will occur for spending the allotted budget in a timely manner.
3.	1	REC15: Pending reports on research programs should be remined as soon as possible.
4.	1	REC8: Local communities should activiely participate with technical support on planning, implementation, monitoring and evaluation of community development program by RECOFTC
5.	1	REC9: TNR should liaise with WCS (VUZ/CBNRM), FFI (Village Use Zone Inventory) and RECOFTC (Community Forestry) to work out a Comprehensive Community Development program for a long-term approach
6.	1	REC10: TNR should liaise with RECOFTC for the development of 12 CF's which in one way or other help develop sustainable

Sr.	Priority	Recommendations
		livelihood for the communities.
7.	1	REC21: The staff should be considered for transfer at least 1 year after receiving any kind of technical training essential for Reserve Management.
9.	1	REC19: As the road from Htikhi checkpoint at the Thai/Myanmar border to Dawei is 180 km long, which is adjacent to TNRP, proper patrolling will be necessary and preventive measures such as monitoring and law enforcement should be undertaken by the new LOU of Myitta village
10.	1	REC11: Patrolling should be carried out using SMART forms and then data should be organized using standard methods of SMART applications, particularly for rangers which is very user friendly. SMART is used as a tool for measuring and evaluating patrolling of protected areas in order to improve the effectiveness of law enforcement.
11.	1	REC12: TNR should contact WCS to conduct advanced SMART training for those who have completed basic SMART training and have field experience for at least 6 months.
12.	1	REC23: Transboundary Conservation program should be developed between Government of Myanmar and Government of Thailand especially with the assistance of WCS for the conservation of tigers at the border of TNR and WEFCOM which will be a good refuge for the tigers. Western Forest Complex (WEFCOM) with the area of 18,000 sq. km. is a large protected forest landscape comprising 11 national parks and 6 wildlife sanctuaries. If there are still funds left for study tour program in later years, it should be organized for the visit to WEFCOM at Thailand and get contact with Thailand wildlife officials and to initiate the transboundary management program in future.
13.	1	REC13: Demarcate transportation corridor once the effective width of the corridor is decided. The existing width of 100 m on each side service track and pipeline ROW is sufficient width to follow and by no means it should extend.
14.	1	REC16: Recommendations should be properly follow-up. Also recommendations made during final evaluation of the second phase is still pending and need to follow-up immediately.
15.	2	REC3: Adequate budget should be prepared and spending program is defined according to the Operation Management Plan.
16.	2	REC4: Spending should be timely and according to the plans. Budget spending should be prepared on regular basis with more emphasis on operational matters such as Patrolling, Buffer Zone Management, Community Forestry and Nursery Practice..

Sr.	Priority	Recommendations
17.	2	REC7: The access to the north and south of the TNRP is improving. To keep good contact with Mon Pyi Thit party and KNU party in order to extend the project activities in those areas.
18.	2	REC17:90% of the planned activities should be carried out in line with the Operational Management Plan.
19.	3	REC18: The management activities should be connected with other programs and be efficient systems for information exchange
20.	3	REC14: PA staff should be trained so as to be familiar with traditional knowledge.
21.	3	REC6: There should be one dedicated computer with an organized filing system backed up properly and regularly updated at Project Director's Office and Park Warden Office for good administrative support.
22.	3	REC5: There should be a complex, relatively well-organized filing system with a great deal of useful information which could be linked with the database system being developed.
23	3	REC22: As TNR is endowed with a wealth of endangered wildlife species, rich in biodiversity and may senic places such as waterfalls and mountainous trekking routes which can attract tourists, TNRP should select a pilot study village to form a Community Protected Area at the most suitable site in terms of biodiversity and natural resources and scenic beauty.

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Appendix I: Protected Areas of Myanmar (OIKOS, 2011)

ID	Site name	National Designation	Status	Establishment Year	Area (km ²)
1	Alaungdaw Kathapa	National Park	Designated	1989	1597.62
2	Bawditataung	Nature Reserve	Proposed	2008	72.52
3	Bumhpabum	Wildlife Sanctuary	Designated	2004	1854.43
4	Chatthin	Wildlife Sanctuary	Designated	1941	269.36
5	Hlawga	Wildlife Park	Designated	1989	6.24
6	Hponkanrazi	Wildlife Sanctuary	Designated	2003	2703.95
7	Htamanthi	Wildlife Sanctuary	Designated	1974	2150.73
8	Hukaung Valley	Wildlife Sanctuary	Designated	2004	6371.37
9	Hukaung Valley (Extension)	Wildlife Sanctuary	Designated	2004	15431.16
10	Indawgyi Lake	Wildlife Sanctuary	Designated	2004	814.99
11	Inlay Lake	Wildlife Sanctuary	Designated	1985	641.90
12	Kahilu	Wildlife Sanctuary	Designated	1928	160.56
13	Kelatha	Wildlife Sanctuary	Designated	1942	23.93
14	Khakaborazi	National Park	Designated	1998	3812.46
15	Kyaikhtyoe	Wildlife Sanctuary	Designated	2001	156.23
16	Kyauk-Pan-Taung	Wildlife Sanctuary	Proposed	2001	132.61
17	Lampi Island	Marine National Park	Designated	1996	204.84
18	Lawkananda	Wildlife Sanctuary	Designated	1995	0.47
19	Lenya	National Park	Proposed	2002	1761.19
20	Lenya (Extension)	National Park	Proposed	2004	1398.59
21	Loimwe	Protected Area	Designated	1996	42.84
22	Maharmyaing	Wildlife Sanctuary	Proposed	2002	1180.39
23	Mainmahla Kyun	Wildlife Sanctuary	Designated	1993	136.69
24	Minsontaung	Wildlife Sanctuary	Designated	2001	22.60
25	Minwuntaung	Wildlife Sanctuary	Designated	1972	205.88
26	Moscov Island	Wildlife Sanctuary	Designated	1927	49.19
27	Moyingyi Wetland	Bird Sanctuary	Designated	1988	103.60
28	Mulayit	Wildlife Sanctuary	Designated	1936	138.54
29	Natma Taung	National Park	Proposed	1997	722.61
30	Panlaung-Pyadalin Cave	Wildlife Sanctuary	Designated	2002	333.80
31	Parasar (Par Sar)	Protected Area	Designated	1996	77.02
32	Pidaung	Wildlife Sanctuary	Designated	1918	122.08
33	Popa	Mountain Park	Designated	1989	128.54
34	Pyin-O-Lwin	Bird Sanctuary	Designated	1918	127.25
35	Rakhine Yoma Elephant Range	Wildlife Reserve	Designated	2002	1755.70
36	Shinpinkyetthauk	Wildlife Sanctuary	Proposed	2006	71.90
37	Shwesettaw	Wildlife Sanctuary	Designated	1940	552.70
38	Shwe-U-Daung	Wildlife Sanctuary	Designated	1918	325.95
39	Tanintharyi	National Park	Proposed	2002	2071.81
40	Tanintharyi	Nature Reserve	Designated	2005	1699.99
41	Taunggyi	Bird Sanctuary	Designated	1930	16.06
42	Thamihla Kyun	Wildlife Sanctuary	Designated	1970	0.88
43	Wenthtikan	Bird Sanctuary	Designated	1939	4.40

Appendix II: Basic Indicators to evaluate the effective management of protected areas

FIELD	VARIABLE	SUBVARIABLE
ADMINISTRATIVE	• Personnel	<ul style="list-style-type: none"> • Administrator • Technical Personnel • Administrative Personnel • Operative Personnel • Capacity for additional contracting
	• Finances	<ul style="list-style-type: none"> • Operational budget • Regularity of budget preparation and delivery • Extraordinary and/or special funding • Capacity to manage own resources • Financial-accounting system (parameters in document)
	• Organization	<ul style="list-style-type: none"> • Files • Organizational chart • Internal communication • Structuring of activities
	• Infrastructure	<ul style="list-style-type: none"> • Equipment and tools • Facilities for basic management • Facilities for specific management • Condition of facilities • Security of facilities • Boundary demarcation • Access
POLICY	• Community support and participation	
	• Intra-institutional support	<ul style="list-style-type: none"> • Mother institution • PA system administration
	<ul style="list-style-type: none"> • Inter-institutional support • External support 	
LEGAL	• Land tenure	<ul style="list-style-type: none"> • Domain/Possession • Conflicts
	• Set of general laws and regulations	<ul style="list-style-type: none"> • Clarity • Application
	• Law creating the PA	
PLANNING	• PA management plan	<ul style="list-style-type: none"> • Plans exist and are up-to-date • Characteristics of the planning team • Plan implementation
	• Compatibility of management plan with other plans and organizations	
	• Annual Operational Plan	<ul style="list-style-type: none"> • Plans exist and are up-to-date • Plan implementation
	<ul style="list-style-type: none"> • Level of Planning • Zoning • Boundaries 	

FIELD	VARIABLE	SUBVARIABLE
KNOWLEDGE	<ul style="list-style-type: none"> • Socio-economic information • Biophysical information • Cartographic information • Legal information • Research • Monitoring and feedback • Traditional knowledge 	Subvariables for each variable could be defined depending on the level of available information (see example in Table 2)
MANAGEMENT PROGRAMS	<ul style="list-style-type: none"> • Research • Environmental education • Environmental interpretation • Protection • Maintenance • Outreach to the community 	<p>Each program is evaluated according to the following variables:</p> <ul style="list-style-type: none"> • Design • Implementation • Co-ordination • Follow-up and evaluation
ILLEGAL USES	<ul style="list-style-type: none"> • Timber extraction • Extraction of nonrenewable natural resources • Extraction of flora and fauna • Vandalism of cultural resources • Squatting • Poaching • Agriculture and cattle ranching • Fishing • Recreation and tourism • Building of infrastructure 	
LEGAL USES	<ul style="list-style-type: none"> • Timber extraction • Extraction of mineral resources • Extraction of flora and fauna • Hunting • Agriculture and cattle ranching • Fishing • Recreation and tourism • Education • Building construction 	
BIOGEOGRAPHICAL CHARACTERISTICS	<ul style="list-style-type: none"> • Form • Size • Isolation • Vulnerability 	
THREATS	<ul style="list-style-type: none"> • Visitor impact 	
	<ul style="list-style-type: none"> • Pollution 	<ul style="list-style-type: none"> • Water: marine and/or freshwater • Land • Air
	<ul style="list-style-type: none"> • Fires • Advance of human settlements • Migration • Exotic organisms • Natural disasters • Development infrastructure • Subversive political movements or violent conflicts • Drug trafficking and related activities 	

Appendix III: Visitors List to TNRP during 2013 April to 21015 March

No.	Name	Date	Designation	Organization	Purpose	Remarks
1	Mr. Edward Henry Beattie Pollard	4.11.2013	Biodiversity Consultancy	TBC	Project Review	
2	Mr. Edward Henry Beattie Pollard	17.12.2013	Biodiversity Consultancy	TBC	Project Review	
3	Mr. Jean-Michel Pierre	19.12.2013	Senior Social Specialist	AFD	Site Visit	
4	Dr. Thomas J. Clement	19.12.2013	REDD Specialist	WCS	Site Visit	
5	Mr. David Grit ten	23.12.2013	Senior Program Officer	RECOFTC	Capacity Building	
6	Mr. David GREUMANS	23.12.2013	Senior Program Officer	RECOFTC	Capacity Building	
7	Mrs. Emily ETUE	23.12.2013	Assistant Monitoring and Evaluation Officer	RECOFTC	Capacity Building	
8	Mr. Jean-Michel Pierre	7.1.2014	Senior Social Specialist	AFD	Site Visit	
9	Ms. Eleanor Briggs	17.1.2014	Trustees	WCS	Photo Documentation	
10	Mr. Jean-Michel Pierre	22.1.2014	Senior Social Specialist	AFD	Review Mission	
11	Dr. Thomas J. Clements	22.1.2014	REDD Specialist	WCS	Review Mission	
12	Mr. Jean-Michel Pierre	24.1.2014	Senior Social Specialist	AFD	Review Mission	
13	Dr. Thomas J.	24.1.2014	REDD Specialist	WCS	Review Mission	

Clements					
14	Ms. Emily ETUE	14.2.2014	Assistance Monitoring Officer	RECOFTC	Data Acquisition and CF Plots
15	Ms. Emily ETUE	18.2.2014	Assistance Monitoring Officer	RECOFTC	Data Acquisition And CF Plots
16	Ms. Michelle Owen	12.3.2014	Project Manager	WWF	Discussion for Project Activities
17	Ms. Michelle Owen	19.3.2014	Project Manager	WWF	Discussion for Project Activities
18	Mr. Aton MikkeltHorsen	19.3.2014	Program Support	WWF	Discussion for Project Activities
19	Mr. Thomas Neill Edward Grey	19.3.2014	Manager	WWF	Discussion for Project Activities
20	Ms. Stefanie VeronikaLang	19.3.2014	Senior Manager For Conservation Finance	WWF	Discussion for Project Activities
21	Dr. MatheosDimitri	19.3.2014	Regional Forest Coordinator	WWF	Discussion for Project Activities
22	Mr. Michael Zika	19.3.2014	Dawna Tenasserim Landscape Project Manager	WWF	Discussion for Project Activities
23	Mr. BjoernWote	2.9.2014	Forestry Professional	Fauna and Flora International	Visit
24	Mr. Co J. Poole	10.9.2014	Director	WCS	Visit

25	Mr. Collin J. Poole	24.9.2014	Director	WCS	Visit
26	Mr. Christopher Holmes	24.9.2014	Wildlife Specialist	WCS	Visit
27	Mr. Co J. Poole	25.9.2014	Director	WCS	Visit
28	Mr. Christopher Holmes	25.9.2014	Wildlife Specialist	WCS	Visit
29	Mr. Robet J. Tizard	25.9.2014	Wildlife Specialist	WCS	Visit
30	Dr. Andrew Henderson	29.9.2014	Botanist	The New York Botanical Garden	Visit
31	Mr. Christopher Holmes	21.10.2014	Wildlife Specialist	WCS	Visit
32	Mr. Colin Michael	21.11.2014	Wildlife Specialist	WCS	Visit
33	Mr. Colin Michael	17.10.2014	Wildlife Specialist	WCS	Visit
34	Mr. Christopher Holmes	22.10.2014	Wildlife Specialist	WCS	Visit
35	Mr. Colin Michael	22.10.2014	Wildlife Specialist	WCS	Visit
36	Mr. Robet J. Tizard	22.9.2014	Consultant	WCS	Visit
37	Mr. Colin Michael	17.10.2014	Wildlife Specialist	WCS	Visit
38	Mr. Christopher Holmes	7.11.2014	Wildlife Specialist	WCS	Visit
39	Mr. Colin Michael	7.11. 2014	Wildlife Specialist	WCS	Visit
40	Mr. Robet J. Tizard	7.11.2014	Consultant	WCS	Visit
41	Mr. Christopher Holmes	11.11.2014	Wildlife Specialist	WCS	Visit
42	Mr. Colin Michael	11.11.2014	Wildlife Specialist	WCS	Visit
43	Mr. Robet J. Tizard	11.11.2014	Consultant	WCS	Visit
44	Mr. Shingo Onishi	17.11.2014	Chief Researcher	OKINAM	Photo Documentation

45	Dr. Andrew Henderson	3.12.2014	Botanist	NYBG	Discussion
46	Dr. Hubert Kurzweil	8.1.2015	Orchid Specialist	FOMIC	Research
47	Mr. Hermann Josef Tillmann	23.1.2015	Trainer	ALARM	MoU& Training
48	Mrs.Maria Angelica Salas De Tillmann	23.1.2015	Trainer	ALARM	MoU& Training
49	Mr.Ferhuson Made Eli	23.1.2015	Team Leader	ALARM	MoU& Training
50	Mr .Anthony Richard Neil	23.1.2015	Forest Governance Advisor	ALARM	MoU& Training
51	Dr. Hurbert Kurzweil	9.2.2015	Botanist	Singapore Botanical Garden	Research
52	Dr.Kathleen Ellen Armstrong	20.2.2015	Botanist	NYBG	Inventory
53	Ms. Meredith Pearl Martin	20.2.2015	Botanist	NYBG	Inventory

Appendix IV: RECOMMENDATIONS FROM FINAL EVALUATION (SECOND PHASE) AND ACTIONS BEING TAKEN

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 Site Level Meetings and also by close coordination with the villagers.

Meetings held regularly with all stakeholders during bi-monthly site level meetings at Gangawtaung Park Warden Office.

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.

In line with EIA legislation of Myanmar one Environmental Officer was assigned for closely monitor the activities of PTTEP to find out whether the activities carried out were in accordance with prevailing legislations.

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.

The Environmental Officer was assigned to carry out the task.

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.

Sufficient funds were allotted to carry out extension programs.

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.

The organization was re-organized to mobilize more extension activities.

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.

Currently more extension programs are being organized at schools.

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.

There is one LEM Database Manager to handle SMART software, which is quite user-friendly.

RECOMMENDATION 8:

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

There is an incentive scheme for patrol staff for collecting quality SMART data as recommended by WCS. Every year the best patrol team member is selected and awarded as an incentive for the excellent performance.

RECOMMENDATION 9:

The Reserve Management Team should manage effectively in the secured areas of the reserve for the time being. Nowadays with the change of new civil government and with peace agreements with Mon PyiThit 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.

With the permission from Mon PyiThit Party, boundary demarcation operations for the northern part of the project was conducted.

RECOMMENDATION 10:

Need to study why deforestation and forest degradation happened in TNR together with socio-economic information and 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 remains restricted.

A consultant was assigned to conduct the change assessment study to find out the deforestation and degradation rates of the project. The report has not been received yet.

RECOMMENDATION 11:

It is learnt that villagers from Yebong 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.

Village Use Zone Mapping was done according to the plan.

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.

Database program has been initiated already.

RECOMMENDATION 13:

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

The Management Plan was prepared by a National Consultant and not by the Project Director as planned.

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.

Worked according to Operational Management Plan and if problems occur, contact Technical Committee to get advice.

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 Hukaung Valley Wildlife Sanctuary in the Kachin State.

FFI had organized the task to inventory village resources.

RECOMMENDATION 16:

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.

Monthly work plans are organized by each LOU and discussed thoroughly with Park Warden during the monthly meeting.

RECOMMENDATION 17:

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.

Currently there is one LEM database manager who is conversant with SMART system and 2 assistants to handle SMART data input from smart data forms.

RECOMMENDATION 18:

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

Incentive schemes are in place for patrolling staff.

RECOMMENDATION 19:

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.

There is a close link with PD and WCS and ToR's for the consultants are being reviewed by WCS consultant.

RECOMMENDATION 20:

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.

RECOFTC activities will start in this 2015-16 instead of 2014-15 as planned due to the un-readiness of the organization set up during last year. Have contacts with RECOFTC for set up the program in 2015-16.

RECOMMENDATION 21:

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 line 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.

3D Modeling Approach was initiated as well for active participation of locals in planning and more visualization about planning..

RECOMMENDATION 22:

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.

Yebon was selected as pilot village by WCS. It was extended to Kyaukshut and Zinba (3)

RECOMMENDATION 23:

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 have 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.

New Organization set up during the third phase (about 80 staff with 44 FD staff and 36 local staff).

RECOMMENDATION 24:

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, VDZ and CBNRM in planning by themselves for their future. This kind of trainings should be expanded to some more villages in the third phase.

VCP, VDZ and CBNRM programs are extended to the remaining villages in the TNRP area,

RECOMMENDATION 25:

During the implementation of the VDZ 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.

Micro-Finance program is expanding and now there are 3 villages enjoining this program.

RECOMMENDATION 26:

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 that ATL 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.

Work plans are organized to be in line with additional funding of \$ 600000 for the third four year period from ATL. Total funding for 4 year period is \$1.8 million.

RECOMMENDATION 27:

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. A sizable cash balance occurs due to lack of operations carried out in time.

One new LOU at (Myinkhan Baw) was established and Okthayan LOU was renovated.

RECOMMENDATION 28:

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.

Work plans approved and found to be not effective use of budget.

RECOMMENDATION 29:

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.

One financial audit was done by third party EY UTW on 31st March for the period from 1st April 2013 to 31st March 2014. Additional one for 1st April 2014 to 31st March 2015 already undertaken by CAPSTONE AUDIT firm on 9th December 2015.

RECOMMENDATION 30:

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

The remaining items as mentioned in the Final Evaluation report were already done.

RECOMMENDATION 31:

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.

There are no proper maintenance plan/register for vehicles, maintenance records so far.

RECOMMENDATION 32:

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.

After the FEC was revoked the staff allowance has been provided by converting the US\$ amount of each personnel field allowances with an equivalent of 1 USD equivalent to MMK 1000.

RECOMMENDATION 33:

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 Resource 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.

Extension programs were organized and made presentations at villages in the Project site by extension staff.

RECOMMENDATION 34:

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.

Site level meetings were held according to the plan.

RECOMMENDATION 35:

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. CBNRM should be replicated to other interesting villages over time with the active participation of the local communities.

Capacity building for TNRP staff on CBNRM activities organized to implement in TNRP areas. 32 persons from TNRP and WCS attended the training.

RECOMMENDATION 36:

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

TNRP staff has closed communication with CFUG's because TNRP has conducted workshops, meetings and trainings occasionally with user groups

RECOMMENDATION 37:

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.

Project Quarterly Progress Reports were found to be not distributed in time. This is still pending should be sought out as soon as possible.

RECOMMENDATION 38:

Natural Forest management is quite a 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 managing the forests so that benefits will be sustainable.

Due to the efforts of staff from Forest Department, Taninthayi Region, villagers get hand on experiences for developing their CF program.

RECOMMENDATION 39:

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.

CBNRM is in progress and linked to PD3M which is a program to develop 3 D model using participatory approach with villagers, which is very interactive and effective..

RECOMMENDATION 40:

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

Project staffs are in good relationship with User Groups, particularly with in-charge of LOUs.

RECOMMENDATION 41:

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.

The situation has been improved so far.

RECOMMENDATION 42:

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

No information regarding 3rd Party Audit for the remaining 2 years period of the Final Evaluation for the second phase.

RECOMMENDATION 43:

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.

When the next management plan is due, PD will taken care of it.

RECOMMENDATION 44:

Sr.	Recommendations	Actions Taken	Ref.
1.	Study tours to WEFCON or other PAs within the region	OK	-
2.	Study tour to other protected areas in-country	OK	-
3.	Fixed Assets register to be updated	OK	-
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	FFI	Inventory training completed by FFI
6.	PQPR and Technical reports delivery		Not issued since PQPR 25
7.	Instead of consultancy for Microfinance organize for Socio-economic Survey	NC	Switched to Management Plan Consultancy at 16 th PCC meeting
8.	Incentive scheme to be initiated for user grants of CF program	OK	-

Appendix V: EVALUATION FIELDS

QUALITY: For the PA Director or administrator, technical and administrative personnel the following criteria are used.

EDUCATION	INITIATIVE	EXPERIENCE
Graduateschool (Post)	High	High (>10 years)
University (U)	Moderate	Moderate (5-10 years)
Technician (T)	low	Low (2-5 years)
Specialized Courses (Ce)	Very Low	No experience (<2years)

Combination of criteria and conditions

U or Post + Ce	High initiative	High experience	4
U + Ce	Moderate initiative	High experience	3
T and/or U	Moderate initiative	Moderate experience	2
T; little initiative	Little experience		1
T; very little initiative	No experience		0
T+Ce; high initiative	High experience		3
U or Post, little initiative	No experience		1

QUALITY: For operative personnel the rating criteria are education, experience in their field and in protected areas: skills to meet various demands and training in protected area management

Level of Education	Experience	Skills	Training
High school diploma or higher (H)	High (>10 years)	Has skills in various fields such as mechanics, carpentry, field equipment, electronics etc. that make him /her able to do many tasks (Many)	More than 3 specific training events and general orientations to develop his/her abilities (High)
Completed elementary school but incomplete highschool education (M)	Moderate (5-10 years)	Has some skills that enable him /her to do certain tasks (Some)	2 courses or training events (Moderate)
Elementary school complete or incomplete (L)	Low (2-5 years)	Has a few necessary skills to perform specific few tasks (Few)	1 training course or event (Low)
	No experience (<2 years)	Has no reliable skills (No)	No training or orientation (No)

Combination of criteria or conditions:

H Education	High Experience	Many skills	High training	4
H Education	Moderate Experience	Some skills	High training	4
M Education	High Experience	Many skills	Moderate training	3
L Education	High Experience	Many skills	High training	3
M Education	Low Experience	Some skills	Low training	2
M Education	No Experience	Some skills	Low training	1
L Education	Low Experience	Some skills	No training	0

Quantity: Compares the optimum quantity of personnel with the number of existing personnel that are based permanently in the area regardless of the type of contract (Government, agreements with NGOs, etc).

Percentage of existing personnel	Value
>90	4
76-89	3
51-75	2
36-50	1
35	0

Motivation: Evaluates an individual's enthusiasm about their work and their satisfaction with their work conditions.

Very high motivation: staffs respond to their jobs with enthusiasm and are satisfied their work conditions	4
High motivation: staffs know and feel their importance of their jobs and are dedicated, but feel that some work conditions are lacking . These conditions could be easily rectified/provided	3
Moderate motivation: jobs are done adequately but with a general feeling of dissatisfaction with the working conditions	3
Low motivation: workers have little enthusiasm or motivation and feel abandoned by the institution	1
No motivation: staff show no enthusiasm toward their job and the work conditions are unsatisfactory	0

Effective Time Dedicated to PA:

>11 Months/year	4
9-11 Months/year	3
6-8 Months/year	2
3-5 Months/year	1
< 3 months /year	0

PERSONNEL INCENTIVES: All levels of personnel are evaluated using two criteria: quality an existence of promotion plans and support for employee-improvement initiatives:

Well designed promtion plans and clear support for employee initiatives	4
Promotion plan not attuned to reality. Support for employee improvement on supervisory levels	3
No promotion plan: real incentives exist . Support to superivisoy is sporadic and selective	2
No promotion plan: incentives are sporadic; irregular support to supevisory level employees	1
No promotion plan: no incentive; no support	0

EMPLOYEE ATTITUDE: Evaluates the response and attention of PS staff toward their responsibilities and their attitude and behavior:

Staffs are always attentative and respond positively to the requests of users and their colleagues(superiors and subordinates)	4
I n general, staffs are polite and respectful to users and colleagues	3
There are isolated cases of disrespect or rudeness toward those who use the area to colleagues	2
Behavior patterns towards users and / or colleagues is in appropriate	1
Attitude towards users is almost one of rejection and bad relationship exist among workers	0

FUNDING: This variable evaluates four sub-variables: annual operating budget, regularity of fund transference, extraordinary funding and capacity to generate own resources and financial accounting system:

OPERATING BUDGET: is evaluated by the amount received in a determined period, usually during the last 3 yearscompared to the optimum reported by directors or the annual operational plan.

Percentage of budget received	Value
>90	4
76-89	3
51-75	2
36-50	1
<35	0

REGULATORY OR TRANSFER OF FUNDS: considers transfers or capacity to cover budget items by the deadlines established in the financial plans or regular deadlines used the institutional financial systems during the last year.

Transfers always arrive within the set deadlines	4
Transfers are carried out by the set deadline, with small occasional variations	3
Transfers are carried out regularly with predictable variations	2
Transfers are very irregular which makes it difficult to carry out plans	1
Transfers are totally irregular	0

FINANCIAL/ ACCOUNTING SYSTEMS: Evaluate the financial capacity and operations of the PA administration through 4 parameters: management capacity, institutional capacity, budget management, spending capacity and control and auditing mechanism.

Management Capacity: is evaluated taking into consideration the ability to establish links and maintain good contacts with funding sources to obtain long-term financial and technical support.

Demonstrated capacity to establish links with plentiful funding sources and to maintain good relationships with them	4
Relatively good capacity to establish links with potential funding sources and to maintain good relationships with them	3
Moderate capacity to establish links with potential funding sources. The relationships are not always the bests, which hampers the possibilities of permanent financial support.	2
Low capacity to establish links with potential funding sources: relationships are rare and indirect. The possibilities of financial support are scarce	1
There are no direct or indirect links with possible funding sources	0

Institutional Capacity: Refers to capacity of the PA administration to manage financial resources.

The financial management personnel are well trained in the financial matters: they have a defined and functional accounting system and appropriate financial planning.	4
The financial management personnel have some knowledge of finance and there is an acceptable, defined accounting scheme. The financial planning is acceptable	3
The personnel have basic knowledge of finance. There is a referential accounting framework that has functional deficiencies. The financial planning is deficient.	2
The personnel have elementary financial / accounting skills. Minimal accounting systems are used. There is no real financial planning.	1
The personnel have no knowledge of finance. There is no accounting system. There is no financial planning.	0

Budget Management: refers to the capacity of PA administration to prepare adequate budgets and effectively manage program expenditures.

Adequate budgets are prepared and spending program are defined according to need.	4
Budget preparation is acceptable. The spending programs are not well defined.	3
Budgets fall short sufficient structures: the spending programs are deficient of undefined	2
Budgets are not structured: spending is uncontrolled	1
There is no real budget nor is there a spending plan	0

Spending Capacity: refers to PA's spending capacity.

Spending is timely and programmed. Budget spending are prepared regularly.	4
Expenditure is not always timely inspite of being programmed. Budget spending reports are not regularly prepared.	3
Expenditures are often delayed and programming is weak. Budget spending reports are prepared sporadically.	2
Expenditure , while sometimes made on time , does not abey any prioritization . Budget spending reports are insufficient.	1
Expenditures are not made on time and no budget spending reports are prepared	0

Control and auditing mechanism: evaluates accounting systems and the regularity of financial controls.

The accounting management is sufficiently flexible and independent and carried out under accepted accounting standards. Periodic regular audits are conducted.	4
The accounting management is acceptable and sufficiently independent, carried out under accepted accounting standards. Audits are conducted on request.	3
The accounting management has deficiencies and is subject to internal bureaucratic red tape. Management fails to meet some accounting standards. Audits are conducted sporadically.	2
The accounting management is elementary and does not meet accepted accounting standards. Audits are practically non-existent.	1
There is no accounting management and no audits are conducted.	0

ORGANIZATION: This variable considers those aspects that are essential to general administration , and human resource management. It is evaluated by using the the following sub-variables: files, institutional structure, internal communication, rules and procedures.

Files: evaluates the existence, organization, usefulness and information avilability with respect to financial and administrative movements.

There is a complex, relatively well organized filing system with a great deal of useful information.	4
The filing system is simple but sufficiently complete to offer good administrative support.	3
The files are incomplete and disorganized making it difficult to access and use them.	2
There are files, but they are poorly prepared, incomplete or disorganized.	1
There are no document files	0

Institutional Structure: The organic and functional structure of the management structures are evaluated by taking into account the following:

The organizational chart is clearly defined, encompasses all the PA management objectives, shows sufficient internal decision-making autonomy and adequate flow of communication at all levels and among all positions	4
The organizational chart is clear and corresponds well to the PA's programmed activities with a sufficient level of autonomy and acceptable flow among various levels and positions	3
The organizational chart is defined according to the activities developed in the PA but there is occasional overlap of responsibilities due to lack of clarity in the structure. Communication flow is deficient.	2
The organizational chart has significant structural flaws with regard to the areas objectives and little practical follow up is seen. Communication flow is almost non-existent.	1
Chart doesn't exist or is unclear.	0

Internal Communication: refers to the way information and decision are transmitted with regard to planning and carrying out of activities in the area.

There is an adequate flow of information between directors and staff through means that have been developed or adopted for this purpose. This makes it possible for a greater number of employees to participate in area management.	4
Communication between directors and personnel is satisfactory and informal means of communications is developed.	3
Communication between directors and personnel workers is relatively haphazard but there is still a certain level of harmony.	2
Little communication between directors and some personnel causes internal conflicts and low productivity.	1
There is no control between the directors and personnel, which impedes the reasonable development of planned or assigned activities	0

Rules and Procedures: refers to the existence of procedures and standards that guide administrative efforts (purchases, contracting of personnel and services, delivery of documents).

There are unified modern and flexible rules and procedures that make it possible for the administration to run and control of all the activities in the area.	4
Rules and procedures do not encompass all activities in the area, but are adequately flexible and allow for sufficient control of the main administrative	3

activities	
There is some regulation of activities, but there is a need to integrate and clarify the existing structure to improve control	2
Few activities in the area are regulated and there is no structure to ensure those regulations are controlled.	1
The administration is trying to create a system to regulate activities	0

INFRASTRUCTURE: To evaluate this variable the following sub-variables are considered: equipment and tools, facilities for basic management (administration and protection); facilities to develop specific programs; conditions; conditions of the facilities to meet human needs in the work place, building safety, basic services (fresh water , lights, sewage accessibility and boundary demarcation.

Equipment and Tools: includes all equipment and tools used for fieldworks and repairs. The following criteria of quantity, quality and maneuverability are evaluated.

Quantity	Quality	maneuverability
Sufficient (S) Meet all needs	Very good (VG) brand name equipment with parts and services guarantee.	Very operative (VO) equipment is easy to use and meet needs
Insufficient (I) Meet some needs	Good (G) : not very well-known brands, problems obtaining parts and services	Operative (Op) Equipment requires some training for its use and can only be operated by qualified personnel. Meets needs
Non-existent (Nex): Not available because equipment does not exist or does not work	Bad (B) : unknown brand: serious problems obtaining parts and service	Not very operative (NO): equipment is complicated to use which limits its use to trained personnel

Quantity (S)	Quality (VG)	Maneuverability (VO)	4
Quantity (S)	Quality (VG)	Maneuverability Op)	4
Quantity (S)	Quality (G)	Maneuverability (Op)	3
Quantity (I)	Quality (VG)	Maneuverability (Op)	3
Quantity (I)	Quality (G)	Maneuverability (VO)	2
Quantity (I)	Quality (G)	Maneuverability (Op)	2
Quantity (I)	Quality (B)	Maneuverability (NO)	1
Quantity (Nex)			0

Facilities: This aspect is evaluated through two sub-variables; basic management facilities and facilities to develop specific programs

Existing facilities are sufficient in quantity and quality to support the Pas activities. They are placed strategically to meet most needs.	4
There are not enough facilities; but they are good quality and make it possible to carry out most of the PA's activities	3
There are not enough facilities but they are not of the best quality but are	2

strategically located to develop key activities.	
There are not enough facilities and they are of poor quality. Their location does not allow for many of the PA's needs to be met.	1
There are no facilities and / or they are so badly deteriorated that they can not be used.	0

Condition of the Facilities: refers to hygiene and healthiness of the physical buildings in general to create an appropriate working environment.

The existing facilities are very clean: there are appropriate hygiene mechanisms that guarantee a healthy working environment.	4
The existing facilities are clean and there are necessary hygiene mechanisms : but they must be regularly inspected to guarantee a healthy work environment.	3
The existing facilities have cleanliness problems: the hygiene mechanisms are irregular and create problems with the healthiness of the work environment	2
The facilities have serious problem with cleanliness: the hygiene mechanisms are few the work environment is in a state of disarray	1
The facilities are dirty , there are no hygiene mechanism and the environment is unhealthy	0

Safety: Refers to the safety of the physical structure for administration , management, protection and user services. Evaluation is based on the quality of building materials and adequate maintenance.

The existing buildings are very safe; they are made with appropriate materials and receive proper maintenance	4
The existing buildings are safe. Although the building materials are not of top quality the buildings are well maintained.	3
The existing buildings are moderately safe but they are made with poor quality materials and maintenance is irregular.	2
The buildings are unsafe. They are made with poor quality materials and maintained irregularly.	1
The structures are unsafe. They are made with very poor quality materials and maintained sporadically , if ever.	0

Basic Services: Evaluates the combination of basic services that make it possible to carry out regular activities and attend to user needs such as availability of fresh water, lights, telephone or other means of communication, health services.

Access to basic services is permanent and without interruption	4
Access to basic services is permanent and there are only infrequent interruptions	3
Basic services are provided but there are problems with the supply	2
Not all basic services are available, and those that are, are available irregularly	1
The majority of basic services are unavailable	0

Accessibility: Refers to the routes of access that permit the PA personnel to arrive at strategic points to ensure good management.

The PA has enough access routes open to vehicles and people year-round, making it possible to maintain control of activities in the area	4
The PA has sufficient access routes open to people and vehicles most of the year allowing adequate control of activities in the area,	3
The PA has several access routes that are open more than half the year . Employees use these routes to take in equipment and have good control of the area.	2
The PA has one or several access routes that the employees use to enter and leave the area and take in equipment. Routes allow for limited control and protection of the area and become entrance routes for illegal activities. They are open less than half the year.	1
The PA has no access routes that employees can use to take in equipment or to enter the area for protection, management research or control activities	0

Boundary Demarcation: refers to the location and marking of the PA boundaries. The evaluation is based on the percentage of the perimeter that is marked.

Percentage of PA Boundaries marked	Value
>90	4
76-89	3
51-75	2
36-50	1
<35	0

POLITICAL FIELD: The variables to be measured are community support and participation, inter-institutional support, external support and intra-institutional support.

Community Support and Participation:

There are formal mechanisms for community participation (Local communities , associations, etc.) and neighbors support of the area is unquestionable. There are high direct benefits to the communities	4
There are no formal mechanisms to guarantee community participation, but there is informal participation by community leaders in the area management, There are moderate to high benefits to the community.	3
There is moderately cardinal cooperation and mutual aid between the administration and the community, but the latter does not participate in area planning and managemen., while it supports the area's permanence. Benefits to the community are moderate.	2
There is no cooperation between the administration and the community but the neighbors are somewhat aware of the intrinsic value of the area. There are few perceptible benefits to the community.	1
There is no community cooperation recognition or support of the area. The direct quanifiable or perceptible benefits towards the community are few or non-existent.	0

Mother Institution

The PA's conservation policies are clearly defined by the mother institution and translated by the mother-institution and translated into strong political support on all levels	4
The PA's conservation policies are defined by the mother institution, but they are misinterpreted to focus on aspects with little relevance to PA management. Support to the area is moderate	3
Although there are general guidelines for PA , actions laid out by the mother institution support is sporadic and limited.	2
PA conservation policies laid out by the mother institution are outlined in a general context but are not translated into concrete support	1
Discussions in the mother institution about the PA's do not coincide with the PA's long terms management needs. There is no support.	0

Central Administration of the PA System

The system' central administration offers efficient technical, financial , political and human resources support to PA's. All the support is within the context of an "integrated national system"	4
The system's central administration frequently offers technical , financial, political and human resources support to PA's though the support does not correspond to a vision of a "integrated" national system	3
The system's central administration concentrates most of its effort on outlining general conservation policy which results in a certain amount of support for PA's ; but there is a weak focus on an "integrated" national system.	2
The system's central administration offers no clear support to PA's leaving them to manage their own policies and support with no vision of an integrated system (regional or national)	1
The PA's do not receive support from the system's central administration nor is there any focus on integrated system management.	0

External Support: refers to the support from local, national or international non-governmental organizations.

Range:

High: when the technical financial or political support solves problems or fills specific high priority gaps for the management of PA.	Moderate: when the support represents a small improvement in the given situation.	Low: when there is modest support to resolve a specific situation or problem.
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Stability:

High: when the support is maintained for more than 3 years with the possibility of renewal.	Moderate: when the support is maintained for 1-3 years and/or with few possibilities of renewal.	Circumstantial: when the support is for less than 1 year with no possibility of renewal.
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High Range and High Stability	4
High Range and Moderate Stability	3
High Range and Circumstantial Stability	3
Moderate Range and High Stability	2
Moderate Range and Moderate Stability	2
Moderate Range and Circumstantial Stability	1
Low range and Circumstantial Stability	1
No evidence of support of any kind	0

LEGAL FIELD

Land Tenure

% of area with recognized and accepted possession or domain	Value
>90	4
76-89	3
51-75	2
36-50	1
<35	0

Conflicts:

% of area with conflicts over possession or domain	Value
>76	0
51-75	1
36-50	2
<35	3
There are no conflicts	4

Clarity:

The laws and regulations are very clear and encompass every level of the jurisprudence over natural resources, protected or not, guaranting their sustainable use as well as good PA management	4
There are laws and regulations as indicated above and they do not overlap and although there are gaps in coverage this does not seriously affect PA management	3
The laws and regulations on natural resource use have some gaps and overlaps that impair or hinder PA management	2
There are some laws and regulations that promote natural resource conservation but there are marked contradictions among them which impede or prevent good PA management	1
There are no general laws or regulations that standardize natural resource use.	0

Application:

The laws/ regulations relating to the PA are always complied by users and the PA staff make great efforts to publicize and enforce them.	4
The laws/regulations are complied to by the majority of users. PA staff publicize and enforce them.	3
PA users comply with Laws/regulations, though reluctantly in spite of PA staff efforts to publicize and enforce them	2
PA users comply with law	1
.Law/regulations are rarely complied to by PA users: employees make no efforts at publicizing or enforcing them.	0

PLANNING FIELD: The following variables are evaluated: the management plan, compatibility of other plans with the management plan, operational plan, level of planning , zoning and boundaries.

Management Plan

There is management plan prepared or revised less than 5 years ago, which is implement by the PA administration.	4
The PA is in the process of preparing or revising an out-of-date plan (> 5 years old)	3
There is a management plan that has not been revised for more than 5 years. There are no studies or other planning instruments that guide PA activities	2
There is a very out-of-date management plan (> 10 years old) that the PA administration no longer uses. Nothing is done to revise it.	1
There is no management plan nor are there any plans to prepare one	0

Planning Team Characteristics

Multidisciplinary team + community	4
Mutidisciplinary team	3
Specific technical group + community	3
Specific technical group	2
Individual planning by a specialist	1
No planning team	0

Plan Implementation

>t 90% of planned and proposed activities carried out	4
76-89 % of planned activities carried out	3
51-75% of planned activities carried out	2
Only 36-50% of planned activities carried out	1
Less than 35% of planned activities carried out	0

Compatibility with other plans

All plans are compatible	4
There are some minor discrepancies among the plans, but they do not have significant effects on the implementation of the PA management plan	3
There are substantial discrepancies among the plans which have a negative effect on the implementation of the PA management plan.	2
There are serious discrepancies among the plans that prevent the implementation of the PA management plan	1
The other plans are not compatible with the PA management plan	0

Operational Plan

There is a prepared and/or revised operational plan which is implemented by PA administration	4
The PA is in the process of preparing or revising the operational plan	3
There is an out-of-date operational plan or other planning instrument that guide PA management activities	2
There is a very out of date operational plan (> than 2 years old) that the administration no longer uses. There are no plans to revise it.	1
There is no operational plan nor any plan to prepare one	0

Zoning

There is defined zoning. Its design incorporates scientific knowledge and up-dated technical concepts. There are established regulations and PA staff are familiar with specific applied to all the zones.	4
The above indicated conditions exist, but the zoning regulations are not known taken into consideration by all PA staff	3
The existing zoning has been implemented for some time and needs to be revised due to changing factors and circumstances that affect its management	2
The zoning proposed for the PA does not fit with reality and few PA staff members recognize or accept it. Specific zoning regulations are not adequate for current activities	1
There is no zoning in the PA.	0

Limits

Boundaries are legally recognized in the field and respected	4
Boundaries are legally defined, recognized in the field but generally ignored	3
Boundaries are legally defined but neither recognized or respected	2
Boundaries are not legally defined but are recognized and respected	1
Boundaries are legally defined, nor they are recognised nor respected in the field	0

Socio-economic and biophysical information

Current information available in the area	4
Current information but not available in the area	3
Some what old information available in the area	3
Somewhat old information not available in the area	2
Out of date information available in the area	2
Out of date information not available in the area	1
No information	0

Legal Information

High availability and dissemination of legal information in the area	4
Highly availability and moderate dissemination of legal information in the area	3
Moderate availability and little dissemination in the area	2
Little availability and little dissemination in the area	1
Legal information is not available in the area	0

Monitoring and feedback

The area has efficient mechanisms to adequately monitor activities and feedback results into management	4
The area uses tools to monitor activities and has instruments for basic feedback	3
The area has some monitoring and feedback instruments that partially meet the Pas basic needs	2
There are some mechanisms for monitoring and feedback but they are neither formally nor systematically applied	1
There are no monitoring or feedback mechanism in the area,	0

Traditional Knowledge

PA staff is fully familiar with the traditional knowledge gleaned from neighbouring communities. This knowledge is documented and used for PA management	4
Although the traditional knowledge from neighbouring communities is not documented, the majorities of PA employees are quite familiar with it and use it in PA management	3
The traditional knowledge from neighbouring communities is documented but few PA staff is familiar with it and its use in PM management is limited	2
The traditional knowledge from neighbouring communities is partially documented,, but few PA personnel are familiar with it and for all pecctical purposes it is not used in PA management.	1
The traditional knowldege from the neighbouring communities is no documented and PA personnel are not all familiar with it.	0

MANAGEMENT PROGRAM

Design

The program has a coherent design and structure based on objective	4
The program is designed and structured but while the most important activities are included it does not encompass all the activities proposed.	3
The program is poorly designed and partially structured , the activities proposed are often improvised	2
The program lacks design and is poorly structured. Activities are improvised	1
There is no program	0

Implementation of planned activities

> 90% of the planned activities carried out	4
76-89 %of the planned ativities carried out	3
51-75% of the planned activities carried out	2
36-50% of the planned activities carried out	1
< 35% of the planned activities carried out	0

Coordination

The activities are coordinated with other programs regularly and there are efficient systems for information exchange	4
The activities are coordinated with other programs as needed. There is some exchange of informtion that occassionally breaks down.	3
Activities are not coordinated between programs which results in it being difficult to carry out activities, Exchange of information is deficient.	2
Activities are coordinated with a great deal of difficulty and information exchange is practically non-existent	1
There is no coordination and no information exchange	0

Illegal Uses

No activity	4
Activity present, but with no noticable impact	3
Activity present, with negative impact on non-threatned species and or natural communities	2
Activity present, with negative impact or threatned or endangered species and or natural communities	1
Activity present causing destruction of the area	0

Legal Uses

The activity is compatible with the PA's management objectives; is done in accordance with land use capacity; adheres to legal regulations and there is good technical and administrative management	4
The activity is compatible with the PA's management objectives: it is acceptable with regard to land use capacity. Supporting legal regulations have some gaps. Technical and administrative management is acceptable	3
The activity is compatible with the PA's objectives. It is acceptable with regard to land use capacity. Supporting legal regulations are deficient. Technical and administrative management has weakness.	2
The activity compatible with PA objectives. It is acceptable with regard to land use capacity. There are no legal regulations to support it; there is no technical or administrative management	1
The activity is not compatible with the PA's objectives: the resource is being over-exploited, and there are no regulations or sound management	0

Size

The area has the optimum size or larger	4
The area is between 90 and 99% of the optimum size	3
The area is between 76 and 89% of the optimum size	2
The area is between 51 and 75% of the optimum size	1
The area is < 50% of the total optimum size	0

Form

Whole circular or ovoid shape	4
Fragmented circular or ovoid shape	3
Whole square or rectangular shape	2
Fragmented square or rectangular shape	1
Whole irregular shape	1
Fragmented irregular shape	0
Fragmented or whole long thin shape	0

Connectivity

More than 90% of the PA perimeter is physically connected to other areas where genetic and biological resources and ecological processes occur and help sustain the PA	4
76% of the PA perimeter is directly connected to other sources of biodiversity resources	3
>50% of the PA perimeter is directly connected. There are some areas connected to biological corridors	2
The PA is practically isolated. There are some biological corridors to connect it. Some border effects are evident.	1
The PA is totally isolated. With no connection to biological corridors: exchange of genetic material may be difficult. Border effects are evident.	0

Vulnerability

Very resistant to biological invasions and/ or disturbances. Very low impact	4
Resistant to biological invasions and or disturbances . Low impact.	3
Moderately resistant to biological invasions and/ or disturbances. Moderate impact	2
Little resistance to biological invasions and / or disturbances. High impact	1
No resistance to disturbance or biological invasion of some species . Very High impact.	0

Threats

The factor is not present in the area	4
The factor has little effect on the protected environment	3
Factors has little effect on the potential environment	2
Factor has possibly violent effects but they could be reversed in the medium or long-term	1
Factors effects are extremely serious and irreversible	0

Appendix VI: TNRP STAFF TRANSFER

Taninthayi Nature Reserve Project

Transfer of Project Director

From	To	Transfer Date
U Thiri Tin	U Zaw Win Myint	27.11.2009
U Zaw Win Myint	U Tint Swe	1.10.2011
U Tint Swe	U Win Maw	15.7.2013
U Win Maw	U San Aung	3.4.2014
U San Aung	U Khin Maung	17.5.2015
U Khin Maung	U Win Naing	28.7.2015

Transfer of Park Warden

From	To	Transfer Date
U Tint Swe	U Min Maw	23.1.2012
U Min Maw	U Than Naing	9.7.2013
U Than Naing	U Hla Myo Aung	27.9.2015

Project Transfer

Serial No	Name	Designation	FD	NWCD	Joining Period		
					In	Out	Remarks
1	U Tint Swe	Project Director	x	-	16.5.2013	25.6.2013	Acting PD
2	U Soe Nyint Aung	Ranger	-	x	7.6.2013	8.1.2015	1 yr and 7 months
3	U Aye Than Htwe	Ranger	-	x	7.6.2013	8.1.2015	1 yr and 7 months
4	U Myo Aung Zin	Forester	-	x	x	10.6.013	
5	U Maung Shwe	Ranger	-	x	x	7.6.2013	
6	U Chit Saw	Ranger	-	x	x	7.6.2013	
7	U Myint Kyaw	Ranger	x	-	x	22.5.2013	
8	U Than Naing	Assistant Director	x	-	12.6.2013	x	Acting AD
9	U Than Soe	Director	x	-	23.5.2013	x	
10	U Zaw Min	Ranger	-	x	19.6.2013	8.1.2015	1 yr and 7 months
11	U Soe Win Thaing	Forester	-	x	19.6.2013	8.1.2015	1 yr and 7 months
12	U Win Htay	Forester	-	x	19.6.2013	8.1.2015	1 yr and 7 months
13	U Zaw Aung	Forester	-	x	19.6.2013	8.1.2015	1 yr and 7 months
14	U Aung Myat Tun	Ranger	x	-	17.6.2013	x	
15	U Nyint Swe	Ranger	-	x	x	17.6.2013	
16	U Maung Shwe	Ranger	-	x	-	7.6.2013	
17	U Chit Saw	Ranger	-	x	x	7.6.2013	
18	U Kyaw Lin	Ranger	-	x	x	9.6.2013	
19	U Zaw Min Naing	Forester	-	x	x	9.6.2013	
20	U Thit Naing Aye		-	x	x	9.6.2013	
21	U Zaw Aung	Forester	-	x	19.6.2013	x	
22	U Moe Win Maung	Accountant	x	-	21.6.2013	x	
23	U Tun Nwe	Accountant(2)	x	-	x	21.6.2013	
24	U Win Maw(2)	Deputy Director	x	-	25.6.2013	20.3.2014	Promoted

Project Transfer

25	Daw Thet Myat Yadana Aye	Range Officer	x	-	23.6.2013	x	
26	U San Aung	Deputy Director	x	-	20.3.2014	x	
27	Daw Myint Myint Khin	Accountant(3)	x	-	x	8.1.2015	
28	U Myo Min Latt	Staff Officer	x	-	8.1.2015	x	
29	U Wai Yan Phyoe	Range Officer	-	x	8.1.2015	x	
30	U Sein Moe	Staff Officer	x	-	x	8.1.2015	
31	U Thein Htay	Range Officer	-	x	x	8.1.2015	
32	U Win Ngwe	Ranger	-	x	8.1.2015	x	
33	U Aung Soe Than	Ranger	-	x	8.1.2015	x	
34	U Hlaing Myo Tun	Ranger	-	x	8.1.2015	x	
35	U Zaw Myo Naing	Ranger	-	x	8.1.2015	x	
36	U Maung Maung Hlaing	Forester	-	x	8.1.2015	x	

Appendix VII: LIST OF ATTENDEES FOR CF WORKSHOP

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်
ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးနှင့် သစ်တောရေးရာဝန်ကြီးဌာန
သစ်တောဦးစီးဌာန
တနင်္သာရီသဘာဝကြီးပိုင်းစီမံကိန်း
ဥယျာဉ်အုပ်ချုပ်ရေးမှူးရုံး
ဂန့်ဂေါ်တောင်ကျေးရွာ၊ ရေဖြူမြို့နယ်၊ တနင်္သာရီတိုင်းဒေသကြီး



MGTC







Andaman Transportation Limited

CF အဖွဲ့ဝင်များနှင့် တွေ့ဆုံဆွေးနွေးပွဲသို့ တက်ရောက်သူများစာရင်း

ရက်စွဲ- ၄.၁၂.၂၀၁၅

စဉ်	အမည်	ကျေးရွာ	လက်မှတ်
၁။	ဦးစောဂလက်	ရင်းမာဒွယ်	
၂။	" စောလှလယ်	"	
၃။	" စောကြည်ဝင်း	"	
၄။	" ဦးမောင်မောင် ကောင်ကုလုံ	ကျောက်ဌာပ	
၅။	" စောမင်းသား	မိကျောင်းကျေး	
၆။	" ကျွန်းဝင်း	သက်တယ်ကွက်	
၇။	" ဦးဝေ	"	
၈။	ဦးဝင်းဇော်	ရင်းမာဒွယ် (၃)	
၉။	" ကောင်ဦးဦး	ကျေးမိုး	
၁၀။	" အာကာလင်း	"	
၁၁။	" ညွန့်ဇော်	ကျောက်ဌာပ	

စဉ်	အမည်	ရာထူး	လက်မှတ်
၁၂။	ဦးဝင်းဦး	သာယာမြင့်	ဦးဝင်းဦး
၁၃။	ဦးတာဝေ	"	ကျေးဇူး
၁၄။	ဦးသန်းထွန်းစော	ဒေါ်အေးမြင့်(၃)	
၁၅။	ဦးစိုးထွန်း	ရာထူး	
၁၆။	မအိဗျာဝဇ္ဇာ	ဒုတိယဦးစီး	
၁၇။	ဒေါ်စောပိုင်	"	ဒေါ်စောပိုင်
၁၈။	ဦးတင့်ခိုင်	"	
၁၉။			
၂၀။			
၂၁။			
၂၂။			
၂၃။			
၂၄။			
၂၅။			
၂၆။			
၂၇။			