

Training Course Report on Ecological Mangrove Restoration (EMR)

December 12-13th, 2009

Ban Thalae Nork, Ranong, Thailand

Krabi Town, Krabi, Thailand

Bang Lang Da, Krabi, Thailand

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&

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Background:

Starting in 2007 Mangrove Action Project-MAP's regional office in Thailand initiated two community-based mangrove restoration projects that utilized The 6 step Ecological Mangrove Restoration (EMR) process. The projects are located along the Andaman Coast in the coastal villages of Ban Talae Nok in Ranong, MAP's project funded by BMZ-IUCN and Bang Lang Da in Krabi, Wetland International's project funded by APFED. The shared objective of each project is to convert and restore abandoned shrimp aquaculture sites back into a healthy functioning mangrove coastal ecosystem while providing possible sustainable livelihood options for the surrounding communities.

The 6 step EMR process was developed by members of MAP and Robin Lewis in April 2006 as a response to failing mangrove restoration techniques being applied around the globe. The EMR program differs from prior restoration protocols as it heavily relies on the participation of local communities. This involvement can be a determining factor of the success of the project thus playing a large role throughout the program's implementation.

Throughout the implementation of the EMR process MAP has sought information from participating stakeholders in fine-tuning the EMR's effectiveness. Likewise, it is important that a clear understanding of the goals and prospective outcomes of the EMR projects are shared between facilitators and participants. Therefore, MAP felt it necessary to create an EMR training whereby inviting those who are both involved and interested in current and future EMR projects.

The training took place over two days within two locations (Ban Tale Nok and Krabi Town). It involved field trips to both MAP-Asia EMR project sites where participants were presented with discussions regarding issues faced by each. The training involved a mixture of presentations, learning exercises, and Q&A sessions. The final session involved an in-depth review and reflection discussion on the EMR process and overall training (*Please see the training process in Annex 1*).

There were 15 participants (*listed in Annex 2*), including community members from Ban Tale Nok, Ranong, Ban Tung Rak, Ban Chi Mi, 6 MAP staff and facilitators and 5 Journalists from University of Bristish Columbia, Canada. The course was developed by MAP with funding support by Federal Ministry for Economic Cooperation and Development (BMZ) and IUCN.

Day 1

Introductions & Group Exercise (9:25 AM):

The training began with the facilitators introducing themselves and quickly discussing the logistical nature of the overall training (i.e. when and where what would happen). This was followed by a group exercise that involved the introduction and discussion of each participant by village. Each group (Chi Mi Village, Tung Rak Village and Tale Nok Village) filled out a flip chart addressing the following items:

- Village Name
- Map of nearby mangroves
- Resources they utilize
- Restoration they have done
- Result from their efforts
- What factors influenced the result

Result:

All three villages mentioned the current result of each restoration project involving a noticeable increase in both vertebrates and invertebrates. Chi Mi team have noticed an increase in animals however is facing an debilitating plant species which restricts mangrove growth. Tung Rak has discovered a sizable difference in oyster and clam populations due to their conservation efforts. Villagers are able to collect these species as well which has posed a problem due to their potential destructive practices. Tale Nok village discussed a mixture of problems related to land tenure issues and lack of village involvement.

Training Objectives (10:15 am):

The facilitator explained the following objectives to the groups:

- Communicate clearly the technique of Ecological Mangrove Restoration (a technique for restoring mangroves)
- Explain why we feel it works
- Get your feedback from the discussion: (do you think you could use it? And what problems/limitations do you expect?)
- Get your feedback from the work at Bang Lang Da and Ban Tale Nok EMR sites.

EMR Explanation Activity 1 (10:20 am):

(Please see Annex 3 for EMR 6-Step Process)

The first activity involved 6 people who represented individual mangrove seedlings. An additional person from the group was asked to plant them in the rows customary to traditional restoration projects. Another group of people were then taken and placed in a random position that would represent seedlings of a natural environment. After the placement was complete the group discussed the advantages of each arrangement. They then discussed how they might be able to combine each method in order to utilize the benefits of each process. Several ecological principles related to the benefit of planting in the correct ecozone were also discussed. The participants provided a great amount of information on why it is important to have the mangroves in a healthy but manageable arrangement with regards to the trees use for livelihood options.

(Please see annex 4 for more information related to this activity)

(10:55 AM Coffee Break)

EMR Explanation Activity 2 (11:10 AM)

The second EMR exercise involved the discussion of the Ban Tale Nok (BTN) restoration project and its comparison to the EMR 6-step process. A participant directly involved with the BTN project first explained what they had accomplished. After the presentation the large group proceeded to match the BTN project to the official EMR steps with the use of signs that contained each step. After the group placed the signs in order they compared the differences between the EMR 6 step process and the BTN project. They found that there was a need for increased conflict resolution when acquiring the restoration site. A major similarity between the two was the use of hydrological corrections as well as the involvement of the community.

(Please see annex 5 for more information related to this activity)

EMR Discussion by Jim Enright (MAP-Asia Coordinator) (11:40 AM):

Following the participant's discussion, Jim added key points in wrapping up some the EMR introduction. It was presented that the role each step plays is largely dependant on the needs of each site. Though it is imperative that the first step be solved before moving on to the next. Additionally, each village will utilize each step in a different way (e.g. BTN had large hydrology needs where others may not). Jim also discussed how monitoring of the planted mangroves usually takes about a year, however the livelihood needs of BTN made it such that *Nypa* was planted at a faster rate. It is, however, paramount that emphasis be placed on monitoring of the process in order to gauge the success of the project and make corrections and improvements/adjustments where needed. Finally, it is very important to address the initial problem that the mangroves are plagued by in increasing the chances of project success.

Field Trip to BTN Restoration Site (1:00 PM)

The participants were led to the BTN restoration site. The trip was used as a tool in providing a visual representation of the methods and discussions that occurred earlier that morning. A question and answer session occurred discussing the steps taken in the project. Dominic Wodehouse provided the group with a lesson on how to use a salinity meter. At the end of the site visit, participants planted nypa palm while sharing planting techniques.

Day 2

Importance of 6-Step Process Presentation by Jim Enright (9:00 AM)

Jim discussed the importance of the 6-step EMR process by giving examples from case studies of failed and successful mangrove restoration projects around the world. He explained that it had been discovered that problems arise when local knowledge was not utilized in the project planning and development process. The participants also reacted to pictures showing the failure of mangrove species survival rates. They talked about what problems were faced and what should have happened, thus reinforcing their understanding of proper restoration techniques.

Introduction to the Bang Lang Da (BLD) EMR Site By Dominic Wodehouse (10:00 AM):

Dominic presented the project at BLD and how it was carried out. He discussed how the EMR steps were followed and implemented on site. The participants asked several questions related to the site as well as the outcome. They were interested in understanding what species were coming back as a result of the restoration. They also wanted to know about the specific techniques used in digging the channels and building the small hills. The discussion highlighted the importance of technique behind the EMR process.

(Lunch with villagers at BLD 11:30 AM)

Field Trip to BLD EMR Site (12:00 AM):

Dominic, MAP and BLD village elders introduced the participants to the BLD EMR site. Challenges and successes were discussed to the participants. Some groups were taken around the entire pond while others discussed the needs that should be addressed.

After the initial on-site discussion, participants assembled in the Sala shelter where they discussed the crab rearing activities at BLD, EMR Manual Review

and conducted the final evaluation of the training. They learned about how and why the crab activities had been developed at BLD. Information was also shared as to how much the BLD community is collecting off of the sales of mud crabs.

Due to the EMR manual being written in English it was important to get feedback from individuals who hail from a non-technical background as to how useful the translated Thai EMR manual is. Therefore, the group was split up and chapters from the manual were assigned to each person. They reviewed the chapters and held a discussion on what could be simplified, improved and clarified. There was specific focus on simplifying the technical terms of chapter 3. Additionally, the group discussed the need for clarification in the names of the variety of specific mangrove species so that everyone understands what is being discussed.

Lastly, the participants discussed and evaluated the EMR training. They were given three questions with each question being placed on one page of a flip chart. Everyone was placed into three groups (mixed-village). Each group would work on answering one of the three questions for 10 minutes and then the groups would rotate.

(Please see annex 6 to read more about the individual questions and collective answers.)

Annex 1 Training Process

EMR training session plan

12-13 December 2009 at Ban Tale Nok, Ranong and Ban Lang Da, Krabi

Time	Session	Process	Facilitator/ Res. Person	Materials & Equipment
12 December 2009 Ban Tale Nok School				
9-9.30	<ul style="list-style-type: none"> - Welcome participants - Objectives of the training - Training agenda/programme - Getting to know each other - Expectation (want to learn & gain more knowledge and techniques, share ideas&experience, networking etc.) 	<p>Explain 4 obj.</p> <ol style="list-style-type: none"> 1. Communicate clearly the technique of Ecological Mangrove Restoration (a technique for restoring mangroves) 2. Explain why we feel it works 3. Get your feedback from the discussion: (do you think you could use it? And What problems/limitations do you expect?) 4. Get your feedback from the work at BTN and BLD <ul style="list-style-type: none"> - Present the agenda on flip chart - Ask participants to answer 3 questions: "Name?", and "village/ organization?" and "what is the role in mangrove restoration?" - Ask participants "what is your expectation related to mangrove restoration joining 2 days training?"/ write in post it and stick on flip chart - summary group expectation and adjust expectation 	Ning	<ul style="list-style-type: none"> - Flip chart - Color paper card
9:30-10	<p>Concept of EMR (What is EMR? What is Objectives? Why EMR?)</p>	<ul style="list-style-type: none"> - Divide participants into small groups (BTN 2 groups, Tungrak, DMCR, Gapure) - Asked each group to discuss and write on flip chart on 3 questions (15 mins): <ol style="list-style-type: none"> 1) Why restore mangrove? 2) What were you hoping to achieve? 3) Did your mangrove restoration projects meet your objectives? What happen? And 	Ju	<p>Flip chart/ markers</p>

Time	Session	Process	Facilitator/ Res. Person	Materials & Equipment
10-10:45		<p>Why? (result good and bad)</p> <ul style="list-style-type: none"> - Ask each group stick flip chart on the wall and walk around (information market) - Flip chart presentation "What is the EMR" and What is Restoration, Rehabilitation and Re-Generation. - Flip chart presentation of our "EMR objectives" (try to link to the group work result on flip chart). There are 5 obj: <ol style="list-style-type: none"> 1. Community buy-in 2. Sufficient agreement concerning land control 3. Full <i>ecosystem</i> restoration... 4. Perhaps tailored to the needs of the community (eg Nypa palm) 5. Including restoring the flow of water around the site <p>Flip chart presentation "Why EMR"</p>	Ning and Dom or Jim	Flip chart or PPP
10:45-11	Coffee Break			
11-11:45	Introduction of 6 Step	<p>Presentation 6 Step and plenary discussion. There are (we can present very briefly and discuss in details in Krabi):</p> <ol style="list-style-type: none"> 1. Select appropriate restoration site and resolve any land 2. Select appropriate tenure issues 3. Understand the unique ecology of each mangrove species found in the area 4. Understand the normal hydrologic patterns 5. Determine if there has been changes to the normal hydrology that prevents or inhibits natural secondary succession 6. If the hydrology has been disturbed, first restore to normal hydrology and allow natural mangrove regeneration 7. Only utilize planting if natural recruitment is not successful 	Ju&Jim	
11:45-12:30	Case Study on Ban Tale Nok EMR	<p>Presentation and plenary discussion. There are:</p> <ol style="list-style-type: none"> 1. Background. BMZ etc 2. Talk talk 3. Land tenure 4. Nypa and the local environment 5. Survey 6. Channel opening 7. Re-grading work 	Ning&Jim	

Time	Session	Process	Facilitator/ Res. Person	Materials & Equipment
		8. Channel digging		
12:30-13:30	Lunch Break			
13:30-14:30	Visit the site	- Inform everyone meet at the EMR site	Jim and Dom	
14:45-15	Getting ready			
15-19	Travel to Krabi			
19:30	Dinner in Krabi			
8:30-9:30	6 Steps and Importance of EMR	<ul style="list-style-type: none"> - PP presentation (add more detail) - Plenary discussion on What's important about a full ecosystem and biodiversity? Group ideas on the flip chart 	<ul style="list-style-type: none"> - Ju & Jim - Ning 	Projector
9:30-10 (Coffee during session)	Ban Lang Da (BLD) EMR	PP-Presentation of Ban Lang Da EMR case study	Ning & Dom	Projector
10-12:30	BLD site visit	Walk and talk		
12:30-13:30	Lunch, check out			
13:30-15:00	Wrap up and discussions Training Evaluation	<ul style="list-style-type: none"> - Plenary discussion on "Lots of planting programme fails, why?" - Ask participants to give some feed and comments about EMR manual (assigned to read on the 12th) What need to be improved or add more details for EMR 6 Step in Thai? - Evaluation form 	Ju and Ning	Flip chart
15-19	Travel to Ranong and Kuraburi	Back to BTN, Kuraburi, Tuntrak and Gapure	P' Tui	

Annex 2 Participant and facilitator list:

**List of participants on Ecological Mangrove Restoration (EMR) training course
12-13 December 2009 At Ban Tale Nok School**

รายชื่อผู้เข้าร่วมฝึกอบรม เรื่อง 6 ขั้นตอนการฟื้นฟูระบบนิเวศป่าชายเลน
ระหว่างวันที่ 12-13 เดือนธันวาคม 2552

EMR- Training at Ban Tale Nok จังหวัดชลบุรี วันที่ 12 ธันวาคม 2552

ลำดับที่	ชื่อ - สกุล	ที่อยู่ปัจจุบัน	เบอร์โทรศัพท์
1	ร.ศ. ศิวา ลาสมาน	210 หมู่ 1 ตำบลพน อ.ท่าเรือ	069434220
2	นาง อธิภา อธิภา	13/2 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	083-774749
3	ร.ศ. ศิวา ลาสมาน	19/4 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	087-3619413
4	นาย อธิภา อธิภา	12 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	0669450035
5	นาย อธิภา อธิภา	210 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	-
6	นาย อธิภา อธิภา	13/4 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	0836496463
7	นาย อธิภา อธิภา	14/2 หมู่ 1 ต.ท่าโพธิ์ อ.	0873831340
8	นาย อธิภา อธิภา	65 หมู่ 1 ต.ท่าโพธิ์ อ.	081-0271822
9	นาย อธิภา อธิภา	62/322 อ.ท่าโพธิ์	-
10	นาย อธิภา อธิภา	1/1 หมู่ 1 ต.ท่าโพธิ์	-
11	นาย อธิภา อธิภา	9/2 หมู่ 1 ต.ท่าโพธิ์	-
12	นาย อธิภา อธิภา	15 หมู่ 1 ต.ท่าโพธิ์	0816914874
13	นาย อธิภา อธิภา	10/1 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	0869700201
14	นาย อธิภา อธิภา	9/9 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	-
15	นาย อธิภา อธิภา	9/9 หมู่ 1 ต.ท่าโพธิ์ อ.ท่าเรือ	0874246820
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24	Weena Namcharoensombat	weena@gmail.com	085-917476
25	Jai Thanyong Chomphusri	Arthman.Discernus	086-9091519
26			
27			
28			
29			
30			
31			

Facilitators

No	Name	Organisation	Role
1	Weena Namcharoensombat	MAP-consultant	Facilitator
2	Jaruwan Kaewmahanin	MAP staff	Co-Facilitator
3	Thamrong Chompusri	Andaman Discoveries	Translator and logistic
4	Jim Enright	MAP staff	Resource person
5	Dominic Woodhouse	Wetlands Int.	Resource person
6	Stephen Brooks	MAP-volunteer	Documenter

Annex 3:

EMR 6-Step Process

1	Select appropriate restoration site and resolve any land tenure disputes.
2	Understand the unique ecology of each mangrove species found in the area.
3	Determine if there has been changes to normal hydrology that prevents or inhibits natural secondary succession.
4	Understand the normal hydrology patterns.
5	If the hydrology has been disturbed, then first restore to natural hydrology and allow natural mangrove regeneration.
6	Only utilize planting if natural recruitment is not successful.

Annex 4:

Advantages of Natural and Row Planting Methods (from flip chart):

Seedlings Planted in Rows	Seedlings Planted Naturally
Beautiful rows	Variety of Nature
Able to plan and survey the area before planting	Helps hold mud in bank
Beneficial to villagers	Necessary for marine life
Easy to access by Boat	Species choose appropriate places to live
Able to choose the correct plants	100% survival
The forest and people help each other	All plants have their own function

Annex 5:

Comparisons between BTN and 6-Step EMR Process (from flip chart)

What is Similar?	What is Different?
Survey Area First	Dig to improve hydrology
Plant Mangrove	No need to meet often
Group Participation	No need to ask permission
	We can plant anything in large area
	No conflict in village
Suggestions for EMR Site	Success or Not Depends On
Have to be shrimp farm	Site
Have to know how to plant it	Seedling

Seedlings need to be suitable to plant	Soil
	Hydrology

Annex 6:

EMR Evaluation:

1. What do you like the most from the training?

<u>1</u>	Sharing knowledge and experience about the mangroves
<u>2</u>	The discussion of the natural forest vs. the planted forest and the exercises involved
<u>3</u>	Demonstration site field trips
<u>4</u>	Hospitality of the staff and facilitators
<u>5</u>	Ordering 6-step exercise
<u>6</u>	Variety of venue for workshop
<u>7</u>	Impressed by the food and accommodation
<u>8</u>	Learning about different forms of EMR

2. What part of the content was useful and what should be improved?

<u>1</u>	Liked the comparisons of mangrove ecology since each system is different
<u>2</u>	Liked the guidelines of the six step process because it makes it easier for them to plan while knowing where they are in the process
<u>3</u>	Liked both case studies because it is new knowledge to do restoration in shrimp ponds vs natural areas
<u>4</u>	Liked to see the examples of countries mistakes since it makes them understand that this is a worldwide problem
<u>5</u>	Disliked the length of the second days presentations

3. What suggestions do they have for next EMR training?

<u>1</u>	EMR demo site should have representation of different species growing at different depths
<u>2</u>	Time for training should be 2 nights and three days; and should have more participants by host villages
<u>3</u>	There is need for a greater variety of villages from different backgrounds and government offices (10-20 people)
<u>4</u>	Training should be in rainy season

Annex 7 Photos:



Training session: EMR concept, at Ban Tale Nok School



Training session: Case study on EMR from BTN and Ban Lang Da



Journalist team from University of British Columbia, Canada joined the field trip



Visit a field site at Ban Lang Da, Krabi



Evaluation and comments&feedback on EMR manual in Thai