



The Republic of the Union of Myanmar
Ministry of Natural Resources and Environmental Conservation
Forest Department



**“Enhancing Conservation and Sustainable Management of Teak Forests and
Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region”
(PP-A/54-331)**

“Training on Clonal Propagation Techniques by Teak”



Completion Report

October, 2020

Table of Contents

| | |
|---|---|
| 1. Introduction | 1 |
| 2. Objectives of the training | 1 |
| 3. Permission | 1 |
| 4. Duration of the training | 1 |
| 5. Level of the trainees | 1 |
| 6. List of the trainees | 1 |
| 7. Venue of the training | 1 |
| 8. Opening session of the training | 2 |
| 9. Lists of subjects | 2 |
| 10. Schedule of the training | 2 |
| 11. Type of the training | 2 |
| 12. Logistic arrangements | 3 |
| 13. Closing session of the training | 3 |
| 14. Reviews on the training | 3 |
| 15. Conclusion..... | 4 |
| Appendix (1)..... | 5 |
| Appendix (2)..... | 6 |
| Appendix (3)..... | 7 |
| Appendix (4)..... | 8 |
| Appendix (5)..... | 9 |

“Training on Clonal Propagation Techniques by Teak under FD-ITTO Teak Project in Mekong”

Completion Report

1. Introduction

The project titled “**Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region**” (PP-A/54-331), Myanmar Component is being implemented by the Forest Department and the ITTO with three year plan. In accordance with the activity 2.1 to promote conservation and sustainable management of teak forest and to support local communities and Forest Department’s staffs through establishment of demonstration plots and field trainings, the training course on **Clonal propagation techniques by Teak** in tree improvement was organized from 27 to 31 August, 2020 at Forest Research Institute, Yezin and Forest Research Station No. (5) Moeswe, Oattarathiri Township in Nay Pyi Taw.

2. Objectives of the training

This training was organized as the following objectives;

- (1) To practice the plus trees selection and vegetative propagation by grafting, budding and shoot cutting of teak (*Tectona grandis* L.f.)
- (2) To establish teak clonal seed orchard and initiate activities for the teak genetic resources conservation
- (3) To strengthen the capacity building of Forest Rangers and Local people for teak tree improvement program

3. Permission

According to the permission of Ministry of Natural Resources and Environmental Conservation, Union Minister Office’s letter No. (Forest)4(2)/27(A)(3)/(1571/2020), dated July 28, 2020, the training was organized in Appendix (1).

4. Duration of the training

The duration was 27 to 31 July, 2020.

5. Level of the trainees

Forest Rangers from Forest Research Institute, Forest Department and Community Forest User Groups by local communities residing in the villages near the study area of the project site were invited to attend at the training.

6. List of the trainees

The total number of trainees attended at the training was 20 and detail list of the trainees was shown in Appendix (2).

7. Venue of the training

The training was held at the Forest Research Institute, Forest Department in Nay Pyi Taw and Forest Research Station No. (5) Moeswe, Oaktarathiri Township, Nay Pyi Taw.

8. Opening session of the training

The opening session of the training was started at 8:00 am on July 27, 2020. In the opening session, U Aung Thu-1 (Director, Forest Research Institute) delivered the opening speech by mentioning the history of the current project, which is an important research activity for the teak genetic resources conservation and utilization in Myanmar. Deputy Directors, Senior Officers and Researchers from Forest Research Institute, trainees and project office staffs attended to the opening session of the training. The agenda of the opening session of the training is shown in Appendix (3).

9. Lists of subjects

The list of trainers and their respective subjects which lectured at the training are listed as follows;

| No. | Subjects | Trainers |
|-----|--|--|
| 1. | Introduction to tree improvement programme | U Aung Thu-1, Director, Forest Research Institute |
| 2. | Application of genetic knowledge for conservation of teak genetic resource | U Aung Zaw Moe, Research Officer, Forest Research Institute |
| 3. | Plus Tree Selection | U Aung Zaw Moe, Research Officer, Forest Research Institute |
| 4. | Establishment of Teak Clonal Seed Orchard | Dr. Mu Mu Aung, Research officer, Forest Research Institute |
| 5. | Clonal propagation techniques by Teak | Daw Tin Tin Mu, Assistant Research officer, Forest Research Institute |
| 6. | Soil improvement & Fertilizer application | Daw Swe Swe Htun, Assistant Research officer, Forest Research Institute |
| 7. | Pest management | Daw Khin Mar Myint, Assistant Research officer, Forest Research Institute |
| 8. | Practical demonstration and field work | U Aung Zaw Moe, Dr. Mu Mu Aung, Daw Tin Tin Mu and Daw Phyu Phyu Hnin, Forest Research Institute |

10. Schedule of the training

The schedule of the training is attached as Appendix (4).

11. Type of the training

In the training, trainers presented their lectures with power-point and applied genetic conservation approaches in order to get inclusively active participation from all trainees and well understanding on the subjects. During the training, lecture, group discussions, practical work and field visit to Forest Research Station No. (5) Moeswe were used as practical work by clonal propagation methods.

12. Logistic arrangements

The logistic arrangements of the whole training were sponsored by FD-ITTO Teak Project in Mekong such as;

- (a) Lecture notes for different subjects were prepared by respective lecturers and then, distribution of hardcopy to the trainees
- (b) Venue of the training, preparation of the training, accommodation, fuel and travels for both trainers and trainees
- (c) Collaboration with Forest Research Institute for invitation, communication, meal, preparation of training venue and accommodation of the trainees

13. Closing session of the training

The closing session of the training was held at 4:00 pm on July 31, 2020. In the closing session, U Ngwe Thee (Deputy Director, Forest Research Institute) delivered the closing remarks for the training and gave the training certificates to all trainees. Recorded photos for the whole training are shown in Appendix (5).

14. Reviews on the training

The training was successfully and effectively held within 5 days, and almost all trainees agreed the duration of the training and satisfied the training curriculum because they were very useful with their clonal forestry tasks. However, if the project supports a little higher than allocated budget for the training, we would like to extend the duration of the training in order to spend more time especially on the field visit and more details lectures and practical works on respective subjects. In fact, all lectures presented in the training would be very beneficial and useful for the trainees in the ways of supporting for tree improvement program such as establishment of Hedge Garden, Clonal Seed Orchard because they could apply their knowledge and experience gained from the training in their field after the training.

- a) U Aung Thu-1 (Director, FRI) gave the lecture on “Introduction to tree improvement programme” which is the important part of the course and to learn for the clonal forestry programme. It provides a known source of seed, seedlings or propagules for establishment of seed orchards and hedge garden. Tree improvement programs, aimed at genetic improvement at the population level, require large amounts of land, highly skilled labor and annual expenditure on a long timeframe. In the short term, forest managers are rewarded with a reliable supply of seed from a known source.
- b) U Aung Zaw Moe (Research Officer, FRI) lectured on “Application of genetic knowledge for conservation of teak genetic resource” and “Selection of plus tree”. Teak in Myanmar still has a high level of genetic diversity. Therefore, in situ and ex situ conservation should be effectively implemented to maintain these genetic resources. In which the selection of plus trees, establishing a teak orchard, producing good quality seedlings and, forest tree breeding were discussed.
- c) Dr. Mu Mu Aung (Research Officer, FRI) gave the lecture on “Clonal seed orchard and nursery techniques in teak”. The botanical characteristics and behavior of teak,

seed conservation techniques, vegetative propagation, and the systematic procedures for seed collecting, processing, storage and germination by teak and other commercial species in Myanmar were discussed.

- d) Daw Tin Tin Mu (Research Assistant, FRI) gave the lecture on “Clonal propagation techniques by teak such as shoot cutting, grafting in which the objectives of vegetative propagation, its procedures, advantages and disadvantages were discussed.
- e) Daw Swe Swe Tun (Research Assistant, FRI) gave the lecture on “Soil improvement & Fertilizer application”. Soil profile, forest soil types in Myanmar, types of soil erosion and drivers and, biological and engineering soil conservation measures were discussed.
- f) Daw Khin Mar Myint (Research Assistant, FRI) lectured on “Management of pests and diseases in teak” in which identification of insects, symptoms and control measures were discussed.

15. Conclusion

Myanmar now encounters the challenging task to restore its degraded forests, preserve its genetic resources especially of teak, and enhance the existing natural stock of teak not only by assisted natural means, but also artificial innovations.

In this training, it is one of the project activities, Training on Clonal propagation techniques by teak which is the first and very important step toward tree improvement programme, trained Myanmar Foresters and local community, some as they are, and others with some more practice, can undertake tree improvement steps in the initial stage.



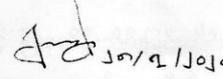
ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာန
ပြည်ထောင်စုဝန်ကြီးရုံး

စာအမှတ်၊(သစ်တော)၄(၂)/၂၇(က)(၃)/(၁၅၇၁ /၂၀၂၀)
ရက်စွဲ၊ ၂၀၂၀ ပြည့်နှစ်၊ ဇူလိုင်လ ၂၈ ရက်

အကြောင်းအရာ။ မဲခေါင်ဒေသနိုင်ငံများအတွင်းရှိ ကျွန်းပေါက်ရောက်နေသော သစ်တော
များအား ထိန်းသိမ်းကာကွယ်ခြင်း၊ ထာဝစဉ်တည်တံ့စေရန် စီမံအုပ်ချုပ်ခြင်း
နှင့်တရားဝင်သစ်ထောက်ပံ့မှုကွင်းဆက် ရေရှည်တည်တံ့မှုဖြင့်တင်ရေးစီမံကိန်း
၏ သင်တန်းကျင်းပခွင့်ပြုပါရန်ကိစ္စ

ရည်ညွှန်းချက်။ သစ်တောဦးစီးဌာန၏ ၂၃-၇-၂၀၂၀ ရက်စွဲပါ စာအမှတ်၊ သစ်သု/ ITTO
(မဲခေါင်) / ၃၀၇၂- ၇၃/ ၂၀၂၀

သစ်တောဦးစီးဌာနနှင့် ITTO အဖွဲ့အစည်းတို့ပူးပေါင်း၍ “မဲခေါင်ဒေသနိုင်ငံများအတွင်းရှိ
ကျွန်းပေါက်ရောက်နေသော သစ်တောများအား ထိန်းသိမ်းကာကွယ်ခြင်း၊ ထာဝစဉ်တည်တံ့စေရန်
စီမံအုပ်ချုပ်ခြင်းနှင့် တရားဝင်သစ်ထောက်ပံ့မှုကွင်းဆက် ရေရှည်တည်တံ့မှုဖြင့်တင်ရေးစီမံကိန်း”
၏လုပ်ငန်းစဉ်တစ်ရပ်ဖြစ်သည့် ကျွန်းမျိုးသန့်ဥယျာဉ်တည်ထောင်ခြင်းနှင့် ပြုစုထိန်းသိမ်းခြင်းဆိုင်ရာ
နည်းပညာအထောက်အကူပြုသင်တန်းကို ၂၀၂၀ ပြည့်နှစ်၊ ဇူလိုင်လ ၂၇ ရက်နေ့မှ ၃၁ ရက်နေ့
အထိ နေပြည်တော်၊ သစ်တောသုတေသနဌာန၊ ရေဆင်းနှင့် သုတေသနစခန်းအမှတ် (၅) မိုးဆွေ
တို့၌ကျင်းပခွင့်ပြုပါရန် ရည်ညွှန်းပါစာဖြင့် တင်ပြလာခြင်းအပေါ် ပြည်ထောင်စုဝန်ကြီးက “MOHS
Guideline နှင့်အညီဆောင်ရွက်ရန်” ဟုမိန့်မှတ်ချက်ပြုထားရှိပါသဖြင့် လုပ်ထုံးလုပ်နည်းနှင့်အညီ
ဆက်လက်ဆောင်ရွက်နိုင်ပါရန် အကြောင်းကြားအပ်ပါသည်။


ပြည်ထောင်စုဝန်ကြီး(ကိုယ်စား)
(စုကလျာထွန်း၊ လက်ထောက်အတွင်းဝန်)

ညွှန်ကြားရေးမှူးချုပ်
သစ်တောဦးစီးဌာန
မိတ္ထီကို
အမှုတွဲချုပ်
မျောစာတွဲ
ရုံးလက်ခံ

Appendix (2)

“List of trainees”

| No. | Name | Position | Address |
|-----|-------------------|---------------|-------------------------------|
| 1 | U Zaw Naing Linn | Forest Ranger | Forest Research Institute, FD |
| 2 | U Zay Yar Myo Lat | Forest Ranger | Forest Research Institute, FD |
| 3 | U Myint Zaw | Forest Ranger | Forest Research Institute, FD |
| 4 | U Thiha Zaw | Forest Ranger | Forest Research Institute, FD |
| 5 | U Tin Htun oo | Forest Ranger | Forest Research Institute, FD |
| 6 | U Zay Yar Aung | Forest Ranger | Forest Research Institute, FD |
| 7 | U Win Htun Aung | Forest Ranger | Forest Research Institute, FD |
| 8 | U Myo Min Zaw | Forest Ranger | Forest Research Institute, FD |
| 9 | U Arka Soe | Forest Ranger | Forest Research Institute, FD |
| 10 | U Wai Yan Kyaw | Forest Ranger | Forest Research Institute, FD |
| 11 | U Khine Zaw linn | Forest Ranger | Forest Research Institute, FD |
| 12 | U Zin Ko Ko Min | Forest Ranger | Forest Research Institute, FD |
| 13 | U Aung Pyae Phyo | Forest Ranger | Forest Research Institute, FD |
| 14 | U Aung Naing Win | Forest Ranger | Forest Research Institute, FD |
| 15 | U Phyo Wai Yan | Local People | Moeswe village, Nay Pyi Taw |
| 16 | U Saw Aung Win | Local People | Moeswe village, Nay Pyi Taw |
| 17 | U Aung Thu Myint | Local People | Moeswe village, Nay Pyi Taw |
| 18 | U Kyaw Thet Paing | Local People | Moeswe village, Nay Pyi Taw |
| 19 | U Myo Zaw Oo | Local People | Moeswe village, Nay Pyi Taw |
| 20 | U Soe Soe Tint | Local People | Moeswe village, Nay Pyi Taw |

Appendix (3)

“Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region”

“Training on Clonal Propagation Techniques by Teak”

Agenda of the Opening Session

Venue - Auditorium, Forest Research Institute

Time - 8:00 am to 9:00 am

Date - 27 July, 2020 (Monday)

| No | Time | Agenda |
|----|--------------------|--|
| 1 | 8:00 am to 8:30 am | 1. Opening announcement of the ceremony 2. Opening speech by U Aung Thu, Director, Forest Research institute 3. Closing of the opening ceremony 4. Group photo section 5. Refreshment |

“Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region”

“Training on Clonal Propagation Techniques by Teak”

Training Schedule (27 - 31 March, 2019)

| Date / Time | 8:00 to 8:30 | 9:00 to 9:50 | 10:00 to 11:50 | 12:00 to 13:00 | 13:00 to 13:50 | 14:00 to 14:30 | 14:30 to 15:00 | 15:00 to 16:30 |
|--------------------|---|---|---|-----------------------|--|--|-----------------------|--|
| 27.7.2020 / | Opening Ceremony of the training Delievered by (U Aung Thu) | Introduction to tree improvement programme (U Aung Thu) | Application of genetic knowledge for conservation of teak genetic resource (U Aung Zaw Moe) | Lunch break | Plus Tree Selection (U Aung Zaw Moe) | Clonal seed orchard (Dr. Mu Mu Aung) | Tea break | Clonal propagation techniques by teak (Dr. Mu Mu Aung) |
| 28.7.2020 | Practical demonstration and field work (Plus Tree Selection) at Forest Research Station No. 5, Moeswe (U Aung Zaw Moe & Dr. Mu Mu Aung) | | | | Practical Work (Dr. Mu Mu Aung & Daw Phyu Phyu Hnin) | Practical Work (Dr. Mu Mu Aung & Daw Phyu Phyu Hnin) | | |
| 29.7.2020 | Practical demonstration and field work (Plus Tree Selection) at Forest Research Station No. 5, Moeswe (Dr. Mu Mu Aung & Daw Phyu Phyu Hnin) | | | | Practical Work (Daw Phyu Phyu Hnin) | Practical Work (Daw Phyu Phyu Hnin) | | |
| 30.7.2020 | Practical Work (Grafting, Budding & Shoot cutting) at FRI (Daw Tin Tin Mu & Daw Phyu Phyu Hnin) | | | | Pest Management (Daw Khin Mar Myint) | Soil & Fertilizer (lecture) (Daw Swe Swe Htun) | | |
| 31.7.2020 | Closing Ceremony of the Training (U Ngwe Thee) | | | | | | | |

Recorded Photos



Group Photo at Opening Ceremony



Lecture by U Aung Thu, Director, Forest Research Institute



Lecture by U Aung Zaw Moe, Research Officer, Forest Research Institute



Lecture by Dr. Mu Mu Aung, Research Officer, Forest Research Institute



Lecture by Daw Tin Tin Mu, Assistant Research Officer, Forest Research Institute



Lecture by Daw Khin Mar Myint, FRI



Lecture by Daw Swe Swe Htun, FRI



Practical work at Teak Hedge Garden at FRI



Practical on Plus Tree Selection Methods



Field work on selection of plus tree at Forest Research Station No. (5) Moeswe



Practical on Planting grafted teak plants



Field Work on Establishment of Teak Clonal Seed Orchard



Closing remark by U Ngwe Thee



Closing ceremony



Training Certificate to all trainees at the closing session

