



COMPLETION REPORT

PROJECT ITTO PD 646/12 REV.3 (F)

Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* spp.)
Through Plantation Development with the Local Community Participation
in North Sulawesi

Ministry of Environment and Forestry Republic of Indonesia
Manado Environment and Forestry Research and Development Institute (MFRDI)
Research Development and Innovation Agency



COMPLETION REPORT

PROJECT ITTO PD 646/12 REV.3 (F)

**Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* spp.)
Through Plantation Development with the Local Community Participation
in North Sulawesi**

Prepared for the project by:

Diah Irawati Dwi Arini, Project Coordinator

&

Dr. Hiras Sidabutar, Project Management Advisor

Implemented by:

Manado Environment and Forestry Research and Development Institute (MEFRDI)

Research Development and Innovation Agency

The Ministry of Environment and Forestry of The Republic of Indonesia

With the assistance of

The International Tropical Timber Organization (ITTO)

Manado, November 2020



Project title	: Initiating the conservation of cempaka tree species (<i>Elmerrillia</i> spp.) through plantation development with the local community participation In North Sulawesi.			
Serial number	: PD 646/12 Rev 3(F)			
Executing Agency	: The Environment and Forestry Research Development and Innovation Agency (EFORDIA) of The Ministry of Environment and Forestry of The Republic of Indonesia			
Starting date	: February 2016 – September 2020			
Duration	: 36 months (including 23 months of extension)			
Budget (USD)	: Source	Original	Revised 1	Revised 2
	ITTO	435,187.00	427,210.20	427,210.20
	GOI	128,850.00	128,850.00	128,850.00
	Total	564,037.00	556,060.20	556,060.20

Key Personel

Project Coordinator	: Dr. Kristian Mairi (February 2016 – October 2019) Diah Irawati Dwi Arini (November 2019 – Project completion)
Secretary	: Angelina Lenak (February 2016 – January 2019) Livi Debora Manese (April 2019 – Project completion)
Project Management Advisor	: Dr. Hiras Sidabutar (March 2018 – Project completion)

Published by:

Manado Environment and Forestry Research and Development Institute (Manado EFRDI),
Research Development and Innovation Agency, The Ministry of Environment and Forestry
And
International Tropical Timber Organization

Printed by : IPB Press

Manado, November 2020

Copyright ITTO Project PD 646/12 Rev.3(F)

This report is the product of the MEFRDI and ITTO; interested individuals or parties may produce or copy the report in whole or in part solely for own use by acknowledging the source, otherwise requires prior written consent of the copyright owner if used for commercial purpose.



Acknowledgement

The Project Coordinator and Project Management Unit would like to take this opportunity to express our high appreciation and gratitude to the International Tropical Timber Organization (ITTO), the Directorate General of Research, Development and Innovation Agency, members of the Project Steering Committee (PSC), for their great support and guidance during the development and implementation stages of ITTO project PD 646/12 Rev.3 (F).

Particular gratitude goes to Directors General of Research, Development and Innovation Agency, Ministry of Environment and Forestry during the periods of years 2016 – 2020, namely: Prof. Dr. San Afri Awang, Dr. Henry Bastaman and Dr. Agus Justianto for their leadership of PSC and their direction upon the overall project implementation during those years.

Also, to all the Heads of Manado Environment and Forestry Research and Development Institute (MEFRDI) during the period of year 2016 – 2020: Ir. Moh. Abidin, M.Si (2014 – 2016), Ir. Dodi Garnadi, M.Si (2016 – 2019) and Mochlis, S.Hut.T, M.P (2019 – current) for their trust, guidance, and inputs during the project implementation.

The Project Coordinator would also like to record her special appreciation and gratitude to present The Director of Forest Division of ITTO, Mr. Osamu Hashiramoto, Dr. Hiras Sidabutar, Project Management Advisor for their patience in providing guidance and advices in the implementation of the project activities and also to the ITTO Secretary Ms. Yang Ling Yun.

Special gratitude and appreciation should also go to Head of North Sulawesi Provincial Forestry Agency (NSPFA) and staff, Dr. Krisdianto and the team from the Secretariat of Research, Development and Innovation for the supports during project implementation.

The Project also expressed gratitude for the active collaboration and cooperation from the national consultants and experts, researchers, technicians and staffs of MEFRDI, Ms. Livi Debora Manese, the Secretary of Project ITTO PD 646/12 Rev.3 (F) who had contributed to project implementation in one form or another.

Project Coordinator
ITTO PD 646/12 Rev.3 (F)



Cempaka tree in Kakas, Minahasa District (Photo: R. Suryaningsih)

Table of Contents

Acknowledgement	iii
Table of Contents	v
List of Figures	vii
List of Tables	ix
List of Abbreviation	xi
Executive Summary	xiii
1. PROJECT IDENTIFICATION	1
1.1 Context.....	1
1.2 Origin and the Problem	3
2. PROJECT OBJECTIVES AND IMPLMENTATION STRATEGY	5
2.1 Project Objectives	5
2.2 Implementation Strategy	6
2.3 Assumptions and Risks.....	8
3. PROJECT PERFORMANCES	11
3.1 Planned vs Realized Performance.....	11
3.2 Time Schedule	14
3.3 Inputs Applied.....	17
4. PROJECT OUTCOMES AND INVOLVEMENT OF TARGET BENEFICIARIES	21
4.1 Achievement of the Specific Objective.....	21
4.2 Prevailing Situations at Commencement and Completion of the Project.....	29
4.3 Involvement of the Target Beneficiaries	38
4.4 Project Sustainability.....	39
5. ASSESSMENT AND ANALYSIS	41
5.1 Project Rationale and Identification Process	41
5.2 The Problem Addressed, Project Design and Implementation Strategy	42
5.3 Critical Differences between Planned and Actual Implementation.....	43
5.4 Adequacy of Project Inputs	43
5.5 External Influences.....	44

5.6 Project Beneficiaries	45
5.7 Project sustainability	45
5.8 The Institutions Involved in the Project Implementation.....	45
6. LESSONS LEARNED	47
6.1 Project Identification and Design.....	47
6.2 Project Implementation	47
7. CONCLUSIONS AND RECOMMENDATIONS	51
7.1 Conclusions	51
7.2 Recommendations	52
8. REFERENCES	53

List of Figures

Cempaka tree in Kakas, Minahasa District (Photo: R. Suryaningsih)	iv
Cempaka plantation in Kakas, Minahasa District (Photo: R. Suryaningsih).....	x
Developing cempaka plantation in North Sulawesi with the involvement local communities (Photo : A. Irawan).....	xii
Natural forest of Mahawu Mountain in Tomohon City (Photo : PMU).....	xvi
Figure 1. Cempaka stands in Bukit Doa, Tomohon (Photo: D.I.D. Arini).....	1
Figure 2. The traditional house of Minahasa ethnic (Photo: PMU)	1
Figure 3. Furniture products from cempaka wood species (Photo: PMU)	2
Figure 4. Cempaka species. A. <i>Magnolia sulawesiana</i> ; B. <i>Magnolia tsiampacca</i> ; C. <i>Magnolia vrieseana</i> . (Photo: J. Kinho)	3
Figure 5. Map of project location (by: MEFRDI).....	4
Figure 6. Cempaka plantation in community forest (Photo: MEFRDI)	5
Figure 7. Training on cempaka planting techniques to increase capacity of local community (Photo: PMU).....	6
Figure 8. Developing methodology to conduct survey on growing stock of cempaka species (Photo: PMU).....	7
Figure 9. Training on Cempaka planting techniques for local communities (Photo : PMU)	10
Figure 10. Data collection of cempaka wood consumption (Photo: R. Suryaningsih)	11
Figure 11. The chief of MEFRDI, Mr. Muh. Abidin , and the project Manager, Dr. Hwan-Ok Ma planted cempaka at MEFRDI compound (Photo: PMU)	15
Figure 12. Cempaka performance after one year planted in Kembes/Tombulu, Minahasa District (Photo: Moody C. Karundeng)	15
Figure 13. Training with the assistance from national consultant (Photo : PMU).....	17
Figure 14. Transfer of knowledge by the competent experts (Photo: PMU)	18
Figure 15. Cempaka planting techniques with local communities (Photo: PMU).....	20
Figure 16. Cempaka tree (Photo : PMU)	21
Figure 17. One trial meeting of Cempaka SHF (Photo : PMU)	22

Figure 18. Cempaka demonstration plot established with local communities participation (Photo: PMU)	25
Figure 19. The chief of MEFRDI, Mr. Mochlis handed the extension book to extension officer (Photo : PMU)	27
Figure 20. Provincial workshop to discuss the ISMP CRCD (Photo: L. Turbianti)	36
Figure 21. Cempaka planting by Chief of MEFRDI (Photo : PMU)	38
Figure 22. Website of ITTO Cempaka Project (Photo: PMU)	40
Figure 23. Nursery of CV. Culture Mandiri (Photo: PMU)	41
Figure 24. The View of Mahawu Mountain.	46
Figure 25. Data collectton by MEFRDI reseacher (Photo : PMU).....	47
Figure 26. The chief of NSPFA, Mr. Reiner Dondokambey, handed the SHF' Decree to Mr. Celsius Talumingan, the chief of SHF (Photo: PMU)	48
Figure 27. Declaration of Cempaka Stakeholder Forum (Photo: PMU).....	49
Figure 28. Distribution and promotion of ISMP document to primary stakeholders (Photo: PMU)	50
Figure 29. Fruit of cempaka wasian	51

List of Tables

Table 1. Assumptions, potential risk and planned mitigating measurement.....	8
Table 2. Status of planned vs realized project outputs and activities	12
Table 3. Updated work plan of the project.....	16
Table 4. Involved consultants, contractor and professionals in project implementation	19
Table 5. Publications, papers, books, posters, manuals, short videos and website published by the project.....	29
Table 6. Training, meetings, workshop held and supported by project.....	34
Table 7. News and articles related to the project activities.....	36



Cempaka plantation in Kakas, Minahasa District (Photo: R. Suryaningsih)

List of Abbreviation

AAC	Annual Allowable Cut
DSA	Daily Subsistence Allowance
EFORDIA	Environment and Forestry Research and Development Innovation Agency
FORDA	Forestry Research and Development Agency
ISMP-CRCD	Integrated Strategic Management Plan for Cempaka Resources Conservation Development
ITTO	International Tropical Timber Organization
LP2S	Lembaga Pemberdayaan dan Pengembangan Sumberdaya
MEFRDI	Manado Environment Forestry Research and Development
MFRI	Manado Forestry Research Institute
NGO	Non-Government Organization
SHF	Stakeholder Forum
PMU	Project Management Unit
PSC	Project Steering Committee
SOP	Standard Operating Procedure
YPO	Year Plan Operation



Developing cempaka plantation in North Sulawesi with the involvement local communities (Photo : A. Irawan)

Executive Summary

Project identification and design

1. The project was built on observed problems surrounding cempaka resource management, in general, on the short supply of cempaka wood in particular.
2. The key problem addressed was “very slow progress in cempaka plantation development” which was thoroughly analyzed involving stakeholders, to identify its cause-effect relationship to be used as the basic for developing the relevant and effective interventions to remove the problems at hand.

Project objectives and implementation strategy

3. The overall objective of the project was to contribute to the conservation of cempaka species in North Sulawesi and its specific objective was to develop the conservation and plantation of cempaka with the involvement of local communities in North Sulawesi.
4. The specific objective would be achieved through delivery of three outputs, namely: i) enhanced capacity of local communities in cempaka plantation development; ii) increased participation of local communities in cempaka plantation development, and iii) reviewed and strengthened government policy on the conservation and utilization of cempaka resource.
5. The implementation strategy pursued rested on honest and mutually benefiting communication, coordination and collaboration principles with internal as well as external partners.

Project performances

6. All planned activities had been fully executed, most of them experienced delay in completion while two activities involved reduction in targets.
7. The project was progressing extremely slow under YPO 1 and YPO 2 necessitated a 20-month extension in time and adjustment to operational strategy by end of YPO 2.

Project outcome and involvement of primary beneficiaries

8. Achievement of the specific objective was assessed using two procedures: i) fulfilment of defined indicators of the specific objective, and ii) delivery of planned outputs. Both procedures led to the conclusion that the specific objective has been achieved.
9. The primary beneficiaries were heavily involved in the project implementation:
 - Manado EFRDI researchers were involved in the planning operational stages
 - Local communities were involved in the execution of different activities as executor, trainees, laborers or informants.
 - Local governments were involved in capacity building related activities, establishment of demo plots and cempaka Stakeholders Forum (SHF), development of extension program and discussion.

Lessons learned

10. From the project formulation process

- The key problem addressed was observed phenomenon for years, affirmed by major stakeholders, and thoroughly analyzed and resulted in a project design that received strong support in its implementation
- Some indicators of achievement were weakly defined causing minor problem in their use for assessing the achievements.

11. From implementation process

- Occurrences of “conceptual achievement” and “actually realized achievement” requires extreme care in defining SMART indicators to avoid unrealistic expectation of achievement.
- A small PMU comprising a few professionals proved able to manage the project effectively towards its end.
- Continued communication and coordination between the PMU with internal and external partners had contributed to accelerate the pace of operations during the high time under YPO 3.

Conclusions

12. The conclusions drawn are:

- i. The thorough analysis of the problem addressed involving stakeholders had facilitated construction of a project design proved relevant to solving the problem at hand;
- ii. The assumption made during the planning stage were valid throughout the project duration and the planned mitigating measures were effective in preventing potential risks from occurring;
- iii. The specific objective of the project, defined consistently with the key problem addressed, had been achieved at completion of the project on two grounds: delivery of planned outputs and fulfilment of defined indicators of the specific objectives;
- iv. Planned outputs had been declared as “delivered”, at least in a conceptual sense, on ground of attainment of defined indicators of the respective outputs in light of the outcomes of the activities implemented;
- v. Achievement of the specific objective and outputs declared must be perceived with care as achievement may take two forms, i.e. conceptual and practical achievements; in practice, a time lapse may occur between these two forms of achievement;
- vi. The smooth implementation of the project under YPO 3 and the successful completion were made possible by, among others,
 - The sound project design
 - The effective modified strategy pursued
 - The sufficient inputs

- The strong support of ITTO secretariat, Manado EFRDI's researchers, and external partners.
 - The able PMU
 - The wise and enlightening PSC
- vii. Formation of the provincial cempaka stakeholder forum (SHF) had been eased through the assistance granted by authorities and main stakeholders.

Recommendations

13. Among the recommendations made include:

- i. It is strongly recommended for any proponent of ITTO project to perform an adequate analysis of the key problem addressed in accordance with existing ITTO manual for project formulation to ensure comprehension of cause-effect relationship;
- ii. To be sound, a project design must be built on a clear cause-effect relationship to ensure relevance and effectiveness of planned interventions to resolve the problems at hand;
- iii. To ensure a smooth and successful completion of a project, the enabling conditions that must be prevailing include: an adaptive operational strategy, an able PMU, sufficient financial resource, healthy communication and strong coordination with internal as well as external partners.
- iv. It is best to employ a small but able PMU in order to minimize cost of personnel, ensure effective coordination and high adaptability to changing environment;
- v. To ensure quality of activity products, selection of consultants, experts and contractors should be strictly based on experience and expertise and the works to be assigned to.
- vi. The Executing Agency is strongly advisable to follow-up the outputs and findings of the project as a means to sustaining benefits of the project;
- vii. The Executing Agency is strongly recommended to assist the provincial and local governments in policy making on cempaka conservation and development, by making use of the project's deliverables, especially the ISMP-CRCD and SHF.



Natural forest of Mahawu Mountain in Tomohon City (Photo : PMU)



Figure 1. Cempaka stands in Bukit Doa, Tomohon (Photo: D.I.D. Arini)

1. PROJECT IDENTIFICATION

1.1 Context

Cempaka is a group of tree species called *Emmerrillia* spp., indigenous to North Sulawesi, that produce cempaka wood; the wood has been used as the main raw material in the production of traditional houses called Minahasa wooden house or *Wale Kai* or *Wale Rakek* or *Wale Loji* in Minahasa language (based on personal communication with



Figure 2. The traditional house of Minahasa ethnic (Photo: PMU)

and other household appliances. Demand for Minahasa wooden house had been increasing in recent years both in domestic and export markets, especially in the middle east countries, sparking ever larger consumption of cempaka wood. The current condition observed was the scarcer supply and higher price of cempaka wood in the local markets, forcing many producers of Minahasa wooden house to substitute cempaka wood with other locally available wood species such as *nyatoh*. The increasing price of cempaka wood was not only caused by the growing demand for Minahasa wooden house but also due to ever growing distance of harvesting sites.



Figure 3. Furniture products from cempaka wood species (Photo: PMU)

Under the current market situation wherein demand quality has been exceeding supply capacity for a long time period, cempaka resource management was obviously unsustainable. Fearing of a worsening condition of cempaka resource that might eventually lead to endangered status of particular cempaka tree species, the Manado Forest Research Institute (MFRI), renamed in 2015, as Manado Environment and Forestry Research and Development (MEFRDI), had proposed a project to ITTO for a financial assistance entitled “Initiating the Conservation of Cempaka Tree Species (*Elmerillia* spp.) through Plantation Development with Local Community Participation in North Sulawesi”.

1.2 Origin and the Problem

The key problem addressed by proposed project was the very slow progress in cempaka species plantation development due to weak capacity and lack of participation of local communities in cempaka plantation development in addition to weak government policy on cempaka resource management. It is important to note that the imbalance supply and demand of cempaka wood as mentioned above was due to : i) ever stronger demand for Minahasa wooden house, ii) decreasing supply of cempaka wood from natural forests, and iii) sluggish supply of cempaka wood from cempaka plantations during the recent decades.

The key problem identified and defined by Manado FRI was shared with the main stakeholders and thoroughly discussed during the stakeholders consultation meetings organized by the institute. Among the stakeholders consulted were community leaders, local governments, NGOs, forestry institutions and universities. These stakeholders also expressed dissatisfaction with the supply-demand situation of cempaka wood and concern over the slow progress in cempaka plantation development. It was not surprising to know that the project idea introduced by Manado FRI was fully supported by the stakeholders. The key problem addressed was defined as “very slow progress in cempaka species plantation development”.

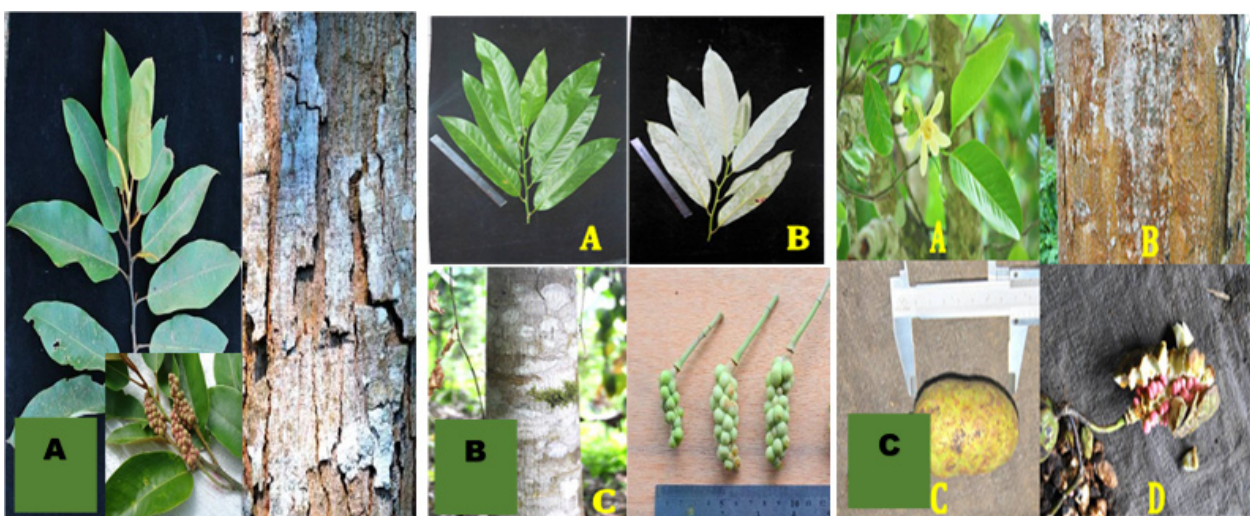


Figure 4. Cempaka species. A. *Magnolia sulawesiana*; B. *Magnolia tsiampacca*; C. *Magnolia vrieseana*. (Photo: J. Kinho)

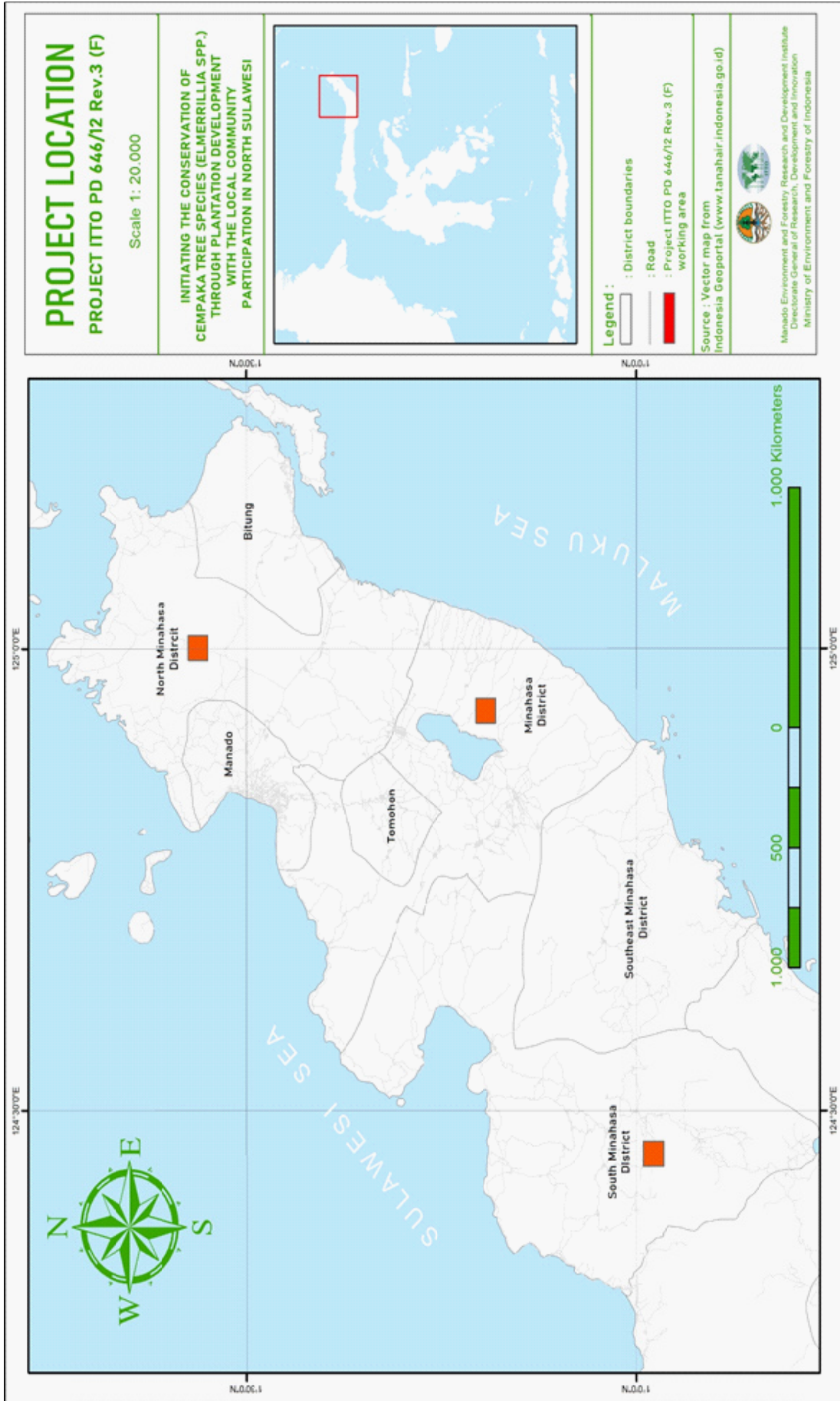


Figure 5. Map of project location (by: MEFRDI)

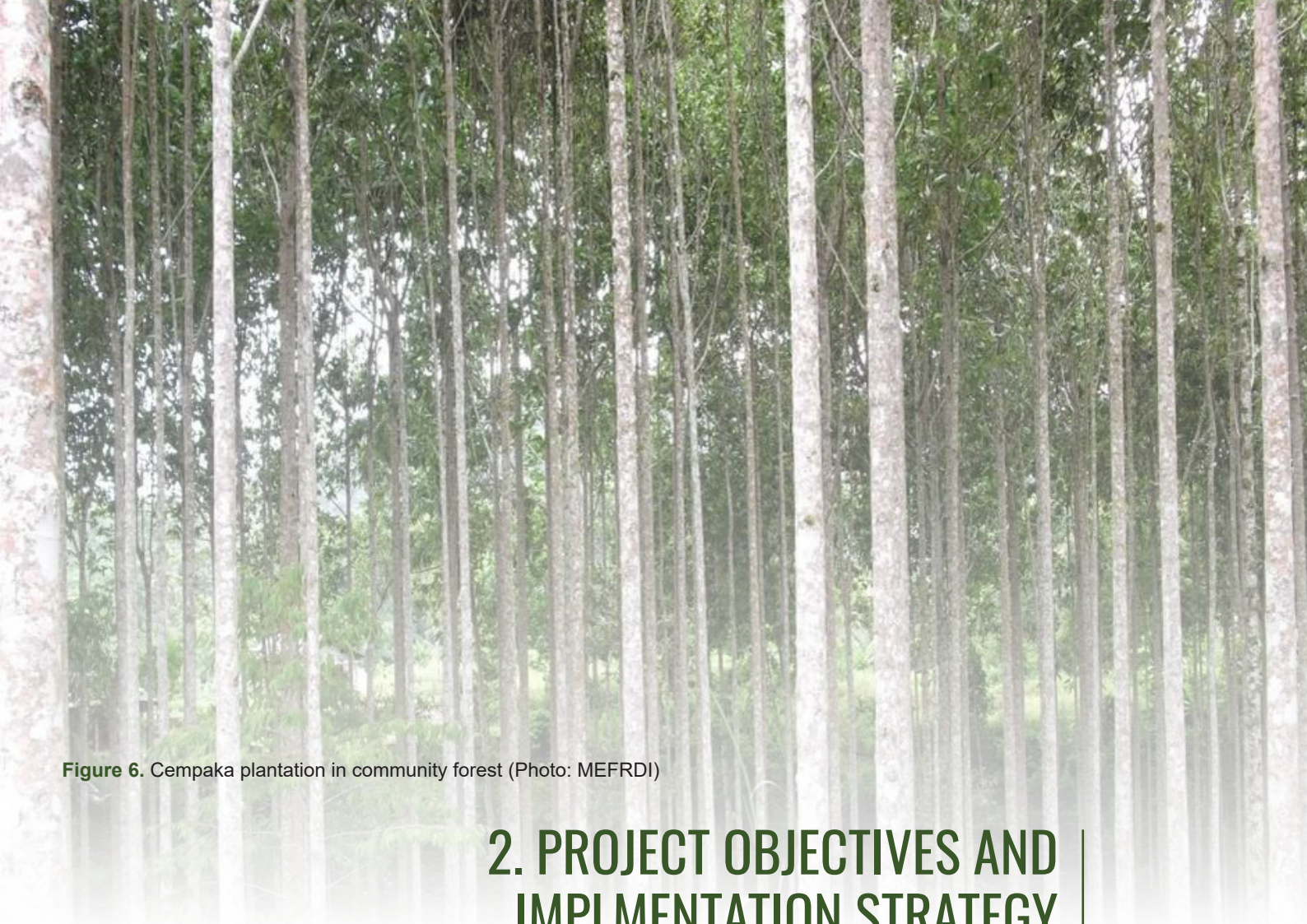


Figure 6. Cempaka plantation in community forest (Photo: MEFRDI)

2. PROJECT OBJECTIVES AND IMPLEMENTATION STRATEGY

2.1 Project Objectives

Consistent with the key problem addressed, the project objectives were defined as follows :

- **Specific objective** : To develop the conservation and plantations of cempaka with the involvement of local communities in North Sulawesi.
- **Development objective** : To contribute to the conservation of cempaka species in North Sulawesi.



Figure 7. Training on cempaka planting techniques to increase capacity of local community (Photo: PMU)

2.2 Implementation Strategy

The strategy adopted was built on findings of the stakeholder consultation meetings held during the project development stage and on the lessons learned from implementation of other ITTO projects by Forestry Research and Development Agency (FORDA). Elements of the strategy pursued are highlighted below :

i) Local communities as the main player

- Most cempaka plantations were owned by local communities but did not master needed techniques for cempaka plantation development.
- To increase participation of local communities in the conservation of cempaka resource, local communities must be made as the primary target of training programs under the project.

ii) Adoption of participatory principle

- The project should be implemented in a participatory manner which involved consultation, cooperation and collaboration with stakeholders.
- To facilitate participation of stakeholders, extensive dissemination of information on the project should be undertaken.
- To increase participation of local communities in cempaka plantation development, different forms of incentive should be identified, formulated and practiced, e.g. ease of planting and harvest permits, tax exemption, free seedlings, etc.

iii) Institutional strengthening as a high priority

- Development of a legitimate Integrated Strategic Management Plan (ISMP) for cempaka resource should be prioritized by the project to aid decision making on sustainable cempaka resource management.
- To enhance decision making on harvesting of cempaka stands, accurate growing stock data on natural as well planted forests should be made available through collaboration with competent institutions and professionals.
- To facilitate exchange of information, experience, ideas and insights, operation of a stakeholder forum (SHF) was considered critical in view of advising the governments on cempaka policy making.

iv) Selection of partners based on competence

- Partners to implement project activities must be selected based on competence and in accordance with applicable ITTO rules and procedures.
- Realizing the fact that Manado FRI is house to many researchers, engaging these professionals in project operations should be prioritized to the extent possible in compliance with applicable policies of both the GOI and ITTO.



Figure 8. Developing methodology to conduct survey on growing stock of cempaka species (Photo: PMU)

v) Monitoring of project operations pursuant to the logical framework

- Monitoring must be carried out by internal and external professionals based on the logical framework matrix contained in the project document.
- A monitoring plan establishing indicators, means of verification, executors and frequency of visit was developed for each Yearly Plan of Operation (YPO).

The strategy pursued, as outlined above, proved working well under YPO 3 that covered the period from October 2019 to September 2020 ; it did not work well during the first two YPOs due mainly to the weak leadership of the Project Coordinator coupled with a flimsy communication with ITTO. It is to be noted that the extension in time for project implementation was not attributable to the strategy pursued but due mainly to weak leadership on project operational management.

2.3 Assumptions and Risks

The major assumptions made to ensure a successful achievement of the specific objective were :

- Supportive local communities and authorities on the project objectives.
- Cempaka seed for laboratory experiments, nursery modelling and plantation demo plots available in time.
- Local communities cooperative in conducting dialogues on benefits of planting cempaka and on incentives for increasing participation in cempaka planting.
- Local communities interested in the trainings offered and in increasing efforts on plantation development.

A risk arises when the assumption made as regards an action does not hold true. To avoid risks associated with each of the assumptions made, planned mitigating measures were designed as presented in Table 1.

Table 1. Assumptions, potential risk and planned mitigating measurement

Assumptions	Potential risks	Planned mitigating Measures
i) Supportive local communities and authorities.	<ul style="list-style-type: none"> • Local stakeholders expressed objection to project's objectives. 	<ul style="list-style-type: none"> • Intensified communication and coordination before the project inception. • Convincing information on project's objectives delivered to stakeholders. • To identify a win-win solution based on dialogues.
ii) Cempaka seeds would be available in time.	<ul style="list-style-type: none"> • Substantial delay in execution of particular activities if seeds not timely available. • Delayed completion of the project. 	<ul style="list-style-type: none"> • Adjustments of work programmes to suit fruiting season. • Careful internal preparation and external coordination for seed collection in the next season.

Table 1. Assumptions, potential risk and planned mitigating measurement (continue)

Assumptions	Potential risks	Planned mitigating Measures
iii) Local communities cooperative in dialogues organized by the project.	<ul style="list-style-type: none"> Local communities will not take part in the dialogues. 	<ul style="list-style-type: none"> To intensify informal communication with community leaders before conducting the dialogues. Prepare and distribute easily digestible materials on purposes of the dialogues.
iv) Local communities interested in trainings on needed skills for cempaka plantation development.	<ul style="list-style-type: none"> Local communities will not be interested in the trainings. Pace of planting difficult to accelerate. 	<ul style="list-style-type: none"> To intensify informal communication with local leaders. To distribute attractive materials on planned training programmes.

It turned out that the assumptions made during the project development stage were valid till end of project operations. Regardless of the potential risks, some planned mitigating measures were implemented to ensure that particular activities were implemented effectively. These include, for examples, intensive communication with local leaders, preparation of attractive and easily digestible materials and adjustments to work plan due to delayed execution of particular activities.



Figure 9. Training on Cempaka planting techniques for local communities (Photo : PMU)



Figure 10. Data collection of cempaka wood consumption (Photo: R. Suryaningsih)

3. PROJECT PERFORMANCES

3.1 Planned vs Realized Performance

a. The Specific Objective

The specific objective defined during the project formulation stage was “to develop the conservation and plantations of cempaka with the involvement of local communities in North Sulawesi”, corresponded to the key problem addressed by the project. There was no change made to this defined specific objective during the course of project implementation.

a. The Outputs and Activities

In this project, there are 17 activities implemented to achieve three outputs. It can be seen from Table 2, that all project activities were completed.

Table 2. Status of planned vs realized project outputs and activities

Objection	Outputs	Activities	Realized outputs/activities	
<p>Development objective</p> <p>To contribute to the conservation of cempaka species in North Sulawesi</p> <p>Specific objective</p> <p>To develop the conservation and plantations of cempaka with the involvement of local communities in North Sulawesi</p>	<p>Output 1.</p> <p>Capacity of local communities in cempaka plantation development enhanced</p>	1.1	To identify sources of quality cempaka seed at six sites	The activity was fully implemented : cempaka stands for seed sources were identified at six sites in North Sulawesi (4 sites) and South Sulawesi (2 sites) in Year 1.
		1.2	To conduct experiments on appropriate techniques for cempaka seed collection, storage and germination	The activity was fully implemented and consisted of 3 batches of experiment : seed collection, seed storage and seed germination. A technical manual was also developed based on results of the experiments.
		1.3	To establish three small-scale nurseries at village level to be managed by local communities	Adjustment to target of the activity was made from 6 to 3 nurseries with the approval of ITTO. Time schedule for execution was also delayed to YPO 2 due to difficulty in finding a competent partner
		1.4	To review available information on cempaka's silviculture techniques.	The activity was fully implemented in Year 1 with the assistance of a competent expert
		1.5	To establish 30 Ha of cempaka plantations at 3 sites for demonstration, training and long-term R & D	This activity experienced delay in completion from YPO 2 to YPO 3 and reduction of area from 30 to 18 Ha with the approval of ITTO. Planned R & D on cempaka provenance was also not feasible due to unorganized seed labelling at the nurseries.
<p>Conclusion :</p> <ul style="list-style-type: none"> • 3 planned activities were fully implemented as originally defined (Acts 1.1; 1.2 and 1.4). • 2 planned activities experienced official adjustment to targeted outcomes : Activity 1.3, from 6 to 3 units of nursery, and Activity 1.5, from 30 to 18 Ha of cempaka plantation 				
	<p>Output 2.</p> <p>Participation of local communities in cempaka plantation development increased</p>	2.1	To conduct intensive dialogues on long-term benefits of cempaka plantation with 20 villages in 3 districts.	The activity was implemented fully as intended to, but experienced delay from YPO 1 to YPO 2 and completed only in YPO 3. Targeted outcomes, however, were fully realized at the sanctioned budget of the activity.
		2.2	To train local communities on cempaka nursery development techniques at the small-scale nurseries	The activity was fully implemented as originally defined, but experienced delay in completion. A technical manual on nursery development was produced under this activity.

Table 2. Status of planned vs realized project outputs and activities (continue)

Objection	Outputs	Activities	Realized outputs/activities	
Development objective To contribute to the conservation of cempaka species in North Sulawesi	Output 2. Participation of local communities in cempaka plantation development increased	2.3	To train local communities on cempaka planting techniques at the plantation demonstration plots.	The activity was fully implemented but with adjustments. Sites of training were moved from the demo plots to communities plantations with the approval of the 4 th meeting of the PSC. Time of execution was delayed from YPO 2 to YPO 3. A manual for cempaka planting was produced
		2.4	To collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees	The activity was implemented as originally planned but delayed in its completion from YPO 1 to YPO 3 but planned outcomes were fully achieved.
		2.5	To collaboratively develop an extension program on cempaka resource conservation.	The activity was fully implemented as originally defined but experienced delay in its completion from YPO 2 to YPO 3 due to tight work schedule of competent partner and weak project management.
	Conclusion : <ul style="list-style-type: none"> All activities under Output 2 experienced serious delay in implementation and completion due mainly to the weak operational management coupled with difficulties in identifying competent partners in the case of Activities 2.3 and 2.5. All planned outcomes of the activities were fully realized 			
Specific objective To develop the conservation and plantations of cempaka with the involvement of local communities in North Sulawesi	Output 3. Government policy on the conservation and utilization of cempaka species reviewed and strengthened	3.1	To conduct survey on growing stock and distribution of cempaka species	The activity was fully implemented but with changing partner from University of Sam Ratulangi to Centre for Forest Research and Development (P3H), Research, Development and Innovation Agency at the approval of the 4 th PSC Meeting and delayed completion from YPO 1 to YPO 3. Growing stock data were produced as planned.
		3.2	To conduct a study on economics of cempaka wood utilization.	The activity was fully implemented as planned but its completion delayed from YPO 2 to YPO 3. In addition, the expert employed was changed from an international to national one with the approval of the PSC
		3.3	To determine sustainable level of AAC	The activity was fully implemented as planned but experienced delay in commencement and completion from YPO 1 to YPO 3 due mainly to weak project operational management. AAC figure was produced using adequate procedures and the growing stock data generated under Activity 3.1.

Table 2. Status of planned vs realized project outputs and activities (continue)

Objection	Outputs	Activities		Realized outputs/activities
<p>Development objective</p> <p>To contribute to the conservation of cempaka species in North Sulawesi</p> <p>Specific objective</p> <p>To develop the conservation and plantations of cempaka with the involvement of local communities in North Sulawesi</p>	<p>Output 3.</p> <p>Government policy on the conservation and utilization of cempaka species reviewed and strengthened</p>	3.4	To develop SOP and procure equipment and facilities for monitoring of forest operations and timber legality.	The activity was implemented as originally defined but its executor was changed from a national consultant to Manado EFRDI researcher at the approval of the PSC and its completion delayed from YPO 2 to YPO 3.
		3.5	To pilot test application of SOP, equipment and facilities in one forest district.	The activity was fully implemented. The same as Activity 3.4, its execution was carried out by Manado EFRDI while its completion delayed from YPO 2 to YPO 3
		3.6	To establish and operate a stakeholder forum at provincial level	The activity was implemented fully as planned
		3.7	To organize one provincial workshop on cempaka conservation and utilization.	The activity was fully implemented as planned but its executor changed from a sub-contract to self-executed by Manado EFRDI. Added to the activity was development of an Integrated Strategic Management Plan – Cempaka Resource Conservation Development (ISMP-CRCD) by a national consultant, the sole document discussed by the workshop.
	<p>Conclusion :</p> <p>All activities under Output 3 had been fully implemented and produced all desired outcomes. Activities 3.1; 3.2; 3.3; 3.4; 3.5; and 3.7 experienced changes in their respective executors.</p> <p>All activities experienced delay in commencement and completion due mainly to the weak project operational management.</p>			

3.2 Time Schedule

- The project officially commenced in February 2016 and operated under YPO 1 till January 2017. Under that YPO, 11 activities were planned for execution but only 2 activities were realized due mainly to : i) weak project operational management, and ii) temporary suspension of ITTO funds brought about by current financial crisis of ITTO;
- Then the project was in non-operational or idle status from February 2017 to September 2018 or 20 months in total due mainly to lack of communication between the Project Coordinator and ITTO Secretariat (see minutes of the 3rd meeting of the PSC) and lack of initiative by PC for unclear reasons;
- YPO 2, covering the period from October 2018 to September 2019, included 11 activities for execution based on the decision of the 3rd meeting of the PSC. The same meeting also granted a 20-month extension in time to implement the project without additional funding. However, only 4 activities were realized out of eleven planned.

- YPO 3, covering the period from October 2019 to September 2020, included 14 activities for implementation including one unplanned activity on the production of outreaching materials. This was inevitable for at least 3 reasons : i) under YPO 2, out of 11 activities planned for execution, only 4 activities were realized; ii) extension in time granted by the PSC for project implementation was only 20 months, i.e. implementation of activities must be completed by September 2020; and iii) no chance for further extension in time and for additional funding, was among the decisions made by the 4th meeting of the PSC.
- The executing agency was to submit a completion report by December 2020 in accordance with Section 5.08 of the project agreement and an audited final financial report by January 2021 in accordance with Section 5.03 of the project agreement. The executing agency, however, intended to submit such reports on earlier dates.



Figure 11. The chief of MEFRDI, Mr. Muh. Abidin , and the project Manager, Dr. Hwan-Ok Ma planted cempaka at MEFRDI compound (Photo: PMU)



Figure 12. Cempaka performance after one year planted in Kembes/Tombulu, Minahasa District (Photo: Moody C. Karundeng)

Table 3. Updated work plan of the project

Output and Activities		Responsible Party	Year 1				Year 2				Year 3			
			Feb 16 – Jan 17				Oct 18 – Sep 19				Oct 19 – Sep 20			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1: Capacity of local communities in cempaka plantation development enhanced														
Activity 1.1	To identify sources of quality cempaka seed at six sites	NC	✓	✓	✓									
Activity 1.2	To conduct experiments on appropriate techniques for cempaka seed collection, storage and germination	MEFRDI					✓	✓	✓					
Activity 1.3	To establish three small-scale nurseries at village level to be managed by local communities	CL, Contractor/ LF						✓	✓					
Activity 1.4	To review available information on cempaka silviculture techniques	NE			✓									
Activity 1.5	To establish 18 Ha of plantation demonstration for purpose of long-term research and training of local communities	CL, MEFRDI									✓	✓		
Output 2: Participation of local communities in cempaka plantation development increased														
Activity 2.1	To conduct intensive dialogues on long-term benefits of cempaka plantation with 20 villages in 3 districts	NC, NGO								✓	✓	✓		
Activity 2.2	To train local communities on cempaka nursery development techniques at the small-scale nurseries	MERFDI, CL							✓	✓	✓			
Activity 2.3	To train local communities on cempaka planting techniques	MEFRDI, CL									✓	✓		
Activity 2.4	To collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees	NC, NGO							✓	✓	✓	✓	✓	
Activity 2.5	To collaboratively develop of an extension program on cempaka resource conservation	MEFRDI, NSPFA									✓	✓	✓	
Output 3: Government policy on the conservation and utilization of cempaka species reviewed and strengthened.														
Activity 3.1	To conduct survey on growing stock and distribution of cempaka species	MEFRDI, NE/ P3H									✓	✓	✓	✓
Activity 3.2	To conduct a study on economics of cempaka wood utilization for woloan-house production.	MEFRDI, NC/ P3SEKPI										✓	✓	✓
Activity 3.3	To determine sustainable level of AAC for cempaka species	MEFRDI, NE/ P3H											✓	✓
Activity 3.4	To develop SOP and procure equipment and facilities for monitoring of forest operations and timber legality	MEFRDI, FMU, NSPFA									✓	✓		
Activity 3.5	To pilot test application of SOP (developed under Act 3.4) equipment and facilities in one forest district.	MEFRDI, FMU, NSPFA										✓	✓	✓
Activity 3.6	To establish and operate a cempaka stakeholder forum (SHF) at provincial level.	NSPFA										✓	✓	✓
Activity 3.7	To organize one provincial workshop on cempaka resource conservation and utilization	MEFRDI											✓	✓

Remarks:

- : Planed
- ✓ : Realisation

3.3 Inputs Applied

a. Manpower

i. Project Key Personnel

The key personnel initially employed, based on the NOL of ITTO Ref. No. F. 16-0037 dated 3 February 2016 were:

- Project Coordinator : Mr. Kristian Mairi
- Project Secretary : Ms. Angelina Lenak

In the course of project implementation, two personnel resigned; for replacement, the officially appointed project personnel were :

- Project Coordinator : Ms. Diah Irawati Dwi Arini
- Project Secretary : Ms. Livi Debora Manese
- Project Management Advisor : Dr. Hiras Sidabutar

ii. National consultants/ experts, contractors and other professionals

In total, 3 National Consultants and 2 contractors had been hired by the project to assist in the execution of particular activities; in addition, MEFRDI and a number of its professionals were also involved in the project operations as recommended by the 4th meeting of the PSC, see Table 4 for details.

The heavy involvement of MEFRDI professionals was consistent with the newly adopted strategy for project implementation in accordance with the decision of the 4th meeting of the PSC, noting that the professionals involved were not paid honoraria but only DSA, as appropriate.

iii. NGOs

To implement Activities 2.1 and 2.4 an expert of local NGO called “Lembaga Pemberdayaan dan Pengembangan Sumberdaya (LP2S)”, was appointed as the national consultant, represented by Mr. Yopi D. Goliath.



Figure 13. Training with the assistance from national consultant (Photo : PMU)



Figure 14. Transfer of knowledge by the competent experts (Photo: PMU)

Table 4. Involved consultants, contractor and professionals in project implementation

Related activities	National consultants/Sub Contractor/ Experts	Scheduled		NOL	
		Planned	Realized		
Output 1: Capacity of local communities in cempaka plantation development enhanced					
1.1	To identify sources of quality cempaka seed at six sites	Ir. Alfonsius Thomas, MP National Consultant/Faculty of Agriculture, Sam Ratulangi University, Manado	February – July 2016	June – October 2016	Ref. No. F. 16-0117 (20 June 2016)
1.2	To conduct experiments on appropriate techniques for cempaka seed collection, storage and germination	Julianus Kinho, S.Hut, M.Sc National Consultant/Researcher on Silviculture, MEFRDI	October 2018 – September 2019	October 2018 – April 2019	Ref. No. F.16-0117 (20 June 2016)
1.3	To establish three small-scale nurseries at village level to be managed by local communities	CV. Culture Mandiri. Contractor, Manado	October 2018 – June 2019	May – August 2019	Ref. No. F.19-0036 (13 May 2019)
1.4	To review available information on cempaka silviculture techniques	Drs. Riskan Effendy, M.Sc National Consultant/Researcher on Silviculture, Forest Research Development Agency (FORDA)	March – September 2016	August – October 2016	Ref. No. F.16-0117 (20 June 2016)
1.5	To establish 18 Ha of plantation demonstration for purpose of long-term research and training of local communities	Jafred E. Halawane, S.Hut, M.Sc Researcher on Silviculture MEFRDI	October 2019 – March 2020	October – March 2020	Ref. No. F.19-0068 (15 October 2019)
Output 2: Participation of local communities in cempaka plantation development increased					
2.1	To conduct intensive dialogues on long-term benefits of cempaka plantation with 20 villages in 3 districts	Yopi D. Goliath, D.E.A Lembaga Pemberdayaan dan Pengembangan Masyarakat, Tomohon	May – December 2019	August 2019 – January 2020	Ref. No. F.19-0034 (13 May 2019)
2.2	To train local communities on cempaka nursery development techniques at the small-scale nurseries	Diah Irawati Dwi Arini, S.Hut, M.Sc, Researcher on Conservation and Forest influence, MEFRDI	May – November 2019	May – November 2019	Ref. No. F.19-0035 (13 May 2019)
2.3	To train local communities on cempaka planting techniques	Arif Irawan, S.Si Researcher on Silviculture, Manado EFRDI	October 2019 – January 2020	November 2019 – January 2020	Ref. No. F.19-0068 (15 October 2019)
2.4	To collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees	Yopi D. Goliath, D.E.A Lembaga Pemberdayaan dan Pengembangan Sumberdaya (LP2S), Tomohon	May 2019 – January 2020	May 2019 – May 2020	Ref. No. F.19-0034 (13 May 2019)
2.5	To collaboratively develop of an extension program on cempaka resource conservation	Alex Novandra, S.Hut, M.E.P, MEFRDI Agus Purwanto, S.Sos, M.Sc, MEFRDI Olsje Tomponu, North Sulawesi Provincial Forestry Agency	January – April 2020	December 2019 – June 2020	Ref. No. F.19-0078 (13 December 2019)
Output 3: Government policy on the conservation and utilization of cempaka species reviewed and strengthened.					
3.1	To conduct survey on growing stock and distribution of cempaka species	<ul style="list-style-type: none"> Dr. Lutfi Abdulah, S.Hut, M.Si, Researcher on Spatial and Statistical Data, Centre for Forest Research and Development Rahma Suryaningsih, S.Hut, M.Hut, Researcher on Conservation and forest influence, MEFRDI 	January – April 2020	December 2019 – August 2020	Ref. No. F.19-0078 (13 December 2019)
3.2	To conduct a study on economics of cempaka wood utilization for woloan-house production.	<ul style="list-style-type: none"> Dr. Subarudi, M.Wood Sc, (Center for Socio Economic Policy and Climate Change Research and Development) Dr. Deden Djaenudin (Center for Socio Economic Policy and Climate Change Research and Development) Hanif Nurul Hidayah, S.Hut (MEFRDI) 	May – July 2020	March – September 2020	Ref. No. F.20-0010 (12 March 2020)
3.3	To determine sustainable level of AAC for cempaka species	<ul style="list-style-type: none"> Dr. Lutfi Abdulah, S.Hut, M.Si, Researcher on Spatial and Statistical Data, Centre for Forest Research and Development Rahma Suryaningsih, S.Hut, M.Hut Researcher on Conservation and forest influence, MEFRDI 	May – June 2020	June – September 2020	Ref. No. F.19-0078 (13 December 2019)

Table 4. Involved consultants, contractor and professionals in project implementation (continue)

Related activities	National consultants/Sub Contractor/ Experts	Scheduled		NOL	
		Planned	Realized		
3.4	To develop SOP and procure equipment and facilities for monitoring of forest operations and timber legality	Isdomo Yuliantoro, S.Sos, M.Si Researcher on Social and forest economic, MEFRDI	November 2019 – January 2020	November 2019 – March 2020	Ref. No. F.19-0078 (13 December 2019)
3.5	To pilot test application of SOP (developed under Act 3.4) equipment and facilities in one forest district.	Isdomo Yuliantoro, S.Sos, M.Si Researcher on Social and forest economic, MEFRDI	February – March 2020	January – September 2020	Ref. No. F.19-0078 (13 December 2019)
3.6	To establish and operate a cempaka stakeholder forum (SHF) at provincial level.	Y.B. Tri Budi Miharjo, S.Hut, M.Si North Sulawesi Provincial Forestry Agency (NSPFA)	January – April 2020	February – September 2020	Ref. No. F.20-0004 (7 February 2020)
3.7	To organize one provincial workshop on cempaka resource conservation and utilization	Manado Environment and Forestry Research and Development Institute (MEFRDI)	July – August 2020	June – September 2020	Ref. No. F.20-0023 (1 June 2020)
Non-Activity based					
4.0	To produce quality outreaching materials for conservation and development of cempaka resource in North Sulawesi region	Local Firm/CV. Selo Aheng Utara	November – August 2020	November – September 2020	Ref. No. F.19-0077 (29 November 2020)

**Figure 15.** Cempaka planting techniques with local communities (Photo: PMU)

b. Expenditures

The total amount of ITTO funds received, expended and retained by the PMU during the period of 1 February 2016 – 30 September 2020 were :

- Total amount of funds received : USD 347,583
- Total expenditures : USD 331,458
- Total amount retained by the PMU at
30 September 2020 : USD 16,125

Note that above figures were based on the accounting of funds by the PMU. The exact figures would be known only after the final statements had been produced by the financial auditor, scheduled to work in October 2020.




Figure 16. Cempaka tree (Photo : PMU)

4. PROJECT OUTCOMES AND INVOLVEMENT OF TARGET BENEFICIARIES

4.1 Achievement of the Specific Objective

To what extent the specific objective had been achieved, had to be assessed using the relevant indicators as defined in the LFM of the project document; defined indicators of the specific objective were :

- i) **Quality seed available for producing seedlings to support at least 100 Ha of cempaka plantation per annum**
 - To operationalize the indicator, there is a need to know how much seed was required for establishing 100 Ha of cempaka plantation per annum. Assuming a generally used spacing of 3 by 3 meters, 1,000 seedlings are required per hectare; using a 60% of survival rate after one year and a 50% of seed germination rate, about 3,300 seed were needed to establish 1 Ha of plantation or 330,000 seed for 100 Ha.
 - The project had identified six cempaka stands at 6 sites that normally bear fruits twice every year. The personal communication with Mr. Julianus Kinho, the expert involved in the identification of the seed stands indicated that the seed stands were able to produce up to one million of seed every year.

ii) 30 Ha of cempaka demonstration plantation established

- Recall that this indicator had been officially adjusted down to 18 Ha; the technical report on the implementation of Activity 1.5 indicated that 18 Ha of demo plots of cempaka plantation had been established in 3 districts : 8.5 Ha in Minahasa, 6 Ha in North Minahasa, and 3.5 Ha in South Minahasa districts, respectively. Obviously, the indicator had been satisfied.

iii) 6 small-scale nurseries operational in 3 districts

- Recall that this indicator had been reduced to only 3 nurseries, the extent of each nursery was 0.1 Ha with a storage capacity of around 8,300 seedlings per nursery. Hence, the indicator had been met.

iv) Cempaka stakeholder forum operational

- The technical report on the implementation of Activity 3.6 indicated that a stakeholder forum at the provincial level had been established and its operation piloted by conducting the first meeting of stakeholders. In addition, a mid-term operational plan of the Forum had been developed and its regular members appointed. Therefore, the indicator had been satisfied.

Above matching of defined indicators with achievements of the interventions clearly indicated that the specific objective had been fully achieved.



Figure 17. One trial meeting of Cempaka SHF (Photo : PMU)

It was hypothesized during the project formulation stage that delivery of defined outputs would realize the specific objective. It was therefore necessary to assess to what extent individual outputs had been actually delivered. To this end, outcomes of individual activities under each output shall be assessed using defined indicators of the respective outputs, which are presented below :

Output 1 : Enhanced capacity of local communities in cempaka plantation development

Defined indicators of the output were :

- i. Experiments on techniques for seed collection, storage and germination completed in Year 1

The technical report on the implementation of Activity 1.2, regardless of year of completion, indicated that the experiments had been completed. In addition, a technical manual on seed collection, storage and germination had been developed based on results of the experiments and the manual was produced. Therefore, the indicator had been satisfied.

- ii. 3 small-scale nurseries established in 3 districts in Year 2

These nurseries had been established by CV. Culture Mandiri in Minahasa, North Minahasa, and South Minahasa districts, respectively. Regardless of year of completion, it was obvious that the indicator had been met.

- iii. Cempaka's silviculture techniques reviewed in Year 1

The technical report on the implementation of Activity 1.4 clearly indicated that cempaka's silviculture techniques were reviewed in Year 1 by a competent expert. Thus, the indicator had been fulfilled.

- iv. 18 Ha of cempaka plantation demo plots established in 3 districts in Years 1 & 2

The technical report on Activity 1.5 clearly indicated that the demplots had been established in Minahasa (8.5 Ha), North Minahasa (6 Ha) and South Minahasa (3.5 Ha) districts.

It was obvious that the indicator had been met. The question was, as thoroughly discussed somewhere in the project's technical report, on quality of the demplots established.

- v. Local communities of 20 villages trained on nursery and plantation development techniques

Upon reflection, this indicator was not applicable to Output 1 as the activities responsible for conducting the trainings on both nursery and plantation development were under Output 2, i.e. Activities 2.2 and 2.3. Therefore, this indicator was irrelevant to Output 1 thus should be neglected.

- vi. Technical manuals on seed collection, storage and germination available for use by local communities.

As had been discussed above (see indicator i)), this indicator had been satisfied.

Close examination of the outcomes of individual activities under Output 1 and defined indicators of the output clearly indicated that Output 1 had been fully delivered through implementation of five pertaining activities. Consequently, it was reasonable to conclude that "capacity of local communities in cempaka plantation development had been enhanced", at least conceptually.

There remained at least two questions relating to this conclusion : the first was on validity of defined indicators while the second was on level of enhanced capacity actually achieved which are briefly discussed below.

Defined Indicators

- Experiments on techniques for seed collection, storage and germination completed and resulting technical manuals available for use by local communities. Completing the experiments alone had no practical values unless results of the experiments were converted to technical manuals. Therefore, it was less appropriate to define “experiments” as a stand-alone indicator; it should be tied up with production and distribution of technical or practical manuals based on results of the experiments. It is important to note that, even if manuals had been made available for use, they would not positively impact capacity in cempaka plantation development unless local communities were trained on using the manuals.
- Cempaka’s silviculture techniques reviewed as an indicator of achievement was less appropriate for at least two reasons : i) the review report was written in English that it was unlikely used by local communities, and ii) information on silviculture techniques was not the resource needed by local communities but training on practical skills for cempaka growing purpose.
- “18 Ha of cempaka plantation demo plots” was defined as an indicator of achievement. In terms of enhancing capacity, such demplots were useful only as a model of cempaka plantations that could be imitated by local communities. This was only the immediate impact of the demplots because training on planting techniques was not carried out at the demplots.
- In conclusion, defined indicators of achievement were somewhat weak to reflect outcomes of implemented activities under Output 1. stronger indicators could have been identified to manifest defined Output 1, i.e. enhanced capacity.

Enhanced capacity of local communities

How implementation of five activities under Output 1 had enhanced the capacity of local communities in cempaka plantation development are briefly discussed below :

- The experiments and technical manuals on seed collection, storage and germination would only increase capacity in plantation development if local communities were trained on using the manuals produced. However, such training had not materialized yet as the manuals were produced only in Year 3 thus clear not affected capacity of local communities.
- Establishment of 3 small-scale nurseries was intended to serve as model for local communities to manage and imitate. It was expected that local people residing nearby the nurseries were engaged in the establishment process as a learning by doing training, but this was not the case, as the nurseries were fully constructed by the contractor, as evidenced from the visit paid to the nursery in Minahasa district. If so, the nurseries

had little to do with enhancing capacity of local communities in cempaka plantation development unless the nurseries produced seedlings free of charge or sold at cost price for local communities to use.

- Review of cempaka silviculture techniques had no direct positive impact on capacity unless practical manuals were developed based on results of the review and local communities were trained on applying the manuals. Such manuals, however, had not been produced towards end of the project.
- Establishment of the 18 Ha of cempaka plantations would only increase capacity of local communities if the plantations were used as a reference or model to imitate.
- In conclusion, enhanced capacity of local communities had been fully achieved, conceptually, as all defined indicators had been met. In practice, however, level of enhanced capacity actually achieved was very much dependent on realized outcomes of the activities and follow-up actions taken.



Figure 18. Cempaka demonstration plot established with local communities participation (Photo: PMU)

Output 2 : Increased participation of local communities in cempaka plantation development

- i. Dialogue with 20 villages on cempaka conservation conducted in Year 1
 - The technical report on the implementation of Activity 2.1 indicated that planned dialogue had been realized. Local communities already gained clear understanding on potential benefits of conserving and growing cempaka in the long-run which would strengthen the interest and increase participation in cempaka plantation development.
 - The indicator had been fully met.
- ii. 60 community leaders from 3 districts trained on cempaka nursery and plantation development techniques in Years 1 and 2
 - The technical report on the execution of Activities 2.2 and 2.3 indicated that planned training programs had been realized and outcomes produced.
 - The indicator had been satisfied.
- iii. Incentives for local communities to grow cempaka collaboratively identified
 - The technical report on the implementation of Activity 2.4 indicated that many incentives had been identified in different forms
 - The indicator had been fulfilled.
- iv. An extension program developed and implemented since Year 3
 - The technical report on the implementation of Activity 2.5 indicated that development of an extension program on cempaka conservation and utilization had been completed in Year 3. Its implementation, however, would experience delay as some preparatory works were required.
 - The indicator was nearly fully met.
- v. At least 10 villages involved in cempaka related planting activities
 - Information received from 3 district governments indicated that many villages had been involved in cempaka growing activities even before the presence of the project.
 - The indicator was weakly attached to the project, but it could be regarded as had been fulfilled.

In light of above assessment, it was reasonable to conclude that : participation of local communities in cempaka plantation development had been increased through implementation of five activities under Output 2. The question was “had the project interventions actually increased participation ?”.

The dialogue made with 21 villages on potential benefits of cempaka conservation and development in the long-run could not be expected to directly increase participation due to strengthened interest in cempaka. The trainings on nursery and plantation development techniques had equipped local communities with needed skills for cempaka growing. Identification of incentives for local

communities could be expected to convince local communities on better future incomes from cempaka utilization, while the extension program developed should reinforce interest of local communities in cempaka growing.

On above discussion, it should be realistic to judge that the project interventions would positively impact participation of local communities by refreshing and reinforcing the already existed interest in cempaka growing and utilization. But participation in practice was not directly increased by the interventions; it would increase after some time.



Figure 19. The chief of MEFARDI, Mr. Mochlis handed the extension book to extension officer (Photo : PMU)

Output 3 : Government policy on the conservation and utilization of cempaka species reviewed and strengthened

Defined indicators of achievement were :

- i. Survey on growing stock of cempaka in North Sulawesi completed in Year 1.
 - Available report on Activity 3.1 indicated that the survey had been accomplished in Year 3.
 - Regardless of the year of completion, the indicator had been met.
- ii. Sustainable AAC determined
 - This was a direct follow-up to Activity 3.1 which had been completed with in collaboration with expert of Centre for Forest Research and Development, Research Development and Innovation Agency
 - The indicator had surely been satisfied.

- iii. Study on economics of cempaka utilization completed in Year 2.
 - Available technical report on the implementation of Activity 3.2 indicated that the study was completed in Year 3 involving a national consultant and researcher of Manado EFORDIA.
 - Regardless of year of completion, the indicator had been satisfied.
- iv. SOP developed and equipment & facilities procured for monitoring of forest operations and timber legality in Year 2.
 - The technical report on Activities 3.4 and 3.5 indicated that planned SOP had been developed and equipment & facilities procured in Year 3.
 - Regardless of year of completion, the indicator indeed had been met.
 - A stakeholder forum established and operational since Year 3.
 - The technical report on Activity 3.6 indicated that the forum had been established at the provincial level; its operation had also been piloted involving leader and members of the forum.
 - Indeed, the indicator had been satisfied.
- v. One provincial workshop on cempaka conservation and utilization organized in Year 3.
 - The workshop was conducted on Four Points Hotel in Manado under semi-virtual fashion. The only document reviewed by the workshop was the Integrated strategic Management Plan for cempaka resource Management which had been deliberately developed by the project with the assistance of a national consultant.
 - The indicator had surely been met.

Close matching of defined indicators with the outcomes of the activities implemented as shown above clearly indicated that all indicators of Output 3 had been satisfied. In other words, government policy on the conservation and utilization of cempaka had been reviewed and strengthened. However, it would be more appropriate to conclude at this juncture that the project had provided data and information needed to strengthen government policy which included: growing stock data on cempaka resource, AAC of cempaka stands, ISMP for cempaka resource management, SOP for monitoring of forest operations and stakeholder forum to facilitate exchange of information, experience, ideas and insights among stakeholders including the governments. All that the governments need to do now is to utilize the data and information in formulation of different policies. In other words, government policy had not been actually strengthened at project completion but enabling conditions to do so had been prepared under the project.

Above discussions clearly indicated that all planned outputs had been fully delivered. If so, the hypothesis made had to be accepted, i.e. delivery of planned outputs should lead to achievement of the specific objective. In other words, it was reasonable to conclude, on ground of outputs delivery, that the specific objective had been achieved. This conclusion reinforced the previous finding that, through matching of defined indicators of the specific objectives with outcomes of the project interventions, "the specific objective had been fully achieved".

4.2 Prevailing Situations at Commencement and Completion of the Project

a. Tangible results

The tangible results of individual project activities under each output that did not exist prior to consulting the project are listed below :

Output 1

- Technical reports on Activities 1.1 through 1.5.
- Technical manuals on seed collection, storage and germination.
- 3 small-scale nurseries and 18 Ha of cempaka demo plots.
- Cempaka seed sources at six sites.

Output 2

- Technical reports on Activities 2.1 through 2.5.
- Training modules on nursery and cempaka plantation development.

Output 3

- Technical reports on Activities 3.1 through 3.7.
- Integrated Strategic Management Plan for Cempaka Resource Conservation Development (ISMP – CRCD) document.
- Short videos and photos on project operations.

The list of publications, technical reports, books, posters, leaflet, short video and others materials both in English and Bahasa Indonesia are listed in Table 5.

Table 5. Publications, papers, books, posters, manuals, short videos and website published by the project.

No	Title	Year	Author/Editor	Type
1	Identification and Selection Guidelines for The Seed Source of Cempaka Wasian (English)	2016	Alfonsius Thomas	Technical Report
2	Silviculture Techniques of Cempaka Wasian Tree Species in North Sulawesi (English)	2016	Riskan Effendy	Technical Report
3	Final Report of Activity to conduct experiments on appropriate techniques for cempaka seed collection, storage and germination (Bahasa Indonesia)	2019	Julianus Kinho	Technical Report
4	Petunjuk teknis Pembangunan Kebun Benih Semai Cempaka di Persemaian (Bahasa Indonesia)	2019	Budi Leksnono	Manual Book

Table 5. Publications, papers, books, posters, manuals, short videos and website published by the project. (continue)

No	Title	Year	Author/Editor	Type
5	Petunjuk Teknis Pembangunan Demo – Plot Cempaka (Bahasa Indonesia)	2019	Budi Leksono	Manual Book
6	Peningkatan pengetahuan masyarakat local dalam Teknik pembangunan persemaian sederhana cempaka wasian (Bahasa Indonesia)	2019	Diah Irawati D. Arini; Julianus Kinho; Arif Irawan; Jafred E. Halawane & Arif Irawan	Technical Report
7	Buku Petunjuk Teknis Pembangunan Persemaian Sederhana Cempaka Wasian (Bahasa Indonesia)	2019	Diah Irawati D. Arini; Julianus Kinho; Arif Irawan; Jafred E. Halawane & Arif Irawan	Manual Book
8	Teknik penanaman cempaka (Bahasa Indonesia)	2019	Arif Irawan, H.N. Hidayah, J.E. Halawane, J. Kino, K. Mairi	Guide Book
9	To establish 18 Ha of plantation demonstration for purpose of long-term research and training of local communities (Bahasa Indonesia)	2020	Jafred E. Halawane	Technical Report
10	To Conduct Intensive Dialogues on Long-Term Benefits Of Cempaka Plantation With 20 Villages In 3 Districts. (English)	2020	Yopi D. Goliath, Vickie Lotulung, Ruddy Poli, and Adeline Mengko	Technical Report
11	Koleksi, penyimpanan dan perkecambahan Cempaka Wasian (Bahasa Indonesia)	2020	Julianus Kinho, Arif Irawan, Diah I.D. Arini, Jafred E. Halawane & Kristian Mairi	Manual Book
12.	Peningkatan pengetahuan masyarakat lokal dalam teknik penanaman cempaka (Bahasa Indonesia)	2020	Arif Irawan, Hanif N. Hidayah, A. Wildah, J.E. Halawane, J. Kinho, K. Mairi	Technical Report
13	To collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees (English)	2020	Yopi D. Goliath, K. Mairi, Vickie Lotulung, Ruddy Polii, Adeline Mengko	Technical Report
14.	Collaborative Strategy of Extension Program on Cempaka in North Sulawesi (English)	2020	Alex Novandra, Agus Purwanto, Olsje Tomponu	Technical Report
15	Buku penyuluhan pengembangan cempaka wasian di Sulawesi Utara (Bahasa Indonesia)	2020	Alex Novandra, A. Irawan, J. Kinho, J.E. Halawane, D.I.D. Arini, H.N. Hidayah, Olsje Tomponu	Guide Book
16	Buku Strategi Penyuluhan “Program pengembangan cempaka di Sulawesi Utara” (Bahasa Indonesia)	2020	Manado Environment and Forestry Research and Development Institute and International Tropical Timber Organization	Guide Book

Table 5. Publications, papers, books, posters, manuals, short videos and website published by the project. (continue)

No	Title	Year	Author/Editor	Type
17	To conduct survey on growing stock and distribution of cempaka species and to determine sustainable level of AAC (for cempaka resources) (Bahasa Indonesia)	2020	Lutfi Abdulah, R. Suryaningsih, D.I.D. Arini, J. Kinho, J.E. Halawane, A. Irawan, I.Yuliantoro, K. Mairi, H.N. Hidayah, H.S. Mokodompit, M.C. Karundeng, Y. Kafiar, S. Tabba, H. Kama	Technical Report
18	Kajian ekonomi pemanfaatan kayu cempaka untuk produksi rumah kayu woloan (Bahasa Indonesia)	2020	Subarudi, D. Djaenudin, H.N. Hidayah	Technical Report
19	Sistem monitoring legalitas kayu cempaka di Sulawesi Utara (Bahasa Indonesia)	2020	I. Yuliantoro	Technical Report
20	To established and operate Stakeholder Forum at Provincial Level (Bahasa Indonesia)	2020	Y.B. Tri Budi Miharja, Yopi D. Goliath, C. Talumingan,	Technical Report
21	Program kerja forum cempaka Sulawesi Utara 2020 - 2023 (Bahasa Indonesia)	2020	Forum Cempaka Sulawesi Utara	Document
22	Laporan penyelenggaraan One provincial workshop on cempaka resource conservation and utilization (Bahasa Indonesia)	2020	Manado Environment and Forestry Research and Development Institute	Technical Report
23	Rencana Strategi Terpadu Pengelolaan Sumber Daya Cempaka di Sulawesi Utara 2021 – 2030 (Bahasa Indonesia)	2020	Subarudi	Book
24	The Introduction : Project ITTO PD 646/12 Rev.3 (F) Initiating the Conservation Cempaka Trees Species (<i>Elmerrillia</i> sp.) through Plantation Development with the Local Community Participation in North Sulawesi (Bahasa Indonesia)	2020	PMU PD 646/12 Rev.3 (F)	Leaflet
25	Forum Cempaka Sulawesi Utara (Bahasa Indonesia)	2020	Local Firm CV. Selo Aheng Utara	Leaflet
26	One trial meeting Forum Cempaka "Mari jo torang selamatkan Cempaka"	2020	PMU PD 646/12 Rev.3 (F)	Banner
27	One trial meeting Forum Cempaka "Mandiri dalam kebersamaan untuk mewujudkan pengelolaan cempaka yang berkelanjutan"	2020	PMU PD 646/12 Rev.3 (F)	Banner
28	The 5 th Project Steering Committee	2020	PMU PD 646/12 Rev.3 (F)	Banner
29	Activity 1.2. To conduct experiments on appropriate techniques for cempaka seed collection, storage and germination	2020	Local Firm CV. Selo Aheng Utara	Poster

Table 5. Publications, papers, books, posters, manuals, short videos and website published by the project. (continue)

No	Title	Year	Author/Editor	Type
30	Activity 1.5. To establish 18 Ha of plantation demonstration plot for purpose of long-term research and training of local communities as well as other local stakeholder	2020	Local Firm CV. Selo Aheng Utara	Poster
31	Activity 2.2. Enhancing the local communities knowledge on cempaka wasian nursery development techniques at small scale nurseries	2020	Local Firm CV. Selo Aheng Utara	Poster
32	Activity 2.3. Enhancing the local communities knowledge on cempaka planting techniques	2020	Local Firm CV. Selo Aheng Utara	Poster
33	Activity 2.4. To collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees	2020	Local Firm CV. Selo Aheng Utara	Poster
34	Activity 2.5. to collaboratively develop of an extension program on cempaka resource conservation	2020	Local Firm CV. Selo Aheng Utara	Poster
35	Activity 3.1. To conduct survey on growing stock and distribution of cempaka species	2020	Local Firm CV. Selo Aheng Utara	Poster
36	Activity 3.2. To conduct a study on economic of cempaka wood utilization (for woloan house production)	2020	Local Firm CV. Selo Aheng Utara	Poster
37	Activity 3.3. To Determine sustainable level of AAC (for cempaka resources)	2020	Local Firm CV. Selo Aheng Utara	Poster
38	Activity 3.5. To pilot test application of SOP equipment and facilities one forest district	2020	Local Firm CV. Selo Aheng Utara	Poster
39	Activity 3.4. To develop SOP and procure equipment and facilities for monitoring forest operation and timber legality	2020	Local Firm CV. Selo Aheng Utara	Poster
40	Activity 3.5. To Pilot test application of SOP equipment and facilities one forest district	2020	Local Firm CV. Selo Aheng Utara	Poster
41	Activity 3.6. To establish and operate stakeholder forum at provincial level	2020	Local Firm CV. Selo Aheng Utara	Poster
42	ITTO PD 646/12 Rev.3 (F) Initiating the Conservation Cempaka Trees Species (<i>Elmerrillia</i> sp.) through Plantation Development with the Local Community Participation in North Sulawesi	2020	Local Firm CV. Selo Aheng Utara	Website (http://itto-cempaka.org/)
43	"to organize one provincial workshop on cempaka conservation and utilization"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video https://www.youtube.com/watch?v=9Q5j74CySCY
44	Project ITTO cempaka part 1 and part 2	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Documentary Film https://www.youtube.com/watch?v=4SffxDH5D3M , (https://www.youtube.com/watch?v=au9vgrdRAOc)

Table 5. Publications, papers, books, posters, manuals, short videos and website published by the project. (continue)

No	Title	Year	Author/Editor	Type
45	"to develop SOP and procure equipment and facilities for monitoring forest operation and timber legality"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=DCWcu7RYjww)
46	"To Determine sustainable level of AAC (for cempaka resources)"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=GlVZqJL_ziY)
47	"To conduct survey on growing stock and distribution of cempaka species"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=fEsfs4EXUw4)
48	"One trial meeting of Cempaka Forum North Sulawesi"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video https://www.youtube.com/watch?v=Er_T_dO8W7M)
49	"to collaboratively develop of an extension program on cempaka resource conservation"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=UR3drNz7ZXY)
50	"Training drone to support survey on growing stock and distribution of cempaka species"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=KTYg8a_tycc&t=43s)
51	"To establish and operate stakeholder forum at provincial level"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=x2380_m29-o)
52	"The introduction of Project ITTO PD 646/12 Rev.3 (F)"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=NDSSEdctP82Y&t=34s)
53	"To conduct experiments on appropriate techniques for cempaka seed collection, storage and germination"	2020	ITTO Cempaka Project and Local Firm CV. Selo Aheng Utara	Short video (https://www.youtube.com/watch?v=7HuQpVETLPc&t=3s)
54	Draft paper "Evaluasi pelatihan teknik penanaman cempaka berdasarkan teori the four levels kickpatrick"	2020	A. Irawan, H.N. Hidayah & A. Wildah	Paper reviewed: http://journal2.um.ac.id/index.php/jpb
55	Draft Policy Brief "Membangkitkan kembali Minat Masyarakat Sulawesi Utara Menanam Cempaka dalam Skema Hutan Rakyat"	2020	D.I.D Arini, K. Mairi, Yopi D. Goliath	Paper submitted: http://simlit.puspjajak.org/Myfront/indexPB
56	Draft Policy Brief "Pengadaan Data Konsumsi Kayu Sangat Penting Dalam Memperbaiki Penyusunan Preskripsi Pengelolaan Hutan Penghasil Kayu Cempaka di Sulawesi Utara"	2020	Lutfi Abdulah, R. Suryaningsih, D.I.D. Arini, J. Kinho, J.E. Halawane, A. Irawan, I.Yuliantoro, K. Mairi, H.N. Hidayah, H.S. Mokodompit, M.C. Karundeng, Y. Kafiar, S. Tabba, H. Kama	Paper submitted: http://simlit.puspjajak.org/Myfront/indexPB
57	Draft Policy Brief "Mendorong penetapan kayu cempaka sebagai tanaman budidaya di Sulawesi Utara (Sebuah upaya legalisasi tanaman cempaka pada hutan rakyat)"	2020	I. Yuliantoro, Mochlis, Y. D. Goliath	Paper submitted: http://simlit.puspjajak.org/Myfront/indexPB

A number of trainings and workshops relating to cempaka conservation and development that had been organized include small scale nursery development, planting techniques, cempaka seed collection, storage, and germination, economy analysis of nursery development are listed in Table 6.

Table 6. Training, meetings, workshop held and supported by project

No	Events	Location and time	Objective
1	The 1 st Project Steering Committee (PSC) Meeting of ITTO PD 646/12 Rev.3 (F), entitled "Initiating the Conservation of Cempaka Tree Species (<i>Elmerrillia</i> sp.) through Plantation Development with Local Community Participation in North Sulawesi".	Manado EFORDIA ; 1 May 2016.	The 1 st PSC meeting was aimed to strengthen coordination among institutions for effective implementation of project. In this meeting, the Project Coordinator (PC), Mr. Kristian Mairi presented to all participants about the review of project structure, progress in implementation, project finance, and inputs applied.
2	The 2 nd Project Steering Committee (PSC) Meeting of ITTO PD 646/12 Rev.3 (F).	Manado EFORDIA ; 14 March 2017.	To review progress of project, i.e. implementation of each activities, project finance, and implementation of the decision of previous PSC meeting. The 2 nd PSC meeting was aimed to collect ideas from all participants for efficiency and effectiveness of project.
3	The 3 rd Project Steering Committee (PSC) Meeting of ITTO PD 646/12 Rev.3 (F).	Manado EFORDIA ; 16 October 2018.	To discuss about the progress implementation of YPO 1, the extension for project implementation, operational workplan under YPO 1 and YPO 2, budget revision, indicators achievement, the employment of Project Management Advisor, and the idea about MFRI as the centre for Cempaka Resource Development.
4	To Train Local Communities on Cempaka Nursery's Development Techniques at Small -Scale Nurseries in Minahasa District.	Koka Village, Minahasa District ; 12 - 15 August 2019.	Training was organized by Activity 2.2., and 19 participants attended on this training.
5	To Train Local Communities on Frangipani (Cempaka) Nursery's Development Techniques at Small -Scale Nurseries in North Minahasa District.	Talawaaan Atas, North Minahasa District ; 19 - 22 August 2019.	Training was organized by Activity 2.2, and 15 participants attended on this training
6	The 4th Project Steering Committee (PSC) Meeting of ITTO PD 646/12 Rev.3 (F).	Manado EFORDIA ; 11 September 2019.	To discuss about the strategy for implementation of the project activities planned for execution under YPO 3.
7	To Train Local Communities on Cempaka Nursery's Development Techniques at Small-Scale Nurseries" in South Minahasa District.	Rumoong Atas Dua Village, South Minahasa ; 16 – 18 October 2020.	Training was organized by Activity 2.2, and 18 participants attended on this training.
8	FGD "Cempaka Planting Technique".	Tombulu Village, Minahasa District ; 3 – 6 December 2019.	Training was organized by Activity 2.3, and 30 participants attended on this training.

Table 6. Training, meetings, workshop held and supported by project (continue)

No	Events	Location and time	Objective
9	FGD “Cempaka Planting Technique”.	Rumoong Atas Dua Village, South Minahasa District ; 10 – 13 December 2019.	Training was organized by Activity 2.3, and 15 participants attended on this training
10	FGD “Collaboration for cempaka conservation and management in North Sulawesi”.	Aryaduta Hotel in Manado ; 11 March 2020.	To socialize guidance material on strategies and extension programs for cempaka management and programs for providing appropriate incentives in order for community interest in planting cempaka could be increased, SOPs for monitoring the legality of cempaka wood in North Sulawesi could be compiled.
11	FGD “Establishment initiation of the North Sulawesi Cempaka Forum”.	25 June 2020, virtually through zoom platform.	To initiate the establishment of North Sulawesi Cempaka Forum as an organization for related stakeholders to communicate, exchange information, and contribute for the development and sustainability of cempaka in North Sulawesi.
12	FGD for Stabilizing the Management and Formulating the Cempaka Forum Workplan.	Manado EFORDIA and virtually through zoom platform ; 23 July 2020.	Establishment of forum management and preparation of workplan.
13	FGD for Methodology on Cempaka Ground Survey and Advance Technology to collect spatial data and information of cempaka distribution.	Manado EFORDIA and Minahasa District ; 25-27 July 2020.	FGD was organized by Activity 3.1 and 3.3. with around 20 participants was attended in this training (MEFRDI, FMU, NSPFA etc)
14	One Trial Meeting of North Sulawesi Cempaka Forum.	South Minahasa District ; 21 August 2020.	To encourage the passion of NS Cempaka Forum member for planting cempaka. To carry out the inauguration of the board of NS Cempaka Forum for the years 2020-2023. To deliver issues related to cempaka cultivation, circulation of cempaka transport notes, as well as consolidation and workplans of the Cempaka North Sulawesi Forum.
15	Workshop “Integrated Cempaka Resource Management Strategy in North Sulawesi 2020 – 2029”.	Four Points Hotel and virtually through zoom platform ; 25 August 2020.	To accomplish document of Integrated Strategic Management Plan for Cempaka Resource Conservation Development in North Sulawesi for the period 2020 – 2029.
16	The 5th Project Steering Committee (PSC) Meeting of ITTO PD 646/12 Rev.3 (F).	Manado EFORDIA and virtually through zoom platform ; 19 October 2020.	To report outputs achievement of project, to discuss the utilization of unspent funds of project.



Figure 20. Provincial workshop to discuss the ISMP CRCD (Photo: L. Turbianti)

Some activities and events where the project had contributed to are listed in Table 7.

Table 7. News and articles related to the project activities

No	Activity/Title	Weblink
1.	ITTO Kembangkan Kayu Cempaka Minsel Homepage : SulutPos.com Friday, May 20 th , 2016	https://sulutpos.com/2016/05/itto-kembangkan-kayu-cempaka-minsel.html
2.	Organisasi Komoditi Kayu Dunia Lirik Minsel Kembangkan Kayu Cempaka Wasian Homepage : Komentor.co.id Friday, May 20th 2016	http://www.komentor.co.id/2016/05/organisasi-komoditi-kayu-dunia-lirik.html
3.	Bersama ITTO, Pemerintah Minahasa Lestarkan Pohon Cempaka Homepage : North Sulawesi Post Thursday, March 16 th , 2017	http://www.northsulawesipost.com/bersama-itto-pemerintah-minahasa-lestarikan-pohon-cempaka/
4.	ITTO Yokohama Kembangkan Cempaka Minahasa Homepage : Tribun Manado Wednesday, March 15 th , 2017	https://manado.tribunnews.com/2017/03/15/itto-yokohama-kembangkan-cempaka-minahasa
5.	ITTO Yokohama Jepang Tertarik Kembangkan Pohon Cempaka Minahasa Homepage : Manado Today.com Wednesday, March 15 th 2017	https://www.manadotoday.co.id/berita-pilihan/itto-yokohama-jepang-tertarik-kembangkan-pohon-cempaka-minahasa/

Table 7. News and articles related to the project activities (continue)

No	Activity/Title	Weblink
6.	Collaborating to Save Cempaka, ITTO: BP2LHK Manado Can Be Cempaka Centre of Excellence Homepage: FOERDIA, Ministry of Environment and Forestry Wednesday, October 18 th , 2018	https://www.forda-mof.org/berita/post/5381-berkolaborasi-selamatkan-cempaka-itto-bp2lhk-manado-bisa-menjadi-centre-of-excelence-of-cempaka
7.	LHK Balitbang Manado Holds FGD and Train The Minahasa Community on Cempaka Cultivation Homepage: FOERDIA, Ministry of Environment and Forestry Wednesday, August 30 th , 2019	https://www.forda-mof.org/berita/post/6366-balitbang-lhk-manado-adakan-fgd-dan-latih-masyarakat-minahasa-cara-budidaya-cempaka
8.	Tingkatkan Pengetahuan Budidaya Cempaka, BP2LHK Manado adakan FGD dan Pelatihan untuk Masyarakat Minahasa Homepage: ITTO Cempaka August 23 rd , 2019	http://itto-cempaka.org/index.php/berita/2-tingkatkan-pengetahuan-budidaya-cempaka-bp2lhk-manado-adakan-fgd-dan-pelatihan-untuk-masyarakat-minahasa
9.	Mantapkan Kepengurusan dan Penyusunan Rencana Kerja, Forum Cempaka Sulawesi Utara Siap Ditetapkan Homepage: ITTO Cempaka July 29 th , 2020	http://itto-cempaka.org/index.php/berita/16-mantapkan-kepengurusan-dan-penyusunan-rencana-kerja-forum-cempaka-sulawesi-utara-siap-ditetapkan
10.	Kolaborasi Pengelolaan dan konservasi cempaka di Sulawesi Utara Homepage: ITTO Cempaka March 12 th , 2020	http://itto-cempaka.org/index.php/berita/5-kolaborasi-pengelolaan-dan-konservasi-cempaka-di-sulawesi-utara
11.	Inisiasi Pembentukan Forum Cempaka, BP2LHK Manado dan Dinas Kehutanan Provinsi Sulawesi Utara Selenggarakan Focus Group Discussion Secara Virtual Homepage: ITTO Cempaka June 29 th , 2020	http://itto-cempaka.org/index.php/berita/7-inisiasi-pembentukan-forum-cempaka-bp2lhk-manado-dan-dinas-kehutanan-provinsi-sulawesi-utara-selenggarakan-focus-group-discussion-secara-virtual
12.	"Initiating the conservation of cempaka tree species (<i>Elmerrillia</i> spp.) through plantation development with the local community participation In North Sulawesi"	https://www.instagram.com/p/CHVDNb6gcHz/?igshid=18jx22f4hbrsi
13.	Merawat denyut cempaka di Sulawesi Utara Homepage: FORDA November 19 th , 2020	https://www.forda-mof.org/berita/post/7589-merawat-denyut-cempaka-di-sulawesi-utara

b. Sectoral policy and program

Through implementation of different activities, the project had contributed to sectoral development in one form or another as highlighted below :

- The identification of incentives for local communities to grow cempaka had convinced the governments at different levels that different forms of incentive are required to ignite and strengthen interest in the conservation and development of cempaka resource.
- The study on economics of cempaka timber processing should convince the government and private sector that efficiency of operation and quality of products required improving in order to enhance competitiveness of the traditional Minahasa Wooden house industries.
- The formulation of SOP for monitoring of forest operation would ease task of the government in forest law enforcement.
- The policy on level of AAC could serve as an effective instrument for sustaining cempaka forest resource.

c. Physical environment

In terms of physical environment, during the 36-months of project operation, the project had created an environment wherein villagers are now have deeply understood the long-term values and benefits of cempaka conservation and development. During the occasion of the provincial workshop, the participants were also made aware of the role of MEFRDI in the conservation and development of cempaka resource in North Sulawesi.

4.3 Involvement of the Target Beneficiaries

The primary beneficiaries of the project were MEFRDI, local communities and local governments; these beneficiaries had involved in the project implementation in one way or another, as highlighted below:

a. The Manado EFRDI

- The MEFRDI authority and professionals had been involved in the planning and operational stages of the project; it involved in the project formulation process, operational planning, execution of activities including monitoring of progress of operations and reporting, not the least in project budget management.
- The MEFRDI has and will be benefited from the project if project results and outputs are utilized property, which include enhanced understanding on cempaka conservation by local communities, updated data on cempaka growing stock, stronger support of local communities on cempaka plantation development and operation of the stakeholder forum. It has to be reiterated that these results and outputs of the project will only benefit MEFRDI if they are appropriately and consistently utilized, leading to realize its position as the cempaka centre of excellence.



Figure 21. Cempaka planting by Chief of MEFRDI (Photo : PMU)

b. The local communities

- The local communities residing near and inside state forest lands, including NGOs, had involved in the surveys on seed sources and cempaka growing stock, in the establishment of cempaka demplots, in the training programs, in piloting SOP for monitoring of forest operations and in the identification of incentives for cempaka growing and in the operation of the stakeholder forum.
- The local communities have and will continue receiving benefits from different sources in different ways :
 - » Selected community members received some income through involvement in the growing stock survey, seed source identification, study on economics of cempaka, etc.
 - » Trained community members are now able to get involved in forest management and monitoring operations.
 - » Trained community members should now be able to grow cempaka under an agro-forestry system that would generate intermediate income prior to harvesting of cempaka trees, on their own lands or for employment.

c. The local governments

- Local government officers and staff at different levels had involved in the execution of particular project activities including :
 - » Production and distribution of document of extension program on cempaka conservation and development.
 - » Establishment and operation of the stakeholder forum.
 - » Organization of the provincial workshop on Integrated Strategic Management Plan for cempaka resource in North Sulawesi.
- Local governments will be indirectly benefited from increased participation of local communities in cempaka conservation related activities, larger number of skilful local people through the training programs, better institutional coordination resulting from implementation of the project and more competitive cempaka timber processing industries.
- Increased income of local people should lead to larger revenue of the government through taxation system.

4.4 Project Sustainability

Sustainability of the project after its completion is expected to last through the prevailing conditions that had been developed under the project :

- The growing interest and participation of local communities in cempaka plantation development;
- Available sources of cempaka seed to support planting of cempaka on large area.

- The intention of MEFRDI to conduct a long-term R&D on growth and yield on cempaka species at existing demplots.
- Strengthened future government policy on sustainable cempaka resource management through utilization of the relevant data and information generated by the project.

Not secure | itto-cempaka.org

ITTO Project PD 646/12 Rev.3 (F)
Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* sp.) through Plantation Development with the Local Community Participation in North Sulawesi, Indonesia

Search ...

Beranda Berita Laporan Teknis Publikasi Video Gallery Kontak Project

Apa itu Project ITTO PD 646/12 Rev. 3 (F) (2)

Pada tahun 2016, Balai Penelitian dan Pengembangan Lingkungan Hidup dan Kehutanan (BP2LHK) Manado di International Timber Organization (ITTO) yang berkedudukan di Yokohama Jepang melakukan kesepakatan kerjasama dengan judul "Initiating the Conservation Of Cempaka Tree Species (*Elmerrillia* Sp) Through Plantation Development With The Local Community Participation In North Sulawesi". Kerjasama direncanakan akan dilaksanakan dalam kurun waktu 3 (tiga) tahun yaitu 2017 hingga 2019, mengalami perpanjangan project hingga September 2020.

Cempaka wasian merupakan flora khas di khususnya di Sulawesi Utara yang sangat populer digunakan sebagai bahan baku rumah kayu Minahasa (Wale Wangko), alat musik tradisional "kolintang" dan berbagai macam furniture dan meubel. Beberapa tahun terakhir, pasokan kayu khususnya dari hutan alam mengalami penurunan. Ketidakseimbangan antara pasokan dan permintaan kayu cempaka akan menyebabkan pemanfaatan sumberdaya cempaka yang tidak berkelanjutan khususnya di Sulawesi Utara, Indonesia.

Salah satu alternatif solusi untuk mengatasi ketidakseimbangan pasokan dan permintaan adalah dengan mempromosikan pengembangan hutan tanaman cempaka yang sejauh ini data menyebutkan masih sangat terbatas. Pengembangan hutan tanaman cempaka di Sulawesi Utara juga perlu didukung oleh beberapa faktor termasuk lahan, dukungan pemerintah pusat dan daerah, ilmu pengetahuan, kapasitas petani lokal, dan adanya kerjasama dengan berbagai pihak-pihak terkait.

Apa Tujuan dari Project ITTO PD 646/12 Rev. 3 (F)

Secara umum, project ini memiliki tujuan untuk berkontribusi dalam konservasi spesies cempaka di Sulawesi Utara. Sedangkan tujuan spesifik dari project ini adalah mengembangkan konservasi dan hutan tanaman cempaka dengan melibatkan masyarakat local khususnya di Sulawesi Utara.

Project ini dilaksanakan dengan menggandeng berbagai pihak yaitu lembaga penelitian, akademisi/universitas, pemerintah provinsi dan Unit Pelaksana Teknis Daerah, Lembaga Swadaya Masyarakat, pengusaha, kelompok tani, perangkat desa, dan masyarakat lokal.

Project difokuskan dilaksanakan pada tiga Kabupaten di Sulawesi Utara yaitu Minahasa, Minahasa Utara dan Minahasa Selatan. Sebanyak tiga tujuan spesifik, indikator keluaran, dan 17 kegiatan dimandatkan dalam project ini untuk dilaksanakan.

Berita Terkini

- Buku Panduan Pengelolaan Cempaka di Sulawesi Utara Siap Diterbitkan
- Mantapkan Kepengurusan dan Penyusunan Rencana Kerja, Forum Cempaka Sulawesi Utara Siap Ditetapkan
- Dishutda Sulut dan BP2LHK Manado Perkenalkan Inovasi Budidaya Cempaka
- Inisiasi Pembentukan Forum Cempaka, BP2LHK Manado dan Dinas Kehutanan Provinsi Sulawesi Utara Selenggarakan Focus Group Discussion Secara Virtual
- Inisiasi Pembentukan Forum Cempaka, BP2LHK Manado dan Dinas Kehutanan Provinsi Sulawesi Utara Audiensi dengan Wakil Bupati Minahasa Utara

FORUM CEMPAKA

You are here: Home

Figure 22. Website of ITTO Cempaka Project (Photo: PMU)



Figure 23. Nursery of CV. Culture Mandiri (Photo: PMU)

5. ASSESSMENT AND ANALYSIS

5.1 Project Rationale and Identification Process

Cempaka species (*Elmerrillia* spp) are a group of tree species indigenous to North Sulawesi. Cempaka wood has been widely used by local people in the makings of ships, music instruments and household appliances. In recent decades, however, larger portion of cempaka timber had been used in the production of Minahasa wooden houses whose demand was continuously growing both in domestic and export markets, especially in the middle east countries. While demand was continuously growing, supply of natural cempaka had been declining due mainly to the ever growing distance of harvesting areas and ever increasing cost of production. At the same time, supply of planted cempaka wood had been limited due mainly to very slow progress in cempaka plantation development.

Under the current market situation wherein demand for cempaka wood had been exceeding supply for quite a long time period, cempaka resource management was obviously unsustainable. Fearing of a worsening imbalance of demand and supply that might eventually lead to a serious deforestation and forest degradation process, the Manado Forest Research Institute (Manado FRI), which was renamed as Manado EFRDI in 2016 took an initiative to propose a project to ITTO to address unsustainable management problem facing cempaka resource in North Sulawesi.

5.2 The Problem Addressed, Project Design and Implementation Strategy

The key problem addressed by the project was the very slow progress in cempaka species plantation development in North Sulawesi. The underlying notions of defining this problem was that supply of natural cempaka would be very difficult to raise for natural reasons and that accelerating the pace of cempaka planting was the only feasible solution to increase supply in the near future.

The key problem to address was then thoroughly analyzed involving the primary stakeholders using a problem tree technique. By so doing, direct causes and indirect causes of the key problem were properly and completely identified which facilitated construction of a solution tree which was simply an inversion of the problem tree that clearly mimicked the relevant project interventions to resolve the problems.

Consistent with the key problem addressed as well as its consequence if remained unresolved, direct causes and indirect causes of the key problem, the design of the project was as follows :

- Development objective:
To contribute to the conservation of cempaka species in North Sulawesi.
- Specific objective:
To develop the conservation and plantations of cempaka with the involvement of local communities in North Sulawesi.
- Outputs:
 1. Capacity of local communities in cempaka plantation development enhanced.
 2. Participation of local communities in cempaka plantation development increased.
 3. Government policy on the conservation and utilization of cempaka species reviewed and strengthened.
- Activities:
There were 5 activities under Output 1; 5 activities under Output 2 and 7 activities under Output 3. Note that the activities identified were corresponding to the indirect causes of the key problem.

5.3 Critical Differences between Planned and Actual Implementation

A number of deviations from the original plans that occurred for different reasons are shown in Table 8.

Table 8. Planned and realized implementation of project activities

Activity	Completion date		Reason for deviation	
	Planned	Realized		
1.2	To conduct experiments on appropriate techniques for cempaka seed collection, storage and germination	YPO 1	YPO 3	Weak operational management
1.5	To establish 18 Ha of plantation demonstration for purpose of long-term research and training of local communities	YPO 1 & 2	YPO 3	Ditto, problem with land area
2.1	To conduct intensive dialogues on long-term benefits of cempaka plantation with 20 villages in 3 districts	YPO 1	YPO 3	Weak operational management
2.3	To train local communities on cempaka planting techniques	YPO 1 & 2	YPO 3	Ditto
2.4	To collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees	YPO 1	YPO 3	Ditto
2.5	To collaboratively develop of an extension program on cempaka resource conservation	YPO 2	YPO 3	Ditto
3.1	To conduct survey on growing stock and distribution of cempaka species	YPO 1	YPO 3	Ditto
3.2	To conduct a study on economics of cempaka wood utilization for woloan-house production.	YPO 2	YPO 3	Availability expert
3.3	To determine sustainable level of AAC for cempaka species	YPO 1	YPO 3	Weak operational management
3.4	To develop SOP and procure equipment and facilities for monitoring of forest operations and timber legality	YPO 2	YPO 3	Ditto
3.5	The project	January 2019	September 2020	Ditto

Note that the project was granted a 20-month extension in time to fully complete implementation of planned activities. The project experienced substantial delay in completion due mainly to weak operational management.

5.4 Adequacy of Project Inputs

In terms of human resource, the key project personnel were found weak or unable to handle project operation properly and efficiently under YPO 1 and YPO 2; this was the very reason for the delay in project completion for twenty months. The original Project Coordinator, and Project Secretary resigned on 31 October 2019 and January 2019, respectively. The current key personnel consisting of the Project Coordinator Project Secretary and Professional Management advisor were proved able to manage the project operations in a proper and effective manner.

With respect to partners, the national consultants and contractors hired were able to successfully accomplish their tasks within the sanctioned time and budget.

In terms of funding, the sanctioned reduced ITTO budget was sufficient to fully finance the project operations; no problem had occurred with respect to financing of activities, purchasing of capital items and procuring of needed materials.

Disbursed ITTO funds had been used in accordance with the provisions of the project agreement, appropriateness of funds had been regularly audited by an independent, registered public accountant and yearly reported to ITTO. Indeed, disbursements of ITTO funds were subjected to the appropriateness of funds usage of the preceding disbursements.

The sanctioned ITTO funds had been disbursed in the following manner :

- 1st disbursement : USD 80.000 on 2 September 2016
- 2nd disbursement : USD 62.023 on 10 November 2018
- 3rd disbursement : USD 70.000 on 25 September 2019
- 4th disbursement : USD 50.000 on 31 January 2020
- 5th disbursement : USD 50.000 on 20 May 2020
- 6th disbursement : USD 35.560 on 25 August 2020
- Total disbursements : USD 347.583

5.5 External Influences

The assumptions made with regard to influence of external forces on the project implementation process were valid throughout the project duration as highlighted below:

- The provincial government had demonstrated strong support in accomplishing joint tasks such as in the execution of Activities 2.5 and 3.6.
- The district governments had assisted in the identification of suitable lands for the establishment of cempaka plantation demplots (Activity 1.5) and in the identification of incentives (Activity 2.4).
- Local communities had been cooperative and supportive throughout the project implementation process.

5.6 Project Beneficiaries

The primary beneficiaries of the project were MEFRDI, local communities and provincial as well as local governments; involvement of the beneficiaries in project implementation and how they have and will be benefited from the project had been outlined in Section 4.1 above.

5.7 Project sustainability

Sustainability of the project would basically depend on the primary stakeholders and the prevailing conditions that had been developed under the project as already discussed in Section 4.4 above.

In addition to what had been presented in the preceding section, political will of the governments at local, provincial and central levels to support conservation of cempaka resource needs to be preserved and strengthened overtime.

5.8 The Institutions Involved in the Project Implementation

Among the institutions involved in implementing the project were listed below:

- Village administration leaders as partner in the execution of training program and forest surveys.
- District governments as partner in the establishment of cempaka plantation demplots and identification of incentives for local communities.
- Provincial government as partner in the execution of Activities 2.5 and 3.6.
- Bogor Research Development and Innovation as executor in the execution of Activities 3.1 and 3.3.
- MEFRDI as the executor of selected activities pursuant to decision of the 4th PSC meeting.
- Bureau for International Cooperation of MoEF as member of the PSC.
- Research Development and Innovation Agency as chairman of the PSC.



Figure 24. The View of Mahawu Mountain.



Figure 25. Data collection by MEFRDI researcher (Photo : PMU)

6. LESSONS LEARNED

6.1 Project Identification and Design

- The key problem addressed by the project had strong rationale as it was based on observed problems surrounding cempaka resource conservation and development and it was affirmed by the primary stakeholders;
- The key problem defined was thoroughly analyzed involving representatives of stakeholders to fully understand its cause-effect relationship by identifying the direct and indirect causes of the problem;
- The project design was consistent with the key problem and its perceived consequences which insured that the design was the relevant intervention to resolve the problem at hand; and
- Project planners should distinguish between conceptual or normative achievement and factual achievement when defining SMART indicators in order to minimize time lapse between the two forms of achievement.

6.2 Project Implementation

- The small project management unit (PMU) that comprised only three key personnel was proved able to properly manage project operations and easily adapt to changing project environment;

- The key success factors of the project were primarily leadership of the Project Coordinator and working relation with internal as well as external partners;
- Continued communication and coordination between the PMU and ITTO Secretariat had significantly contributed to overcoming different operational problems and speeding up the pace of operation;
- The high compliance of the PMU to rules and procedures applying to ITTO project as well as to the project agreement had facilitated completion of the project, within the sanctioned time and budget;
- Supportive government authorities and influential stakeholders had eased and simplified establishment of the provincial cempaka stakeholder forum;
- Weakly defined indicators of achievement during the project formulation stage need updating during the operational stage, taking progress in implementation into account, to ensure measurability and usefulness of the indicators in the final assessment of project achievement.



Figure 26. The chief of NSPFA, Mr. Reiner Dondokambey, handed the SHF' Decree to Mr. Celsius Talumingan, the chief of SHF (Photo: PMU)

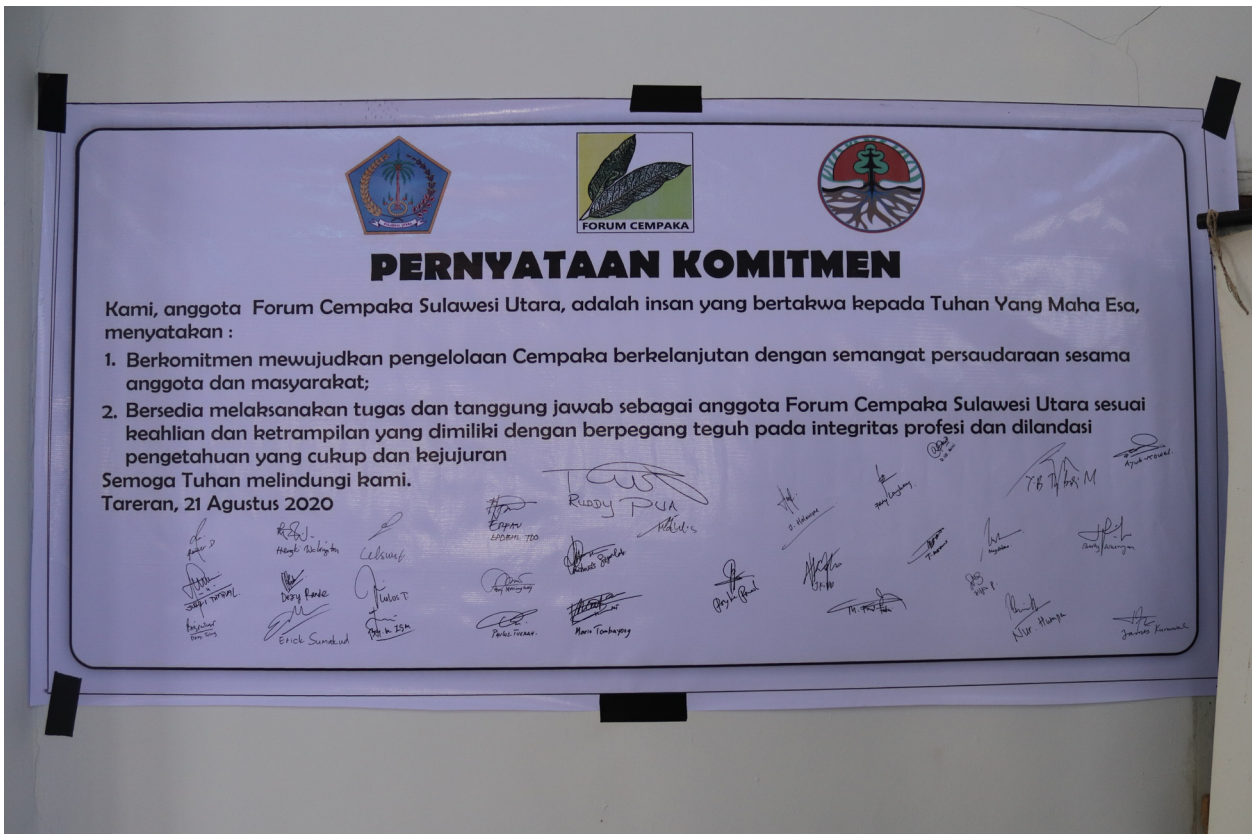


Figure 27. Declaration of Cempaka Stakeholder Forum (Photo: PMU)



Figure 28. Distribution and promotion of ISMP document to primary stakeholders (Photo: PMU)



Figure 29. Fruit of cempaka wasian

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

- i. The thorough analysis of the problem addressed involving stakeholders had facilitated construction of a project design proved relevant to solving the problem at hand;
- ii. The assumptions made during the planning stage were valid throughout the project duration and the planned mitigating measures were effective in preventing potential risks from occurring;
- iii. The specific objective of the project, defined consistently with the key problem addressed, had been achieved at completion of the project on two grounds: delivery of planned outputs and fulfilment of defined indicators of the specific objective;
- iv. Planned outputs had been declared as “delivered”, at least in a conceptual sense, on ground of attainment of defined indicators of the respective outputs through the outcomes of the activities implemented;
- v. Achievement of the specific objective and outputs declared must be perceived with care as achievement in practice is not the same as achievement in concept and a time lapse may occur between these two forms of achievement;
- vi. The smooth implementation of the project under YPO 3 and the successful completion were made possible by, among others,

- The sound project design
 - The effective modified strategy pursued
 - The sufficient inputs
 - The strong support of ITTO secretariat, MEFRDI's researcher, and external partners.
 - The able PMU
 - The wise and enlightening PSC
- vii. Formation of the provincial cempaka stakeholder forum (SHF) had been eased through the assistance of authorities and main stakeholders.

7.2 Recommendations

- i. It is strongly recommended for any proponent practiced of ITTO project to perform an adequate analysis of the key problem addressed in accordance with existing ITTO manual for project formulation to ensure comprehension of cause-effect relationship;
- ii. To be sound, a project design must be built on a clear cause-effect relationship to ensure relevance and effectiveness of planned interventions to resolve the problems at hand;
- iii. To ensure a smooth and successful completion of a project, the enabling conditions that must be prevailing include: an adaptive operational strategy, an able PMU, sufficient financial resource, healthy communication and strong coordination with internal as well as external partners.
- iv. It is best to employ a small but able PMU in order to minimize cost of personnel, ensure effective coordination and high adaptability to changing environment;
- v. To ensure quality of products, selection of consultants, experts and contractors should be strictly based on experience and expertise in the works to be assigned to.
- vi. The Executing Agency is strongly advisable to follow-up the outputs and findings of the project as a means to sustaining benefits of the project;
- vii. The Executing Agency is strongly recommended to assist the provincial and local governments in policy making on cempaka conservation and development, by making use of the project's deliverables, especially the ISMP and SHF.

Responsible for the report,



Name : Diah Irawati Dwi Arini
Position held : Project Coordinator
Date : November, 2020



Name : Dr. Hiras Sidabutar
Position held : Project Management Advisor
Date : November, 2020

REFERENCES

- Abdulah, L., R. Suryaningsih., D.I.D. Arini., J. Kinho., J.E. Halawane., A. Irawan., I. Yuliantoro., K. Mairi., H.N. Hidayah., H.S. Mokodompit., M.C. Karundeng., Y. Kafiar., S. Tabba., and H. Kama. 2020. *Technical report of activity 3.1. to conduct survey on growing stock cempaka species and activity 3.3. to determine sustainable level of AAC*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Arini, D.I.D., J. Kinho., J.E. Halawane., A. Irawan., and K. Mairi. 2019. *Enhancing the local communities' knowledge on cempaka wasian nursery development techniques at small-scale nurseries. Technical report of execution of activity 2.2. to train local communities on cempaka nursery development techniques at the small-scale nurseries*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Balai Penelitian dan Pengembangan Lingkungan Hidup dan Kehutanan Manado. 2020. *Technical report of execution of activity 3.7. to organize one provincial workshop on cempaka resource conservation and utilization*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- CV. Cultural Mandiri. 2019. *Final report of execution of activity 1.3. to establish three small-scale nurseries at village level to be managed by local communities*. International Tropical Timber Organization and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Effendy, R. 2016. *Silvicultural techniques of cempaka wasian tree species in North Sulawesi*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Golioth, Y.D., K. Mairi., V. Lotulung., R. Polii., and A. Mengko. 2020. *Technical report of execution of activity 2.4. to collaboratively identify and introduce appropriate incentives for local communities to plant cempaka trees*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Golioth, Y.D., V. Lotulung., R. Polii, and A. Mengko. 2020. *Technical report of execution of activity 2.1. to conduct intensive dialogue on long-term benefits of cempaka plantation with 20 villages in 3 districts*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Halawane, J.E. 2020. *Final report of ITTO PD 646/12 Rev.3 (F), Activity 1.5. to establish 18 Ha of plantation demonstration for purpose of long-term research and training of local communities as well as other stakeholders*. International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.

- Irawan, A., H.N. Hidayah., A. Wildah., J.E. Halawane., J.Kinho., and K. Mairi. 2019. *Enhancing the local communities' knowledge on cempaka planting techniques. Technical report of execution of activity 2.3. to train local communities on cempaka planting techniques at plantation demonstration plot.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Kinho, J. 2019. *Final report of ITTO PD 646/12 Rev.3 (F), Activity 1.2. to conduct experiments on appropriate techniques for cempaka seed collection, storage, and germination.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Miharjo, T.B.Y.B., Y.D. Goliath., and C. Talumingan. 2020. *Technical report of execution of activity 3.6, to establish and operate stakeholder forum at provincial level.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Novandra, A., A. Purwanto., and O. Tomponu. 2020. *Collaborative strategy of extension program on cempaka in North Sulawesi. Technical report of execution of activity 2.5. to collaboratively develop on extension program on cempaka resource conservation.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Subarudi., D.Jaenuddin., and H.N. Hidayah. 2020. *Kajian ekonomi pemanfaatan kayu cempaka untuk produksi rumah kayu woloan.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Thomas, A. 2016. *Identification and selection guidelines for the seed source of cempaka wasian.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.
- Yuliantoro, I. 2020. *Sistem monitoring legalitas kayu cempaka di Sulawesi Utara. Technical report of execution of activity 3.4. to develop SOP and procure equipment and facilities for monitoring of forest operations and timber legality and activity 3.5. to pilot test application of SOP equipment and facilities in one forest districts.* International Tropical Timber Organization Project and Manado Environment and Forestry Research and Development Institute (MEFRDI). Manado.

Annex 1. Project Financial Statement of ITTO

STATEMENT OF ACTIVITY

(To be prepared separately for ITTO funding and for Counterpart Funding)

Project No. PD 646/12 Rev.3 (F)

Period ending on Desember, 31 2020

Project Title: Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* spp.) Through Plantation Development with Local Community Participation in North Sulawesi, Indonesia.

Funds received		In Past Periods			Current Period	Total	(in US Dollars)
		212.023			135.560	347.583	
Component	Budget	Previously accumulated expenses (Accrual basis)	Expenses (To be audited) Current Period 1/2/2016 through 31/12/2020			Accumulated expenses (Accrual basis) To-date	Available Budget
			Expended	Adjustment for Accrual basis	Total		
			A	B	C		
Funds managed by Executing Agency							
10	Project Personnel					-	-
11	National Experts (long term)					-	-
	11.1 Project Coordinator	86.000,00	66.000	20.000		20.000	86.000
	11.2 Forester 1					-	-
	11.3 Market/industry expert etc.					-	-
	11.4 Administrator	21.500,00	15.500	6.000		6.000	21.500
12	Other Personnel					-	-
	12.1 Assistant 1					-	-
	12.2 Other labour	11.710,70	6.147	5.564		5.564	11.711
13	National Consultant(s) (short term)					-	-
	13.1 Consultant 1	25.207,35	14.577	10.630		10.630	25.207
	13.2 Consultant 2	3.500,00	-	3.500		3.500	3.500
14	International Consultant(s)					-	-
	14.1 Forest Inventory Expert					-	-
	14.2 Consultant 2	15.750,00	6.750	9.000		9.000	15.750
15	Fellowships and Training					-	-
	15.1 Training 1 (fee trainer)	3.079,45	3.151	(72)		-72	3.079
	15.2 Training 2					-	-
19	Component Total:	166.747,50	112.125	54.622		54.622	166.747
20	Sub-contracts					-	-
21	Sub-contract (with NGO)	9.719,70	9.720			-	9.720
22	Sub-contract (18 Ha plantation plots)	21.304,23	13.326	7.978		7.978	21.304
23	Sub contract with university	17.874,98	-	17.875		17.875	17.875
24	Sub contract, provincial workshop	8.000,00	-	8.000		8.000	8.000
29	Component Total:	56.898,91	23.046	33.853		33.853	56.899
30	Travel					-	-
31	Daily Subsistence Allowance					-	-
	31.1 National Expert(s)/ Consultant(s)	51.189,56	20.249	30.941		30.941	51.190
	31.2 International Consultant(s)	1.079,24	599,24	480		480	1.079
	31.3 Others	7.693,51	15.614	(7.920)		(7.920)	7.694
32	International Travel					-	-
	32.1 National Expert(s)/ Consultant(s)					-	-
	32.2 International Consultant(s)					-	-
	32.3 Others					-	-
33	Local Transport Costs					-	-
	33.1 National Expert(s)/ Consultant(s)					-	-
	33.2 International Consultant(s)					-	-
	33.3 Others					-	-
39	Component Total:	59.962,31	36.462	23.500	-	23.500	59.962

Continue...

Component	Budget	Previously accumulated expenses (Accrual basis)	Expenses (To be audited) Current Period 1/2/2016 through 31/12/2020			Accumulated expenses (Accrual basis) To-date	Available Budget	
			Expended	Adjustment for Accrual basis	Total			
			A	B	C			D
40	Capital Items					-	-	-
41	Premises					-	-	-
42	Land					-	-	-
43	Vehicle(s)	3.818,84		-		-	-	3.818,84
44	Capital Equipment					-	-	-
	44.1 Computer Equipment (specify)	2.932,53				-	-	2.932,53
	44.2 Forestry Equipment (specify)	1.875,10				-	-	1.875,10
	44.3 Others					-	-	-
45	Depreciation expense		8.626			-	8.626	(8.626,47)
49	Component Total:	8.626,47	8.626	-	-	-	8.626	-
50	Consumable Items					-	-	-
51	Raw Materials	7.875,87	3.360	4.516		4.516	7.876	-
52	Utilities	-				-	-	-
53	Production of Outreaching Materials	5.190,00	1.886	3.304		3.304	5.190	-
59	Component Total:	13.065,87	5.246	7.820	-	7.820	13.066	-
60	Miscellaneous					-	-	-
61	Sundry	36.586,94	18.981	15.366	2239,95	17.606	36.587	-
62	Audit Costs	5.695,00	2.463	1.675	1557,34	3.232	5.695	-
63	Contingencies					-	-	-
69	Component Total:	42.281,94	21.444	17.041	3.797	20.838	42.282	-
70	National Management Costs					-	-	-
71	Executing Agency Management Costs					-	-	-
72	Focal Point Monitoring					-	-	-
73	Exchange gain					-	-	-
79	Component Total:					-	-	-
	Sub-Total:					-	-	-
100	GRAND TOTAL:	347.583,00	206.950	136.836	3.797	140.633	347.583	-
			Last Period				Current Period	
	Fund Balance		5.073				0	

Annex 2. Project Cash Flow Statement

PROJECT CASH FLOW STATEMENT

Period ending on Desember, 31 2020

Component		Reference	Date	Amount		
				In US\$	Local currency IDR	
A. Funds received from ITTO:						
	1	First Installment	G0160391227301	02/09/2016	80.000	1.083.729.000
	2	Second Installment	480-3513576	10/11/2018	62.023	943.059.715
	3	Third Installment	480-3530127	25/9/2019	70.000	987.350.000
	4	Fourth Installment	480-3536308	31/1/2020	50.000	683.000.000
	5	Fifth Installment	480-3541022	20/05/2020	50.000	730.750.000
	6	Sixth Installment	480-3544951	25/08/2020	35.560	512.597.400
		ETC.				
Total Fund received					347.583	4.940.486.115
B. Expenditures by Executing Agency:						
10	Project Personnel					
	11	National Experts (long term)				
		11.1 Project Coordinator			86.000	1.216.094.000
		11.2 Forester 1				
		11.3 Market/industry expert etc.				
		11.4 Administrator			21.500	304.400.500
	12	Other Personnel				
		12.1 Assistant 1				
		12.1 Assistant 2				
		12.2 Other labour			11.710	165.994.505
	13	National Consultant(s) (short term)				
		13.1 Consultant 1			25.207	349.200.600
		13.2 Consultant 2			3.500	50.197.500
		13.3 Consultant 3				
	14	International Consultant(s)				
		14.1 Forest Inventory Expert				
		14.2 Consultant 2			15.750	227.129.250
	15	Fellowships and Training				
		15.1 Training 1 (fee trainer)			3.079	45.491.300
		15.2 Training 2				
		15.3 Training 3				
	19	Component Total:			166.747	2.358.507.655
20	Sub-contracts					
	21	Sub-contract (with NGO)			9.720	147.788.000
	22	Sub-contract (18 Ha plantation plots)			21.304	299.779.100
	23	Sub-contract with university			17.875	255.530.800
	24	Sub-contract, provincial workshop			6.324	92.329.600
	29	Component Total:			55.223	795.427.500

Continue...

	Component	Reference	Date	Amount	
				In US\$	Local currency IDR
30	Travel				
31	Daily Subsistence Allowance				
	31.1 National Expert(s)/ Consultant(s)			51.189	729.206.323
	31.2 International Consultant(s)			599	8.899.500
	31.3 Others			5.894	85.249.607
32	International Travel				
	32.1 National Expert(s)/ Consultant(s)				
	32.2 International Consultant(s)				
	32.3 Others				
33	Local Transport Costs				
	33.1 National Expert(s)/ Consultant(s)				
	33.2 International Consultant(s)				
	33.3 Others				
39	Component Total:			57.682	823.355.430
40	Capital Items				
41	Premises				
42	Land				
43	Vehicle(s)			3.819	51.730.000
44	Capital Equipment				
	44.1 Computer Equipment (specify)			2.933	39.724.000
	44.2 Forestry Equipment (specify)			1.875	25.400.000
	44.3 Others				
49	Component Total:			8.626	116.854.000
50	Consumable Items				
51	Raw Materials			7.876	113.955.250
52	Utilities				
53	Production of Outreaching Materials			5.163	72.325.000
59	Component Total:			13.039	186.280.250
60	Miscellaneous				
61	Meeting			2.499	36.521.485
62	Consultation			15.173	214.641.500
63	Discussion			4.999	69.780.850
64	PSC Meetings			9.276	133.229.150
65	Financial Audit			5.445	77.449.000
66	printing final reports and promotion			4.973	71.684.995
67	Meeting Facilities			2.000	29.201.000
68	Stakeholders meeting			1.900	27.553.300
69	Component Total:			46.265	660.061.280
70	National Management Costs				
71	Executing Agency Management Costs				
72	Focal Point Monitoring				
79	Component Total:				
Total expenditures to-date				347.583	4.940.486.115

Annex 3. Project Financial Statement of GOI Contribution

GOI PROJECT FINANCIAL STATEMENT (In US Dollar)

Project No. PD 646/12 Rev.3 (F)

Period ending on Desember, 31 2020

Project Title: Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* spp.) Through Plantation Development with Local Community Participation in North Sulawesi, Indonesia.

Component	Modified Amount (A)	Expenditures To-date			Available Budget (E) (A – D)
		Accrued (B)	Expended (C)	Total (D) (B + C)	
1. Funds managed by Executing Agency					
10	Project Personnel				
11	Project Coordinator		-	-	-
12	Secretary		-	-	-
13	Overtime work	14.400	14.400	14.400	-
14	National Consultant		-	-	-
15	National Consultant		-	-	-
16	National Experts	3.000	3.000	3.000	-
17	Fee Trainers		-	-	-
18	Project Advisor		-	-	-
19	Component Total	17.400	17.400	17.400	-
20	Subcontract				
21	Subcontract with NGO	12.960	12.960	12.960	-
22	Subcontract (18 Ha plantation plots)	16.000	16.000	16.000	-
23	Subcontract with University	12.000	12.000	12.000	-
24	Subcontract, Provincial workshop	2.000	2.000	2.000	-
29	Component Total	42.960	42.960	42.960	-
30	Travel				
31	Daily Subsistence Allowance (DSA)				
	31.1 DSA, NC		-	-	-
	31.2 DSA, NC		-	-	-
	31.3 DSA, NE		-	-	-
	31.4 DSA Trainers		-	-	-
	31.5 DSA Trainees		-	-	-
	31.6 DSA Participants		-	-	-
	31.7 DSA, PC		-	-	-
	31.8 DSA, PA		-	-	-
32	Air Ticket				
	32.1 Air ticket, NC		-	-	-
	32.2 Air ticket, PC	900	900	900	-
	32.3 Air ticket, PA		-	-	-
33	Local Transport	11.250	11.250	11.250	-
39	Component Total	12.150	12.150	12.150	-
40	Capital Items				
41	Motorcycle	2.000	2.000	2.000	-
42	GPS Garmin		-	-	-
43	Computer + PDA	1.500	1.500	1.500	-
44	Printer		-	-	-
49	Component Total	3.500	3.500	3.500	-

Continue...

	Component	Modified Amount (A)	Expenditures To-date			Available Budget (E) (A – D)
			Accrued (B)	Expended (C)	Total (D) (B + C)	
50	Consumable Items					
	51 Material/Lab Material	2.000		2.000	2.000	-
	52 Utilities	18.000		18.000	18.000	-
	53 Production of Outreaching Materials			-	-	-
	59 Component Total	20.000		20.000	20.000	-
60	Miscellaneous					
	61 Meeting	10.340		10.340	10.340	-
	62 Consultation			-	-	-
	63 Discussion			-	-	-
	64 PSC Meetings			-	-	-
	65 Financial Audit			-	-	-
	66 Office Space	21.600		21.600	21.600	-
	67 Meeting Facilities	900		900	900	-
	68 Stakeholders meetings			-	-	-
	69 Component Total	32.840		32.840	32.840	-
70	Total Project	128.850		128.850	128.850	-

Annex 4. Project Cash Flow Statement of GOI Contribution

GOI PROJECT CASH FLOW STATEMENT

Project No. PD 646/12 Rev.3 (F)

Period ending on Desember, 31 2020

Project Title: Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* spp.) Through Plantation Development with Local Community Participation in North Sulawesi, Indonesia.

Component		Reference	Date	Amount in US\$	Local Currency (IDR)
A. Funds received					
1	Funds from GOI			128.850	1.857.372.750
Total funds received				128.850	1.857.372.750
B. Expenditures by executing agency					
Purchase Giro Check book					
10. Project personnel					
11	Project Coordinator				
12	Secretary				
13	Overtime work			14.400	207.576.000
14	National Consultant				
15	National Consultant				
16	National Experts			3.000	43.245.000
17	Fee Trainers				
18	Project Advisor				
19	Component Total			17.400	250.821.000
20. Sub – Contracts					
21	Subcontract with NGO			12.960	186.818.400
22	Subcontract (18 Ha plantation plots)			16.000	230.640.000
23	Subcontract with University			12.000	172.980.000
24	Subcontract, Provincial workshop			2.000	28.830.000
29	Component Total			42.960	619.268.400
30. Travel					
31	Daily Subsistence Allowance				
	31.1 DSA NC				
	31.2 DSA NC				
	31.3 DSA NE				
	31.4 DSA Trainers				
	31.5 DSA Trainees				
	31.6 DSA Participants				
	31.7 DSA PC				
	31.8 DSA PA				
32	Air Ticket				
	32.1 Air ticket, NC				
	32.2 Air ticket, PC			900	12.973.500
	32.3 Air Ticket, PA				
33	Local Transport			11.250	162.168.750
39	Component Total			12.150	175.142.250
40. Capital Items					
41	Motorcycle			2.000	28.830.000
42	GPS Garmin				
43	Computer + PDA			1.500	21.622.500
44	Printer				
49	Component Total			3.500	50.452.500

Continue...

Component		Reference	Date	Amount in US\$	Local Currency (IDR)
50. Consumable Items					
51	Material/Lab Material			2.000	28.830.000
52	Utilities			18.000	259.470.000
53	Production of Outreaching Materials				
59	Component Total			20.000	288.300.000
60. Miscellaneous					
61	Meeting			10.340	149.051.100
62	Consultation				
63	Discussion				
64	PSC Meetings				
65	Financial Audit				
66	Office Space			21.600	311.364.000
67	Meeting Facilities			900	12.973.500
68	Stakeholders meetings				
69	Component Total			32.840	473.388.600
Total expenditures to – date				128.850	1.857.372.750
Remaining balance of funds (A-B)				-	-





**COMPLETION REPORT
PROJECT ITTO PD 646/12 Rev.3 (F)**

**Ministry of Environment and Forestry, Republic of Indonesia
Research Development and Innovation Agency
Manado Environment and Forestry Research and Development Institute**

**Manado Environment and Forestry Research
and Development institute**

Jl. Raya Adipura, Kima Atas, Mapanget, Kima Atas,
Kec. Mapanget, Kota Manado, Sulawesi Utara 95119
Telp. (0431) 7242949 E-mail: bp2lhkmanado@gmail.com

 [bp2lhkmanado](#)  [bp2lhkmanado](#)

 [bp2lhkmanado](#)  <http://manado.litbang.menlhk.go.id>