Ex-post Evaluation Report (Rev.1)

PP-A/56-340-1-Indonesia

Capacity Building on Forest and Land Fire Management in Indonesia

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December 2024

58RFM-02a
10 January 2025

Acronyms and Abbreviations

DFLFM	: Directorate of Forest and Land Fire Management
GFMC	: Global Fire Management Center
GHG	: Greenhouse Gas
IFM	: Integrated Fire Management
ITTO	: International Tropical Timber Organization
MA	: *Manggala Agni* (Forest and Land Fire Brigade of MoEF)
MPA	: *Masyarakat Peduli Api* (Fire Care Community)
MoEF	: Ministry of Environment and Forestry
PLTB	: *Pembukaan Lahan Tanpa Bakar* (land preparation without burning)
RFMRC-SEA	: Regional Fire Management Resource Center – South East Asia
SFM	: Sustainable Forest Management

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Executive Summary

The objective of the project "Capacity Building on Forest and Land Fire Management in Indonesia", PP-A/56-340-1, was to reduce the occurrence of forest and land fires in targeted areas by strengthening capacity building in forest and land fire management and zero burning practices, and by increasing prevention activities with technology improvements and development of practical guidelines.

The project's three expected outputs are: (1) Best agricultural practices applied; (2) Strengthened management capacity to address forest and land fires problems; and (3) Forest and land fire prevention actions increased, and cooperation strengthened among local institutions, the private sector and communities for forest fire prevention. In order to know how far the results have been meet the target, then ex-post evaluation was conducted.

The primary purpose of the in-depth evaluation of the completed Indonesia forest fire project was to point out the successful and – if applicable – unsuccessful outcomes, the reasons for successes and failures, and the contribution of the projects towards the achievement of sustainable forest management.

The scope of the evaluation focused on: (1) analysis and assessment of the project; (2) provision of a synthesis to overall role and meaningful contribution of the projects in achieving Integrated Fire Management in Indonesia; evaluation of the overall impact on and relevance of the projects for the Executing Agency, the forest industry and conservation sector and local communities concerned; evaluation of the overall attainment of the objectives and assess the overall effectiveness of the projects; evaluation of the overall appropriateness of the costs and cost structure and use of resources within the projects; and (3) provide conclusions and recommendations.

The desk review of project information and documents was conducted between 3 and 6 June 2024, followed by meetings with the executing agency, government representatives, project staff, beneficiaries, and the key stakeholders between 6 and 7 June 2024 in the Ministry of Forestry and Environment (MoEF), Jakarta. Visits to selected project sites in the provinces South Sumatra, Central Kalimantan and South Kalimantan were conducted between 10 and 21 June 2024. The on-site visits were carried out by representatives of the Directorate of Forest

and Land Fire Management-Directorate General of Climate Change as Executing Agency, International Cooperation Bureau, the Regional Climate Change Implementation Units of Sumatra and Kalimantan; and the previous ITTO-Project coordinator. Discussions took place in the offices of the local Forest and Land Fire Brigades (*Manggala Agni Daops*) and directly on sites. Drafting and reviewing about the report was conducted between 24 and 27 June 2024; followed by consultation for drafting and reviewing the report being conducted in Bogor, 12 July 2024.

Although this project took place in the midst of the Covid-19 pandemic, which did not allow face-to-face meetings as usual, the overall activities could still be carried out in accordance with the project plan. The outcomes of project activities benefitted by active participation of project target groups and their obvious interest to take advantage of new methods in testing alternative practices of land management without fire use and to improve local capabilities in wildfire prevention and control. However, the limited lifetime of the project and some unforeseeable developments reveal the need for future long-term project designs.

The project had completed all its planned activities which were in line with achieving the expected outputs. The project introduced and improved the program on alternative integrated land preparation without burning for the community/*Masyarakat Peduli Api* as one of the answers to the national policy on burning prohibition, through land preparation without burning for cropping, farming and local livelihood development. The land preparation without burning practice was conducted by utilizing biomass waste from land preparation. The project also improved capacity of *Manggala Agni* through the training program on technical skills – most of the methods were novel knowledge for *Manggala Agni*. Local communities and farmers are in need of applicable alternative technologies and approaches for utilizing lands and augmenting income in light of the government policy on land burning prohibition. Lessons learned from the project include: (1) Participation of local communities and farmers in prevention of forest and land fires should be continuously encouraged, assisted and accompanied by the government and stakeholders, (2) The Fire Brigades (*Manggala Agni*) should be periodically trained to maintain and improve their capacity in fire management, and (3) There is a need to consistently revitalize the equipment and facilities for controlling forest and land fires to ensure adequacy of performance in terms of quantity and quality.

It is recommended to build on the experience and outcomes of the project and to continue with similar projects in the future, with the objectives focusing on the core of Integrated Fire Management (IFM) goals: (1) Halting the inappropriate use of fire in land management for the benefit of environmental protection; (2) Supporting of sustainable income and livelihood of rural communities; and (3) Prevention of wildfires. The project sites should be out of the three previous provinces. Innovative approaches/designs should be introduced and implemented through activities called *Manggala Agni* village protectors. The organization, which will organize the planned activities, will continue to be *Manggala Agni*, under the coordination of the Directorate of Forest and Land Fire Management and Fire Regional Agency. The implementation will join hands with the local communities. This needs to be done to ensure that Republic of Indonesia continue to successfully meet: (1) the Sustainable Development Goals, (2) the strategic visions of the Rio Conventions with the interconnected challenges of Climate Change, Desertification and Biodiversity Loss, (3) the Sendai Framework for Disaster Risk Reduction 2015-2030, (4) multilateral intergovernmental agreements such as the ASEAN Transboundary Haze Agreement, and (5) national strategies such as Indonesia's Forestry and Other Land Use (FOLU) Net Sink 2030.

1. Introduction

1.1.1. Ex-post evaluation

The primary purpose of the ex-post evaluation is to provide an in-depth review of the completed Indonesia forest fire project, PP-A/56-340-1, to point out:

- the successful and – if applicable – unsuccessful outcomes, the reasons for successes and failures,
- the contribution of the projects towards the achievement of sustainable forest management, and
- to draw lessons that can be used to improve similar projects in the future and provide policy recommendations for promoting the application of principles of Integrated Fire Management (IFM) in the tropics.

The policy recommendations shall address the applicability of principles of Integrated Fire Management in the tropics. The evaluation should also refer to the appropriate recommendations in the report on the Meta-Evaluation of previously evaluated ITTO projects [ITTC-JC(XLV/2)].

1.1.2. The Project

TITLE:	CAPACITY BUILDING ON FOREST AND LAND FIRE MANAGEMENT IN INDONESIA
SERIAL NUMBER:	PP-A/ 56-340-1
EXECUTING AGENCY:	DIRECTORATE OF FOREST AND LAND FIRE MANAGEMENT (DFLFM), DIRECTORATE GENERAL OF CLIMATE CHANGE, MINISTRY OF ENVIRONMENT AND FORESTRY, REPUBLIC OF INDONESIA
DURATION	18 months (including 6 months extension)
STARTING DATE	28 January 2021

PROPOSED BUDGET AND OTHER FINANCING SOURCES:

Source Contributions in US$

ITTO (Government of Japan)	1,105,263.16
DFLFM, MoEF	26,400.00
TOTAL	1,131,663.16

1.1.3. Objective of the Project

The objective of this project was to reduce the occurrence of forest and land fires in targeted areas by strengthening capacity building in forest and land fire management and zero burning practices and by increasing prevention activities with technology improvements and development of practical guidelines. The project aimed to achieve three outputs:

(1) Best agricultural practices applied
(2) Strengthened management capacity to address forest and land fires problems, and
(3) Forest and land fire prevention actions increased and cooperation strengthened among local institutions, the private sector and communities for forest fire prevention.

2. Evaluation Scope, Focus and Approach

2.1. The purpose of the evaluation

In addition to the above-mentioned primary purpose, this evaluation is also to assess the application of the ITTO Guidelines on Fire Management in Tropical Forests in promoting integrated fire management in the tropics, through a review of the outcomes, achievements and lessons learnt of the Indonesia forest fire projects, with a view towards producing the following:

1. An ex-post evaluation report highlighting the assessment of the Indonesia in light of sectoral policies, development priorities and sustainable forest management; results and impacts of the project; and the effectiveness of dissemination of project results:
2. A Policy Report compiling the best practices and lessons learnt on the prevention and management of forest fires stemming from the Indonesia project, as well as including policy recommendations for future ITTO work on forest fire management, including the recommendations for the revision of the ITTO Guidelines on Fire Management in Tropical Forests; and
3. High quality outreach materials (Photos, PPT presentations) on best practices and lessons learnt as regards prevention and response of forest fires in consultation with the ITTO Outreach and Communications Officer

2.2. Scope and focus of the evaluation

The evaluation shall analyze and assess the project by addressing:

1. The overall role and contribution of the project in light of sectoral policies, development programmes, priorities and requirements to promoting the integrated fire management framework in order to support sustainable forest management in Indonesia.
2. The current status of forest fires within the projects' area of influence, the effectiveness of the projects' implementation and their effectiveness in promoting integrated fire management policies and practices.
3. The contributions of the specific studies in various forest fire prevention and management activities prepared by the projects as regards the achievement of establishing demonstration sites and organizing training courses
4. The results and impacts of activities conducted by the projects and their contribution to the overall capacity of target groups in integrated fire management.
5. The effectiveness of dissemination of project results.

6. The overall post-project situation in the project's area of influence.
7. The unexpected effects and impacts, either harmful or beneficial, and the reasons for their occurrences.
8. The cost efficiency in the implementation of the projects, including the technical, financial and managerial aspects.
9. Follow-up actions in order to enhance uptake of project results.
10. The projects' relative success or failure, including a summary of the key lessons learnt; and the identification of any issues or problems that should be taken into account in designing and implementing similar projects in the future.

Based on this analysis, a synthesis and recommendations will be provided.

2.3. Composition of the evaluation team

The consultancy work was carried out by a team of two consultants led by an international expert with global expertise and knowledge on fire issues in tropical forest landscapes. The international consultant, Prof. Dr. Johann Georg Goldammer, Head of the Global Fire Monitoring Center (GFMC), Max Planck Institute for Chemistry and Freiburg University, Germany, was supported by the national consultant, Prof. Dr. Bambang Hero Saharjo, Faculty of Forestry and Environment, IPB University, Indonesia.

2.4. Methodology

2.4.1. Ex-post evaluation activities

A desk review of project information and documents was conducted between 3 and 6 June 2024, followed by meetings with the executing agency, government representatives, project staff, beneficiaries, and the key stakeholders, in the period of 6 to 7 June 2024 in the MoEF, Jakarta. Visits to selected project sites in South Sumatra Province, Central Kalimantan and South Kalimantan were conducted from 10 to 21 June 2024 by the representatives of the Directorate of Forest and Land Fire Management-Directorate General of Climate Change as Executing Agency, International Cooperation Bureau, Climate Change Regional Sumatra and Kalimantan Agency; and the previous ITTO-Project coordinator. Discussions took place in the *Manggala Agni Fire* Brigade office and directly in the site. Drafting the report was carried out during the period of 24-27 June 2024 and it was followed by consultation for reviewing the

report conducted in Bogor on 12th July 2024. The process of finalizing the report took place in August 2024 and the submission of the draft report in September 2024.

During field visits to South and Central Kalimantan Province, the evaluation team included the ITTO national consultant, Dr. Israr Albar and Ms. Eny Haryati (representative from Directorate of Forest and Land Fire Management in MoEF), Mr Sya'roni Agung Wibisono (representative from International Cooperation Bureau in MoEF), and Mr. Irfan Malik Setiabudi (former Project Coordinator).

During the field visit in the project site located in South and Central Kalimantan Provinces, the team was accompanied by Mr. Yophi Handoko, Mr. Horas Butar-Butar, Mr. Avon, Mr. Ibnu Micko, Mr. Sufie Bhaskara, Ms. Riris A. Nababan, Mr. Aswaluddin, and Mr. Abdur Rochim. Besides that, at the project site, the team's evaluation work was facilitated and supported by the project staff and their collaborators.

During the field visit in the project site located in South Sumatra Province, the team was accompanied by Mr. Ferdian Krisnanto (Head of Climate Change Regional Sumatra Agency); Mr. Candra Irfansyah; Mr. Didik Supriyono, Ms. Putri Laila Komari; Mr. Nugraha Marulitua Malau; Mr. Mauluddin, Mr. Widodo and Mr. Edi Satriawan. Besides that, at the project sites, the team evaluation work was facilitated and supported by the project staff and their collaborators.

3. Project Facts

Uncontrolled and environmentally inappropriate burning practices in Indonesia have become a serious problem because these activities have in the past caused and continue to cause catastrophic fires that are detrimental to the stability and productivity of forests and other lands and impact human health, transportation, environment, and other daily activities. These problems should be addressed with integrated measures and approaches. Since human activities have become a main factor in forest and land fire in Indonesia, effective involvement of local communities are fundamental and capacity building programmes for the forest and land fire brigades is critical for the prevention and reduction of forest and land fires.

3.1. The objective of the project

The objective of the project is to reduce the occurrence of forest and land fires in targeted areas by strengthening capacity building in forest and land fire management and zero burning practices and by increasing prevention activities with technology improvements and development of practical guidelines. The project has three expected outputs: (1) Best agricultural practices applied; (2) Strengthened management capacity to address forest and land fires problems; and (3) Forest and land fire prevention actions increased, and cooperation strengthened among local institutions, the private sector and communities for forest fire prevention.

3.2. Expected outcomes

The expected outcomes after the project completion are: (1) Fire Care Community (*Masyarakat Peduli Api*) groups become the agents of change in forest and land fire prevention through best agriculture practices sustainable agricultural and silvicultural management in their neighbourhoods and implementing zero burning practices, (2) performance of the Forest and Land Fire Brigade (*Manggala Agni*) and government officials on forest and land management will be improved and they respond effectively to forest and land fires, and (3) participation of all stakeholders in forest and land fire prevention will increase with improved coordination and communications related forest and land fire issues.

In order to achieve these outcomes, the project conducted a series of training for *Manggala Agni*, *Masyarakat Peduli Api* and government officials. Integrated prevention patrols will be carried out in the fire prone villages. The project had been implemented in coordination with stakeholders and representatives of Regional Climate Change Agency in Kalimantan and Sumatra.

4. Findings, Lessons Learned

4.1. Findings

4.1.1. The overall role and contribution of the project in light of sectoral policies, development programs, priorities and requirements to promoting the integrated fire management framework in order to support sustainable forest management in Indonesia

Although this project took place in the mid of the Covid-19 pandemic, which prevented many people from attending face-to-face meetings, the project activities could still be carried out in accordance with the plans of the approved proposal. Besides the project plan, additional complementary activities were also carried out.

Several lessons can be learned from the project that have been carried out in the field beyond the fire control activities that are in line with the existing regulations. Besides improving fire suppression capabilities, approaches of prevention and post-fire handling were prioritized to achieve Sustainable Forest Management (SFM) goals through Integrated Fire Management (IFM) approaches. The reduction of inappropriate use of fire in land management as well as the number and size of wildfires are essential to reduce greenhouse gas emissions. The project has demonstrated that besides prohibition of fire use, sanctioned by law enforcement, the proactive contribution by local communities is very important for future actions needed to make change from environmentally destructive burning habits to sustainable land management without fire use, even though the application and scaling-up in practice will work rather slowly. Most important was the establishment of the demonstration plots for land clearing activities without burning, as part of the collaboration between *Masyarakat Peduli Api* (MPA) and *Manggala Agni* (MA).

The project locations in the three provinces (South Sumatra, South Kalimantan and Central Kalimantan) have their own characteristic features of landscape ecology and land use. In the early stages, i.e. in the first year of the activity, it appears that most activities in the frame of the concept of "Land Preparation Without Burning" (*Pembukaan Lahan Tanpa Bakar* – PLTB) were successfully implemented. However, some activities were considered unsuccessful because they did not result in the expected production. Many of the agricultural activities, which involved collaboration with the communities produced rather swift results and were enjoyed and witnessed directly by the growth of agricultural products. Some community groups, supported by the *Manggala Agni*, Village - Sub district Government, and Regional

Government in their area, observed and benefitted by planting that resulted in tangible produce. However, not all implemented activities were successful. This could be attributed to the limited time in those cases where the implementation and results of activities required special treatment up to several months. While even in these cases the support by the participating communities and land managers was truly extraordinary, the results were not satisfying.

Figure 1. Land preparation without burning (a); land bed and mulching preparation (b); chili pepper (*cabai*) planting rows (c); harvesting (d); chili pepper ready for marketing (e)

In addition, some other problems had to be faced in the series of PLTB activities, especially concerning the continuation of the next cycle of planting after the first seasonal production process and harvest. This happened due to various reasons, including:

1) The land to be used has been sold by the landowner. This is possible when leasing the land, so that the land can be used for other purposes or even sold at any time – if desired by the owner – although the use of the land is tied to a lease agreement.
2) The purpose of land use is changing due to a decision by the landowner or the local administration.

3) Sometimes, there is no budget available for purchasing plant seeds, fertilizers, herbicides, etc. This happens if the production is far below average, and even if the production is sold, the income is insufficient to return the costs that have been invested.
4) The implementing party took the initiative to change the type of plants, because the plants planted previously proved to be less successful than was expected because of their low economic value.
5) Occasionally, there was a conflict at the village level that had an impact on activities on the PLTB land involving the community, thus the activities were not going according to the plan.
6) As the daily employees, community/MPA who are involved in the implementation of PLTB are unable to devote their whole-time attention to managing the PLTB concerning to sustain their daily household income and ensure the success of the PLTB's implementation.
7) The readiness for continuing assistance by *Manggala Agni*, if needed by the community, is limited if the PLTB location was far from the *Manggala Agni* office and *Manggala Agni* had to prioritize the response to another fire at the same time and thus could not dispatch personnel to the PLTB location.
8) Field activities done by the project have a bad experience in one site project in South Sumatra Province. The situation evolved due to the local political developments at the village level during the election period of the head of the village. The farmers, who collaborated with *Masyarakat Peduli Api* (MPA) and were funded by the project, wanted to plant certain types of agricultural products as cash crops to increase their income. Unfortunately, this was not in line with the incumbent head of village idea but seems to support his challenger. This resulted in slow implementation of the activities by MPA and finally did match the target.

4.1.2. The current status of forest fires within the projects' area of influence, the effectiveness of the projects' implementation and their effectiveness in promoting integrated fire management policies and practices

Based on the available data, it can be seen that the overall number of active fires detected by satellites ("hotspots") or the area burned during the project lifetime in the project regions were not significantly different from the pre-project situation. This is understandable because changing people's attitudes to not make fires is the same as banning fires without providing a way to compensate for the production losses they suffer. Farmers are experiencing a disruption

in their lives, and not a few of them continue to burn as long as there is no economically sound alternative option – even if they actually do not want taking the risk when using fire as this is prohibited. Changing human attitudes and introducing a long-term sustainable method of land management without fire use is not easy in a short time period of just two years, especially if they consider the application of PLTB methods is not necessarily successful. However, farmers who participated in the project are now more aware of the negative impacts of fire and the risks and damage associated with fire use, and that this will affect them if they continue to burn. This impression may last and lead to long-term change of awareness and attitudes over time, especially as the awareness of environmental protection will be rising in the younger generation of community members.

4.1.3. The contributions of the specific studies in various forest fire prevention and management activities prepared by the project as regards the achievement of establishing demonstration sites and organizing training courses

These project activities have demonstrated that various land management practices without fire use are an alternative to fire practices that often result in wildfires with subsequent need for fire suppression. Prevention activities, namely those associated with the management of PLTB demonstration plots and the monitoring and patrolling carried out by *Daops Manggala Agni*, were successfully complemented and supported by training and provision of infrastructure and equipment for fire suppression. Furthermore, the PLTB's implementation are also equipped by module 'Development of Zero Burning Practices for the Community' that describes procedures and alternatives of PLTB. While prevention activities were carried out by *Manggala Agni* and other fire-institutions, which were provided with module 'Procedure for Forest and Land Brigade' and SMART Patrol Information System (a mobile application for integrated patrol reporting).

4.1.4 The results and impacts of activities conducted by the project and its contribution to the overall capacity of target groups in integrated fire management

The project gave emphasis to introduce and test sustainable land management practices without the use of fire in order to protect soil fertility, carbon storage and biodiversity as well as reducing wildfire risk and adverse consequences of fire smoke emissions on human health, atmosphere and climate. While the focus of the project was on PLTB land-use alternatives and various other activities involving the community and related parties, such as villages and sub-districts, the capacitation of local actors in effective and safe wildfire suppression received special attention. In many communities, in which training had not been conducted for long

time, fire suppression infrastructure, equipment and training contributed to upgrade the fire suppression capabilities of local actors. Moreover, the SMART Patrol Information System, which was first developed under the project document solely for Sumatra and Kalimantan, is currently being improved and applied throughout Indonesia.

Figure 2. Field and classroom training for *Manggala Agni* personnel

4.1.5. The effectiveness of dissemination of project results

The experiences and results of the project activities were presented to other local, and provincial actors that were not directly involved in the project. With the experience and infrastructure of *Manggala Agni*, seminars or conferences, exchanging information through joint training or visits between one *Daops* and another, are instrumental and successful. In addition, other media are used, such as online media, social media, and public and private radio and TV channels.

4.2. Lessons learned

4.2.1. The overall post-project situation in the project's area of influence

When looking at the location of each *Daops* in the three provinces, it seems that nothing has changed significantly with the presence of the project. Especially if one is looking at the demonstration plots, because there are no more visible remnants of activities that had been carried out; even if there are – the results are not convincing, because only traces have survived. Can it be ascertained that the project failed? A quick answer of "no" may not reflect the fundamental changes and advancements that have been achieved by presenting new concepts to the local communities and *Manggala Agni*. This reaffirms that the problem of fires is complex. It will take time to understand and follow up, especially since this is related to efforts to change human attitudes – a long-term process that may last for one generation. Thus, the project has initiated a process that must be carried out to ensure its application in future.

4.2.2. The unexpected effects and impacts, either harmful or beneficial, and the reasons for their occurrences

The implementation of PP-A/56-340-1 certainly had to deal with unforeseeable developments, including:

1) The project lifetime of two years limited the possibility to reach the goals of some project activities. For instance, community members asked for more time to stabilize the pH of their plantations but only 1/3 of the requested time was granted. Therefore, the demonstration plot in South Kalimantan, while continuing to run, had very unsatisfactory results because the plants planted according to the implementing party proved to produce nothing.

(a) (b) (c)

Figure 3. Facility for demonstration and visitors provided by sub district office (a); current condition of planting area (b, c)

2) The land used for the demonstration plot (PLTB) activity was sold by the landowner even though it was still within the rental period, because the landowner needed money immediately.

(a) (b)

Figure 4. Abandoned and degraded shelter for workers (a); land is advertised for sale (b)

3) The plants that were planted were thought to produce good results but, in the end, did not work, so the plants had to be replaced with more productive plants. This right occurred because the voice of the community was not heard properly during the consultation process at initial stage.

(a) (b) (c)

Figure 5. Weed encroachment is the most challenging problem (a); current condition of planting area (b); standing billboard of the project (c)

4) An unforeseen development was considered in the budget for the procurement of firefighting equipment and vehicles, which could be used specifically for the female firefighting team members.

(a) (b) (c)

Figure 6. Equipment for the fire brigades included fireproof clothing, hand tools and motor cycles – especially for female team members

4.2.3. The cost efficiency in the implementation of the projects, including the technical, financial and managerial aspects

The project provided several sets of safety clothes and fire control equipment to enhance safety and capacities of *Manggala Agni* for fire control. For the planned 5 (five) items of safety equipment procured as stated in the project document, however with larger quantity compared to the initial target. The items comprised safety coats, safety shoes, portable fire water pumps, motorcycles, and a Global Positioning System.

The procurement of safety equipment was possible because the proposal by *Manggala Agni* was accepted that instead of purchasing remote sensing data and satellite phones the project items like handy talkies, portable oxygen tubes, and additional fire water pumps were procured, which were more important for the operation of *Manggala Agni*.

Table 1. Initial and realized of fire equipment procurement

No.	ITEM	INITIAL	REALIZED
1	Safety Coats	480	1,110
2	Safety Shoes	480	580
3	Water pumps	4	16
4	Motorcycles	3	8
5	GPS	6	7
6	Handy Talkies	-	58
7	Portable Oxygen Tubes	-	90

4.2.4. Follow-up actions in order to enhance uptake of project results

Although it seems like there is no significant change in the area that is used as a project with ITTO funds due to the activities carried out, it does not mean that it must be stopped. Because in fact the process is still ongoing, because changing human behavior is not an easy matter, because it takes a long time and continues gradually, until those concerned really understand so that they no longer carry out illegal burning activities. For that reason, it is better to continue, in other locations to get different learning.

As stated above, based on the available data, it can be seen that the overall number of active fires detected by satellites ("hotspots") or the area burned during the project lifetime in the project regions were not significantly different from the pre-project situation. Changing human attitudes and introducing a long-term sustainable method of land management without fire use is not easy in a short time period of just two years, especially if they consider the application of PLTB methods is not necessarily successful. However, farmers who participated in the project are now more aware of the negative impacts of fire and the risks and damages associated with fire use – and that this will affect them if they continue to burn. This impression may last and lead to long-term change of awareness and attitudes over time, especially as the awareness of for environmental protection will be rising in the younger generation of community members.

4.2.5. The projects' relative success or failure, including a summary of the key lessons learnt; and the identification of any issues or problems that should be taken into account in designing and implementing similar projects in the future

As for the completion of the implementation of this project, at first glance it seems that it may not have been successful. However, this is not the case. A development has been initiated that is still being processed. After all, people's behavior cannot change in the blink of an eye. Based on the experience of the project management, the community will only change its awareness and thus its behavior in the next five or more years when results become visible. This will happen step by step over the course of the journey, which is not only about how to put out wildfires. Because it is also about finding a replacement or compensation that can be lost by giving up the habit of using fire: using fire is cheaper than cultivating the land without fire. At the same time, the land cultivation time is much faster with the use of fire than without fire. Therefore, farmers still use fire, even though they face a prison sentence of several years. It is about securing the livelihood of their families who have to be fed under economically disadvantaged conditions, not to say poverty, despite knowing the negative consequences that can destroy their chances of replanting. Therefore, it is important to start the process of rethinking, which must be long-term – as has been done in the project - and then follow-up systematically in the coming years.

5. Conclusions and Recommendations

5.1. Conclusions

5.1.1. Implementation of Activities

1. Activities have been carried out in accordance with the plans and agreements by the Manggala Agni (MA) and Masyarakat Peduli Api (MPA)
2. The land used is leased or contracted land owned by the community and not owned by the Manggala Agni MA
3. There is community involvement from the beginning of planning, implementation to harvesting
4. The observation process (monitoring) is carried out together/alternately among the actors of the activity

5.1.2. Reasons behind activities that cannot be continued

1. Inadequate soil cultivation but planting activities have been carried out
2. There are problems in land management due to acidic soil conditions which require about 6 months but within 6 weeks planting activities have been carried out, this results in the failure of the plants bearing fruit
3. Land soon to be used by the owner due to the unclear follow-up activities.
4. Land soon to be sold by the owner.
5. The results of crop production are not up expectations and there is a need to introduce new species/crops with greater potential

5.1.3. Solutions for sustainable implementation of activities

1. It takes time to change people's behavior in carrying out PLTB activities in the true sense, because in reality it is not just about banning the use of fire, but rather about changing the behavior that has become their culture.
2. PLTB activities can only be carried out if the community is actually accustomed to it
3. The timing of land cultivation and the type of vegetation to be harvested are those that have economic value and are easy to plant.

5.1.4. Additional benefits of ITTO activities

1. Members of *Daops Manggala Agni* can undertake training that they really need to optimize their control efforts.
2. Operational vehicles are available, although limited, as well as some other equipment that is really needed.
3. Members of *Daops Manggala Agni* can wear Personal Protective Equipment (PPE) that meet safety standards and effective fire suppression work
4. Modules of ‘Procedure for Forest and Land Brigade’ and ‘Procedure for Forest and Land Brigade’ to support the prevention activities
5. The mobile application ‘SMART Patrol Information System’ to support integrated patrol-reporting conducted by Manggala Agni and other fire institutions
6. Strengthen synergy and collaboration across various levels of stakeholders in fire prevention and suppression, particularly in relation to encouraging community involvement

5.2. Recommendations

From the ex-post evaluation of project implementation, it can be elaborated several recommendations as below:

5.2.1. Recommendations for the Executing Agency (EA)

1. It will be crucial that fire prevention activities will fully involve all fire-stakeholders including Government, *Manggala Agni* (Fire brigades), private sector, and also community (*Masyarakat Peduli Api*) , especially when the dry season arrives. This activity will be the key for success because it will change the attitude and behavior of people who previously intended to burn to not doing so.
2. Inspired by project experiences, it is fundamental to adopt, continuously improve, and also scale up alternative approach of integrated zero-burning practices throughout Indonesia as one innovation to encourage community involvement in fire prevention programs.
3. Given the shown advantages of utilizing the SMART Patrol Information System, the apps should be improved continuously and implemented across Indonesia to support the Indonesia fire management program.
4. All related parties will be involved in the management of forest and land fire, such as the community, village/sub-district, sub-district, district/city, province, to the central government, and also *Manggala Agni* (Fire Brigades). In line with existing regulations, the most responsible authority – if a fire occurs – in the Regency is the Regent. Once the smoke from the fire has crossed the Regency / city boundaries, then the Governor is responsible. And if the smoke from the fire has crossed the provincial boundary and/or to another country, then it will be the responsibility of the Minister of Environment and Forestry and coordinated by Coordinating Ministry of Political, Legal and Security Affairs. Related stakeholders' engagement has been implemented in the project and will be continued in the future project. In Indonesia, there is a regulation (President Instruction No. 3/2020) on Forest and Land Fire Management that regulate collaboration and coordination among stakeholders in addressing forest and land fire issues. This proves that responding to fire and its consequences on environment and human security is a shared responsibility.
5. Since the crucial role of Manggala Agni in assisting the community in preventing fire, it inspires an innovative approach/design namely Manggala Agni Village Protectors (*Manggala Agni Pendamping Desa*/MAPD). This approach will be applied this year in

fire-prone areas as part of a trial. If the activity is successful, this pattern will become a reference. In addition to this activity, other supporting activities that also use satellite monitoring are conducting targeted, measurable and systematic patrols. These activities will be carried out in an integrated manner together with the community (*Masyarakat Peduli Api*), related agencies, and others. Through this collaboration, it is hoped that the level of fires and their negative implications can be reduced, so that the forest can grow sustainably, as expected. A future project should consider relevant elements regarding the above-mentioned innovative approaches.

6. The institution that will organize the planned activities is still Manggala Agni, but in its implementation it will join hands with the community. This needs to be observed in order to strengthen the foundation of joint responsibility. Manggala Agni and Fire Care Community-are important actors in addressing forest and land fire issues at site level.
7. Based on the projects that have been implemented previously, there are many facts, experiences and conclusions revealed, recorded and understood, especially problems in the field. This information is useful and crucial for implementing follow-up activities in the field, especially with regard to the need of conveying transparency and truth of previous experiences and – most importantly – shortfalls. Among all parties, the community only conveys the real information when things have happened that they have predicted and conveyed but do not get a serious response or are heard by the implementing party. Changing human behavior is not easy, it is not enough to just provide direction and then leaving individuals and communities alone to find their own way ahead. This needs to be avoided, especially if the goals of SFM and IFM shall be achieved. Precisely when local actors start to respond, then they need to be provided with correct and directed information. If this is not done, then the expected changes will not occur. The focal point has to replicate the existing activities, processes, procedures and programs as we aware that this project has final goal to change human behavior.

   Taking into account the benefits of the project and the lessons learned, there are numerous insights and experiences that can be implemented to improve the Indonesia future fire management programs.
8. *Manggala Agni* (Fire Brigades) and other fire-regional institutions should be periodically trained to maintain and improve their capacity in fire management,
9. There is a need to consistently revitalize the equipment and facilities for controlling forest and land fires to ensure adequacy of performance in terms of quantity and quality

5.2.2. Recommendations for the ITTO

1. Since the project provide a wide range of insights and new experiences for forest and rural firefighting activities, which must be continued and, above all, brought to the area, especially with regard to firefighters, it is important to deliver similar or follow-up projects in the future with the appropriate period. The next project can be focused on community-based fire management to build on existing achievements. The community needs much assistance, inspiration, and innovation, as well as capacity building to succeed in fire prevention programs.
2. Before planning future activities that will be carried out, it is necessary to develop realistic measurable indicators for the implementation of the activities that will be used as a reference. With these measurable indicators, it is necessary to introduce and socialize the participating partners. This needs to be done so that the activities to be carried out are more focused and clearly regulated right from the beginning. To ensure that the rules are observed, it is necessary to carry out routine and gradual evaluations, so that if improvements need to be made, there is still time for adjusting. The project has identified the indicators for each outcome and output, as reference for the next project to improve the preparation before the implementation. This is a conclusion that is based on the experience of implementing previous project activities.

   It is important to enhance the "logical framework matrix assessments" during project design to ensure the effective monitoring and evaluation of achievements of outputs, specific objectives, and development objectives aligned with measurable indicators.
3. Project PP-A/56-340-1 (Capacity Building on Forest and Land Fire Management in Indonesia) was funded by the ITTO under the Japanese Government initiative for Emergency Support which had a limited implementation timeframe. In terms of forest and land fire management, it is important to ITTO to provide a regular and long period funding/project to support fire prone countries that have tropical forests to mitigate the fires. Forest fires are the most significant source of GHG emissions in the FOLU sector.

5.2.3. Recommendations for Revision of the ITTO Guidelines on Fire Management in Tropical Forests (1997)

By aiming to reduce the occurrence/frequency of forest and land fires especially during the dry season, this project is consistent with ITTO objectives and priorities as well as relevant national policies. Indonesia national policies related to forest and land fires put priority on the reduction of burnt areas in fire prone provinces focusing on prevention activities. This target

is stated in the Strategic Plan of MoEF of Indonesia 2020-2024. The implemented project complied with Principles 1, 16 and 24 of the ITTO Guidelines on Fire Management in Tropical Forests. The findings on this evaluation project could contribute to appropriately revise the ITTO Guidelines on Fire Management which emphasize involving local community and enhancing capacity building for fire brigades (Manggala Agni), including meet all necessary equipment needs. The aim is to mitigate fire occurrences which lead to reducing burnt areas particularly at fire prone provinces. Based on the lessons learned from the activities that have been carried out by the project, several suggestions for revising and improving the ITTO Guidelines of Fire Management in Tropical Forests are as follows:

1. The role of the community in forest and land fire prevention activities, especially at the initial level, is very important and key for success of sustainable approaches in SFM and IFM
2. Reducing greenhouse gas emissions can be achieved through land cultivation without the use of fire, especially in areas that are vulnerable to landscape degradation by wildfires if fire is used for planting
3. The need for continuous training/capacity building
4. Readiness of facilities and infrastructure for controlling forest and land fires
5. Cooperation of all stakeholders, including public-private partnership.
6. Considering and elaborating on the improvement of environmentally methods of peatland management, especially in the context of peat fire prevention and control
7. Considering to develop methods on Community-based Fire Management (CBFiM) in peatland areas since the fires in tropical areas are mostly caused by human activities.
8. PLTB (land preparation without burning) could be one of example in practicing circular economy, how the agriculture /vegetation waste can be produced into other products that can be an additional value for the community and the environment.

Annexes

Annex 1. Meetings before Ex-Post Evaluation activities started, during field visits and draft report

No.	Date	Time	Activity
1	Friday,07/06/2024	09.00-11.30	Meeting for Ex-Post Evaluation, at head office of International Cooperation Bureau, MoEF, Jakarta
	Field Visit		
2	Monday, 10/06/2024	06.50-08.00 AM 08.00-10.00 AM 10.00AM-15.00 PM 15.00-17.00 PM	Flight Jakarta-Palembang (South Sumatra) Traveling from Palembang to Lubuk Lancang Lubuk Lancang Banyuasin District Traveling from field to hotel Alts (Palembang)
3	Tuesday,11/06/2-24	08.00-09.30 AM 09.30 AM-13.00 PM 13.00 -14.30 PM 15.45-17.00 PM	Traveling from Palembang to Jejawi site Jejawi site Traveling from Jejawi site to Airport Flight from Palembang to Jakarta
4	Wednesday, 12/06/2024	06.00-09.35 AM 09.35 AM-12.35 PM 12.35-16.00 PM 16.00-19.00 PM	Flight from Jakarta to Banjarmasin (South Kalimantan) Traveling from airport to Tapin (District) Tapin site Traveling from Tapin site to Hotel at Banjarmasin
5	Thursday,13/06/2024	08.00-09.30 AM 09.30AM-14.30PM 14.30-20.30 PM	From Hotel to Banjar district Banjar to the project site Traveling from project site to Palangkaraya (Central Kalimantan) by car

6	Friday, 14/06/2024	08.00-09.00AM 09.00AM-14.00PM 14.00-15.00 PM	From hotel to Pilang Village Pilang village Traveling from Pilang village to the Hotel (Palangkaraya)
7	Saturday, 15/06/2024	08.00-11.30 AM 11.30AM-15.30PM 15.30-19.00 PM	Travelin from hotel to Parapak project site Parapak site Traveling from Parapak site to hotel (Palangkaraya)
8	Sunday, 16/06/2024	05.00 AM 07.10-08.55 AM	Check out from the hotel (Aquarius, Palangkaraya) Flight from Palangkaraya to Jakarta
	Draft report meeting		
8	Friday, 12/07/2024	13.00-16.00PM	Discussion about draft report Ex Post Evaluation, Hotel Santika, Bogor

Annex 2. Achievement indicators of output vs results of realized activities

Output/Activities	Measurable indicators	Results of realized activities
Output 1 Best agricultural practices applied by Fire Care Community (MPA)/Local communities.	• One package of development/ improvement on sustainable agricultural and silvicultural management techniques as well as development of zero burning practices area available • Eight training program mes for local communit ies especially Fire Care Community *(Masyarakat Peduli Api)* members in 3 provinces namely South Sumatera, Central Kalimantan and South Kalimantan conducted • Demonstration plots of zero burning practices in 8 locations established	• Module: Development of Zero Burning Practices (Land Preparation Without Burning) for the Community • Organized trainings: 8 zero burning practices and 3 additional community economic empowerment for local communities especially *Masyarakat Peduli Api* • Developing demonstration plots: 8 demplots and 3 additional fish ponds farmings
Conclusion: it is clear that pre-defined indicators of Output 1 had been fully satisfied; it is reasonable to conclude that the output had been fully delivered		
Output 2 Management capacity to address forest and land fires problems strengthened.	• Four training programmes on forest and land fire control conducted for Forest and Land Fire Brigade (*Manggala Agni*) in 3 provinces namely South Sumatera, Central Kalimantan and South Kalimantan • Series of training for officials on GIS modeling carried out and proven remote sensingtechnology developed • One set technology/system of SMART integrated patrol reporting application developed and installed in 3 target provinces • One Standard Operational Procedure on Forest and Land Fire Control developed • Personal protective clothing properties and safety equipment of *Manggala Agni* in target location available	• Organized technical training: 11 fire management, 3 basic fire management, and 3 fire mechanics • Organized training: 2 burnt-area estimation and 2 fire-hazard map production • Developed SMART Patrol Information System has been applied in Sumatra and Kalimantan • Handbook: Procedure for Forest and Land Fire Brigade • Procured 7 items of safety equipment that had been distributed to *Manggala Agni*
Conclusion: It is obvious that the pre-defined indicators of Output 2 had been fully met, implying that the output had been successfully completed		
Output 3 Forest and land fire prevention action increased	• MOU among stakeholders (task force) to exchange information, conduct policy dialogues, strengthen cooperation implemented • Two dialogue series to support Land Preparation without Burning *(Pembukaan Lahan Tanpa Bakar/ PLTB)* with private sector and local institutions implemented • A sub-regional workshop for prevention and management of forest and land fires in Southeast Asia with an emphasis to Indonesia conducted • Dissemination of the outcomes of the project developed in vari ous forms such as leaflets, film and report/social media	• Organized 3 (three) strengthening institutional synergy and collaboration • Organized 2 (two) stakeholders dialogues on supporting PLTB that involved private sectors, regional government, village government, and communities • Co-organized 7 monthly sub-regional webinar series, and continued 5 international webinar series • Dissemination in various platforms (official website, mass media, online media, visual media/TV), participation in exhibitions/events, and provided 5 fire leaflets, 5 project videos, as well as organized poster and video competition.
Conclusion: The pre-defined indicators of Output 3 had been clearly satisfied thus it is reasonable to conclude that the output had been fully delivered		

Annex 3. Achievement indicators of the specific objective vs results of realized activities

Specific Objective	Measurable indicators	Results of realized activities
To improve prevention of forest and land fire through strengthening management and technical capacity of stakeholders at three targeted provinces and national level	1. Community in 8 villages in 3 provinces apply best practice agriculture (land preparation without burning).	1. Local community/*Masyarakat Peduli Api* in 8 villages were trained with zero burning practices and have developed demonstration plots for zero burning practices. Among that 3 communities/villages of them had also been trained with community economic empowerment and have developed fish ponds farming
	2. Capacity of Forest and Land Fire Brigade *(Manggala Agni)* & officials in 3 provinces improved.	2. Capacity of *Manggala Agni* is improved through organized technical training comprising of 11 fire management, 3 basics fire management, as well as 3 fire mechanics training. *Manggala Agni* was also provided by SMART Patrol Information System and 7 items of fire equipment. Specifically for regional officials, their capacity is improved through participation in the burnt-area estimation and fire-hazard map production training, involvement in zero burning practices training and demplots development, as well as participation in the fire webinar series.
	3. Proven technology on reporting and detection of forest fires and forest burnt area to support Monitoring System available	3. The SMART Patrol Information System is completely developed and applied by *Manggala Agni*. *Manggala Agni* and other regional officials were also also received training in the burnt-area estimation and fire-hazard map production with proven and standardized methodology delivered by competent-official agencies (National Institute of Aeronautics and Space of Indonesia/LAPAN-BRIN; Geospatial Information Agency/BIG; MoEF)
	4. Personal protective clothing properties and safety equipment of *Manggala Agni* in target location available	4. Procured 7 items of safety equipment that had been distributed to *Manggala Agni* in 3 provinces. They are comprises 1,110 Safety Coats, 580 Safety Shoes, 16 portable water pumps, 8 motorcycles, 7 GPS, 58 Handy Talkies, and 90 portable oxygen tubes
	5. Main stakeholder awareness in three provinces on forest fire prevention improved	5. Raising stakeholders awareness was conducted through involvement of stakeholders in 3 (three) institutional synergy strengthening and collaboration as well as 2 (two) stakeholders dialogues on supporting zero burning practices (PLTB). Stakeholders were also invited and/or involved in the training of zero burning practices and developing demonstration plots, as well as participation in the fire webinar series In addition, stakeholders were also involved in the training of burnt-area estimation and fire-hazard map production
Conclusion: all pre-defined indicators of the specific objective had been fully met by results of the relevant activities. The specific objective, therefore, has been fully achieved.		

Annex 4. Beneficiaries: participation and benefit/further task

No	Beneficiaries	Participation	Benefit / Further task
1	• Fire Care Community (*Masyarakat Peduli Api*) • Local communities • Farmers	• In training o n zero burning practice and community economiy empowerment • Development of zero burning demplots and fish pond farming	Benefit • Alternative technology regarding burning prohibition policy • Knowledge and skills on zero burning practice and community economic empowerment • Set of agricultural tools, pumps, bio-decomposers, fish feeds, fish feed manufacturing machine, liquid smoke - charcoal manufacturing machine Further task • Continue to manage zero burning demplots and fish pond farming • Commit to disseminate alternative technology of zero burning practice to other communities
2	Forest and Land Fire Brigade (*Manggala Agni*)	• In trainings/ workshops • In the development of zero burning demplots and fish pond farming • In development of SMART Patrol Information System • In fire webinar series	Benefit • Alternative technologies that support burning prohibition policy • Knowledge and skills on zero burning practice and community economic empowerment • Improved capacity on fire management and other substances • Assisted fire patrol by applied SMART Patrol Information System • Set of fire equipment (7 items) • Shared knowledge of fire management from other institutions/countries Further task • Continue to accompany community on managing zero burning demplots and fish pond farming • Commit to disseminate alternative technology of zero burning practice to other communities • Apply improved knowledge on fire management as well as disseminate to others • Utilize SMART Patrol Information System • Utilize and maintenance fire equipment
3	Regional officials	• In training of zero burning practice and community economic empowerment • In trainings of burnt -area estimation and fire -hazard map production • In FGD of strengthening synergy and collaboration, as well as supporting zero -burning practice • In fire webinar series	Benefit • Alternative technology regarding burning prohibition policy • Knowledge and skills on zero burning practice and community economic empowerment • Knowledge and skills on burnt -area estimation and fire - hazard map production • Improvement of network and strengthen synergy and collaboration among fire-stakeholders, as well as supporting zero burning practice • Shared knowledge of fire management from other institutions/countries Further task • Continue to accompany community on managing zero burning demplots and fish pond farming • Commit to disseminate alternative technology of zero burning practice to other communities • Apply improved knowledge burnt -area estimation and fire - hazard map production, as well as disseminate to others
4	Private sector	• In training of zero burning practice as invitees • In FGD of strengthening synergy and collaboration, as well as supporting zero -burning practice • In fire webinar series	Benefit • Alternative technology regarding burning prohibition policy • Knowledge and skills on zero burning practice and community economic empowerment • Improvement of network and strengthen synergy and collaboration among fire -stakeholders, as well as supporting zero burning practice • Shared knowledge of fire management from other institutions/countries Further task • Commit to support and accompany community on developing zero burning demplots • Commit to disseminate alternative technology of zero burning practice to other communities • Commit to support the implementation of fire management

Annex 5. Country Management Response to ITTO Ex-Post Evaluation

Country Management Response to ITTO Ex-Post Evaluation	
Project Title: **Capacity Building on Forest and Land Fire Management in Indonesia** Project ID: **PP-A/56-340-1**	
A) Overall Response to the Evaluation:	
Generally the report meet our expectation based on findings and activities during the project.	
Evaluation Report Recommendations*	**B) Response to recommendations** *(e.g. 'accept', 'partially accept' or 'reject' – please provide a brief explanation)*
Recommendation 1 *5.2.1. The needs for similar projects in the future* *This is because this project can provide a wide range of insights and new experiences for forest and rural firefighting activities, which must be continued and, above all, brought to the area, especially with regard to firefighters. This is because, up to now, these have been rather routine activities that sometimes need inspiration and innovation, especially to improve the performance of firefighters. A number of parties have strongly requested that this activity be carried out in other locations. Among the activities that are currently lacking in the area are training activities, which have not been carried out there for a long time, even up to 8 years. The challenges posed by fires require special attention on the ground, appropriate equipment and good fighting strategies.*	*Agreed to be replicated in other locations in consultation with Directorate of Forest and Land Fire Management, Directorate General of Climate Change.*
Recommendation 2 *5.2.2. The objectives of such future projects* *The goal of the future project remains to control forest and land fires but focuses on prevention activities in the true sense. It's just that prevention activities fully involve members of the Manggala Agni DAOPS (Manggala Agni Local Fire Station) through continuous mentoring efforts, especially when the dry season arrives. This step is very good because it will change the pattern of people who previously intended to burn to not doing so.*	*Agreed, the objective of the future projects should support the fire prevention activities since in Indonesia, 99% of fire occurrences triggered by human activities (main root cause).*
Recommendation 3 *5.2.3. Innovative approaches/designs for projects aiming at integrated fire management improvement in promoting*	*Agreed, the future project should be clarified regarding the innovative approaches.*

1

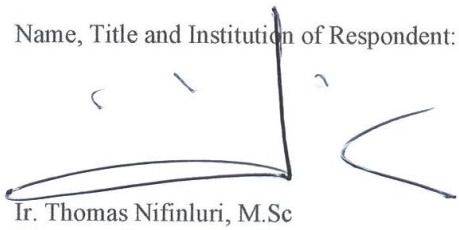
Sustainable Forest Management. *Innovative approaches/designs that will be implemented are through activities called Manggala Agni village protectors. This approach will only be applied this year in fire-prone areas as part of a trial. If the activity is successful, this pattern will become a reference. In addition to this activity, other supporting activities that also use satellite monitoring are conducting targeted, measurable and systematic patrols. These activities will be carried out in an integrated manner together with the community (Masyarakat Peduli Api), related agencies, and others. Through this collaboration, it is hoped that the level of fires and their negative implications can be reduced, so that the forest can grow sustainably, as expected.*	
Recommendation 4 *5.2.4 Appropriate target groups, e.g. countries, government, organizations, forestry sector, local communities, etc.* *Of course, all related parties will be targeted in the implementation of activities in the upcoming project, such as the community, village/sub-district, sub-district, district/city, province, to the central government. In line with existing regulations, the most responsible party if a fire occurs in the Regency is the Regent. Meanwhile, if the smoke from the fire has crossed the Regency / city boundaries, then the Governor must be responsible. And if the smoke from the fire has crossed the provincial boundary and/or to another country, then it will be the responsibility of the Minister of Environment and Forestry. This proves that the fire is a shared responsibility.*	*Agreed, related stakeholders' engagement has been implemented in the project and will be continued in the future project. In Indonesia, there is a regulation (President Instruction No. 3/2020) on Forest and Land Fire Management that regulate collaboration and coordination among stakeholders in addressing forest and land fire issues.*
Recommendation 5 *5.2.5 The organizational arrangements of similar projects* *The organization that will organize the planned activities is still Manggala Agni, but in its implementation it will join hands with the community (example: Fire Care Community). This needs to be done to strengthen the foundation.*	*Agreed, Manggala Agni and Fire Care Community are important actors in addressing forest and land fire issues at site level.*
Recommendation 6 *5.2.6. Follow-up and evaluation practices.*	*Agreed, in the project has been identified the indicators for each outcome and output, for the next project we agreed to*

Before the activity is carried out, it is necessary to create criteria and indicators for the implementation of the activity that will be used as a reference. With these criteria and indicators, it is necessary to introduce and socialize them. This needs to be done so that the activities to be carried out are more focused and not disturbed. To ensure whether it has been done or not, it is necessary to carry out routine and gradual evaluations, so that if improvements do need to be made, there is still time. This is known based on the experience of implementing previous project activities.	*improve the preparation before the implementation.*
Recommendation 7 *5.2.7. Supplemental, alternative activities, processes, procedures, and/or follow-up programs in the field of integrated fire management and sustainable forest management, if appropriate* *Based on the projects that have been implemented previously, many things can be revealed, recorded and understood, especially problems in the field. This information is certainly very useful in implementing activities in the field. This happens in the field because not many parties really convey the truth. Almost all parties, the community only conveys the real information when things have happened that they have predicted and conveyed but do not get a serious response or are heard by the implementing party. Changing human behavior is not easy, it is not enough to just provide direction, then they are left to guess or find their own way. This needs to be avoided, especially if you hope that this way SFM will be achieved. Precisely when they start to wonder, then they need to be equipped with correct and directed information in the real sense. If this is not done, then the expected change will not occur.*	*Agreed, the focal point has to replicate the existing activities, processes, procedures and programs as we aware that this project has final goal to change human behavior.*
Recommendation 8 *5.2.8. Elements to improve the ITTO Guidelines on Fire Management in Tropical Forests integrating the most recent findings on the prevention and management of fire in tropical forest landscapes, while taking into consideration the recent developments related to climate change mitigation and adaptation, biodiversity conservation in tropical forests, tropical forest landscape degradation and poverty alleviation associated to sustainable livelihood for local communities, including women and inclusion of marginal and otherwise disadvantaged people, in tropical rural areas.* *By aiming to reduce the occurrence/frequency of forest and land*	*Agreed* *The findings on this evaluation project could improve the ITTO Guidelines on Fire Management which emphasize involving local community and enhancing capacity building for fire brigades (Manggala Agni) including meet all necessary equipment needs in order to mitigate fire occurrences which lead to reducing burnt areas particularly at fire prone provinces.*

fires especially in the dry season, this project is consistent with ITTO objectives and priorities as well as relevant national policies. Indonesia national policies related to forest and land fires put priority on the reduction of burnt areas in fire prone provinces focusing on prevention activities. This target is stated in the Strategic Plan of MoEF of Indonesia 2020-2024. This project complies with principle 1, principle 16 and principle 24 of the ITTO Guidelines on Fire Management in Tropical Forest as there are various things obtained from the activities that have been carried out previously, so that they become part or important points in improving the ITTO Guidelines of Fire Management in Tropical Forests, including: *a. The role of the community in forest and land fire prevention activities, especially at the initial level, is very important.* *b. Reducing greenhouse gas emissions can be achieved through planting activities, especially in areas that are suspected of being burned* *c. The need for continuous training/capacity building.* *d. Readiness of facilities and infrastructure for controlling forest and land fires in the true sense* *e. Cooperation of all stakeholders.*	

**Please add or delete rows as needed*

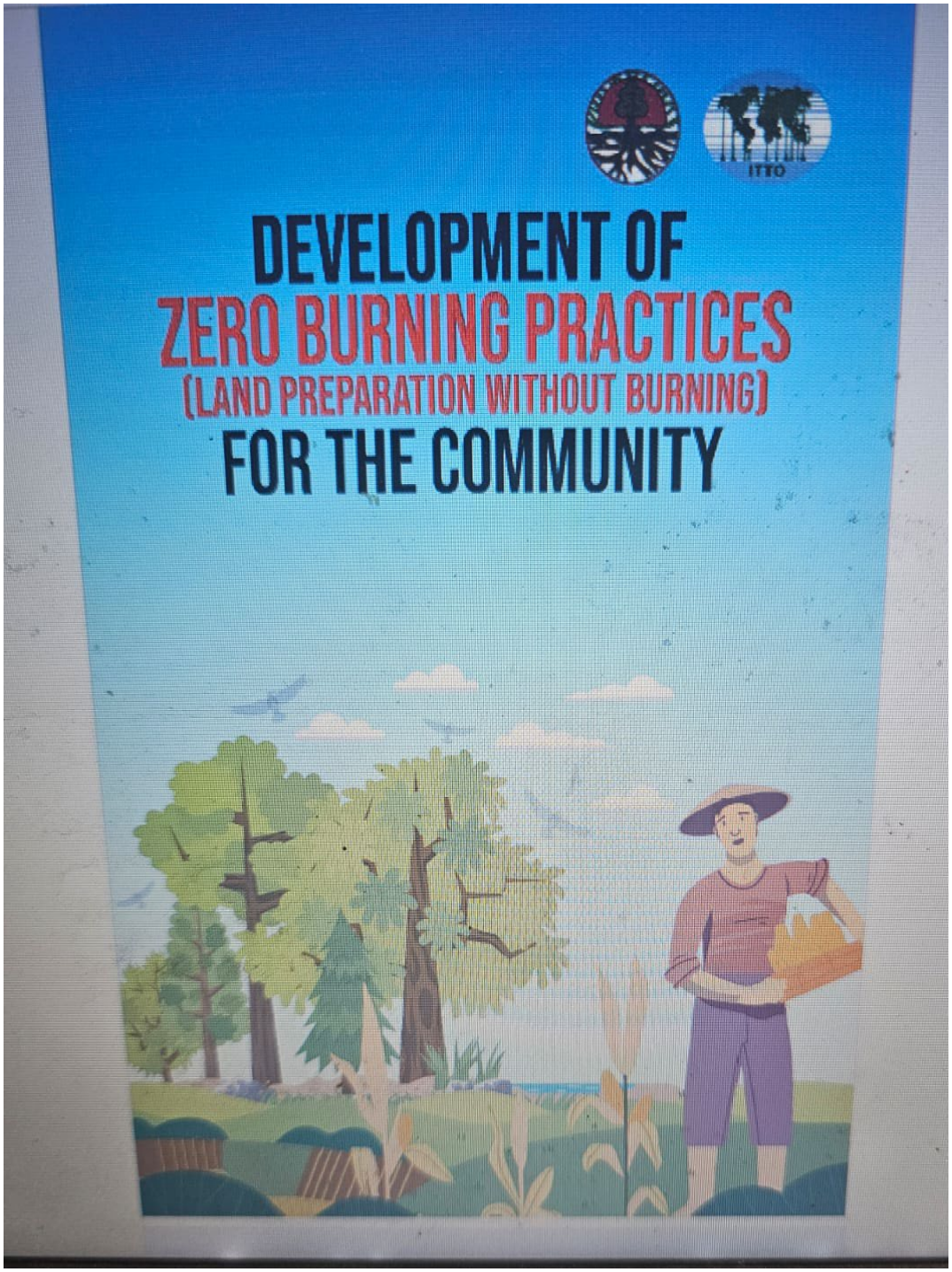
Name, Title and Institution of Respondent:

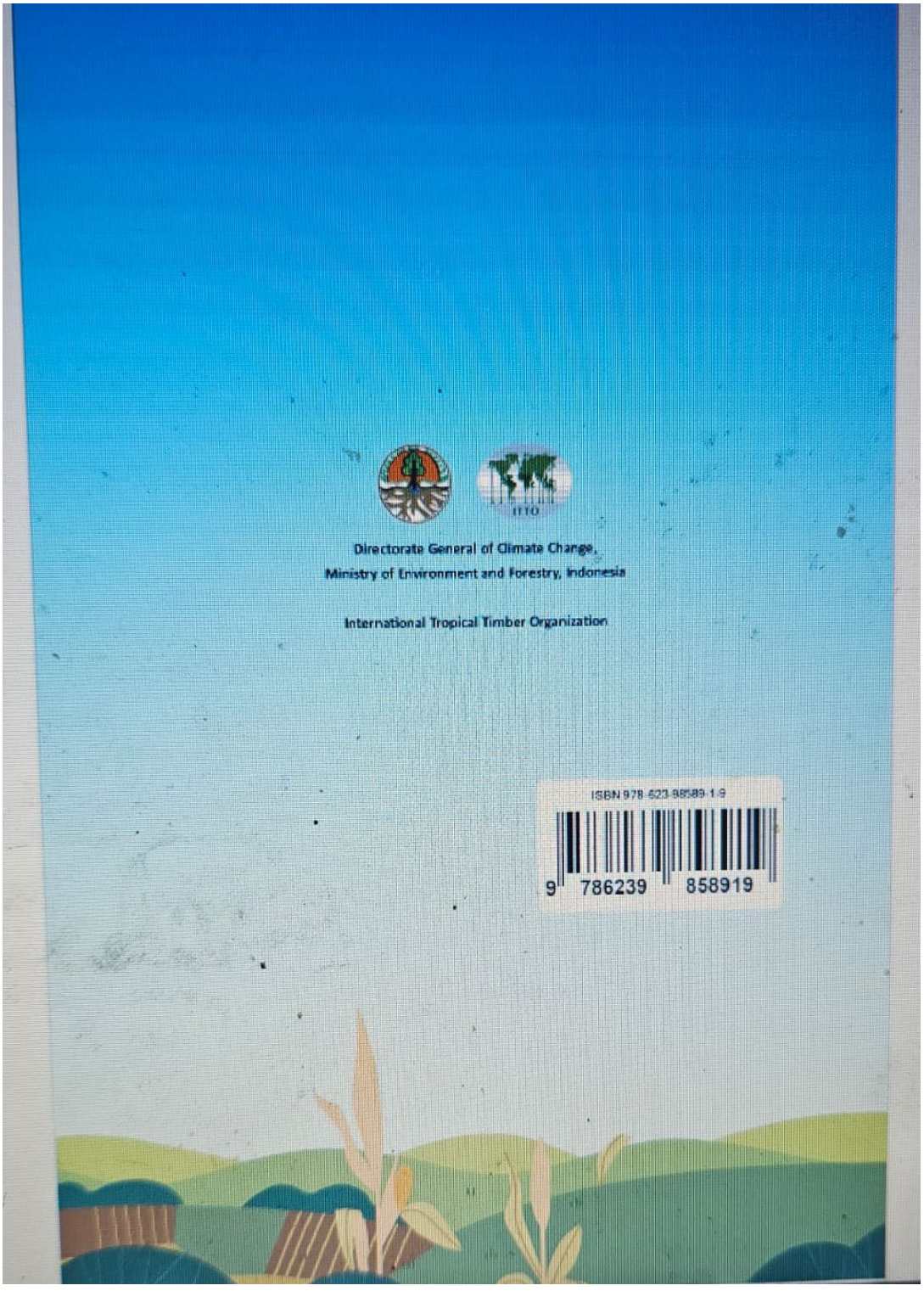


Ir. Thomas Nifinluri, M.Sc
Director of Forest and Land Fire Management, Directorate General of Climate Change, MoEF-Republic of Indonesia

Date, Signature: Jakarta, 2 October 2024

Annex 6: Cover page and last page of project Technical Report




Directorate General of Climate Change,
Ministry of Environment and Forestry, Indonesia
International Tropical Timber Organization
ISBN 978-623-98589-1-9
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