

**COMPARISON OF BEST MANAGEMENT PRACTICES
IMPLEMENTED BY
SMALLHOLDERS IN SERUYAN AND SABAH**



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I. INTRODUCTION

The knowledge exchange programs between Seruyan and Sabah have been carried out as part of UNEP project, entitled “Supporting Smallholders towards Improved Livelihoods and Sustainable Production”. The first knowledge exchange program was carried out on 9th – 12th November 2018, where farmers from Seruyan, Central Kalimantan, visited Sabah (Telupid, Tongod, Beluran and Kinabatangan, TTBK in short). The second knowledge exchange program was carried out on 18th – 22nd February 2019, where farmers from Sabah, Malaysia, visited Suka Maju and Sukorejo village in the Seruyan district. The purpose of the knowledge exchange programs was to provide a platform where smallholder farmers can exchange knowledge and discuss and solve common challenges.



Photo 1: Q&A session on Knowledge Exchange in Sabah (November 2018). A total of 15 smallholder farmers from Seruyan visited Sabah for the first knowledge exchange program. The Seruyan smallholders had also attended the RT16 and further exchanged their knowledge at the RSPO Linking and Learning session.

Although oil palm is cultivated both in Malaysia and Indonesia, the intensity of cultivation and the success of the crop are different across the region. The field visits conducted for smallholders in Seruyan and Sabah enabled exchange of knowledge on jurisdictional certification approaches and best management practices toward improving yield, management of environmental resources and alternative source of livelihood between the two regions. The goal of the visit was for the smallholders to learn and acquire knowledge regarding the management of oil palm through their very own personal experiences and challenges. The smallholders had the chance to share knowledge and stories about integrated control system (ICS), sustainable farming practices and their journey towards achieving RSPO certification.

Besides that, the learning exchange platform has enabled the smallholders and other stakeholders such as the local government and NGOs from Sabah and Seruyan to interact and learn innovative ways to support smallholders towards achieving the RSPO Jurisdictional Certification. In Seruyan, the jurisdiction certification working group, which consisted of the district government and palm oil mills, has been working together to assist independent farmers to map their plots, train and assist the farmers to obtain RSPO and ISPO (Indonesia Sustainable Palm Oil) certification. At the second knowledge exchange, the smallholders from Sabah were introduced to the Agricultural Facility, a facility that was set up to provide services to farmers for sustainable production. In Sabah, the project aims to assist the TTBK's (Telupid, Tongod, Beluran and Kinabatangan) smallholders towards RSPO and MSPO (Malaysian Sustainable Palm Oil) certification. Similar to the situation in Seruyan, the initiative is supported by the Jurisdictional Certification Steering Committee (JCSC), a group which is made up of oil palm growers, NGOs and the local government.

This report gathers and compares the management practices that were previously and are currently implemented by the smallholders in TTBK, Sabah and in Suka Maju and Sukorejo village in Seruyan.

II. BEST MANAGEMENT PRACTICES IN SERUYAN AND SABAH

A. Pests and Weed Management (Use of Pesticide and Herbicide)

In Sabah

Smallholders in TTBK use limited pesticides as pests are not considered as a major problem. Pesticides are only applied when necessary, or twice a year. Based on the findings from “TTBK Smallholders Readiness for RSPO Certification” study in 2018, smallholders are only using minimum pesticides due to the fact that TTBK’s smallholdings are relatively new and it is the first-round planting after land clearance.

If pesticides/herbicides are necessary, the choice of pesticides by smallholders in TTBK is Monsanto Glyphosate (Roundup and Sentry) or Paraquat (Gramaxone). Paraquat is only used by a small numbers of smallholders and this herbicide is only available in Sabah under special license because of its high LD₅₀ (toxicity to mammals). In Sabah, Paraquat is obtained through clandestine channels, including from supplies pilfered from licensed commercial estates. Strategies for reducing human and environmental exposure to these herbicides are required by RSPO standards, though in ways that still allows their substantial application in these village lands. To increase awareness on proper usage and application of pesticides, environmental health talks are conducted through program such as Heart of Sabah (H.O.S) organized by Forever Sabah.

Although biological control method provides minimum impact to the environment, this is not a common practice by the TTBK smallholders in Sabah. Pest management is synonym only to big-size and mid-size companies and estate in Sabah. Since TTBK smallholders are not grouped, biological pest management is seen as an extra effort by individual smallholders with plots as small as two hectares. The choice is obvious by the smallholders – which is to use pesticides which is readily available when needed. However, these smallholders are not aware of the environmental impacts of using pesticides, especially the ones that are considered really damaging to the environment.

In Seruyan

The types of pests that attack oil palms in Suka Maju and Sukorejo Villages include caterpillars, beetles (*Apogonia sp* and *Oryctes rhinoceros*) and rodents. Smallholders only use pesticides when necessary or once or twice in a year as pests are not considered a major problem. The smallholders practice the use of biological agents to control pests. Yellow Alder (*Turnera Subulata*) flowers are used to prevent caterpillar infestation and owls are used to control the population of rodents in their farms.

Mr. Samsudin, a farmer from Sukorejo Village, Seruyan District, build an owl cage as an effort to control the population of rats in his farms. The owl cage was built as rat infestation was anticipated after replanting. Only one owl cage was built as an owl would be able to cover the entire farm which is 1.8 hectares in size. This is also



Photo 2: An owl's cage in one of the smallholder's farms. Mr. Samsudin from Sukorejo village explained the significant of the owl's cage and how it has helped him to get rid of pests, especially rodents.

beneficial to surrounding farms as the owl is able to cover a wider range. Mr. Samsudin shared details of the materials he used to build the owl cage:

- Walls: using 2 plies of wood, size 2 cm (thickness), 20 cm (Width), and 4 m (Length)
- Frame: using 2 sticks of wood, size 3 cm (thickness), 5 cm (Width), and 4 m (Length)
- Pole: using wood with a length of 5 cm x10 cm x 4 m
- Roof: using 1 zinc roof



Photo 3: Yellow alder planted by the smallholders at the edge of the plantation to help prevent caterpillar attacks on the oil palms.

The frequency of nettle caterpillar attacks in farmers' farms in Suka Maju and Sukorejo Villages is not high, but the smallholders are taking measures to prevent unwanted infestations by planting yellow alder or white alder plants (*Turnera subulata*) at the edge of the farms. Smallholders planted a number of yellow alders at the edge of the plantation or at the roadside with a planting distance of approximately 20 cm from each plant (this will ensure that there will be five plants within one meter). With this method, it can prevent caterpillar infestations in farms with area up to 60 hectares.

For weed management, the smallholders conduct periodic herbicide spraying or manual cleaning (depending on the density of weeds on the field). Instead of using herbicides, the smallholders are moving towards a more sustainable method of handling weed which is to schedule manual cuts. Similar to the smallholders in Sabah, the choice of pesticides and herbicides by Seruyan smallholders are Glyphosate (Roundup) and Paraquat (Gramoxone) particularly due to easy access. Only small numbers of smallholders are using paraquat as the law of the Republic of Indonesia strictly

regulates the use of Paraquat in agriculture. In addition to the law, the use of Paraquat for weed control is excluded by RSPO unless when authorized by relevant authorities for pest outbreaks (RSPO Independent Smallholders Standard, RISS 2019).

The smallholders in Seruyan use protective gears (apron, mask, rubber gloves) during the application of pesticides. This is to ensure minimal exposure to the chemical.

B. Fertilizers Management

In Sabah

Fertilizers are not widely used as they are supposed to be by the smallholders in TTBK. The smallholders rely on subsidized fertilizer obtained from Malaysian Palm Oil Board (MPOB) and also from other government agencies such as Lembaga Pertubuhan Peladang (including those distributing



Photo 4: One of smallholders in Tongod transporting FFB from across the river. Often, collection centers or mills are far away from the smallholders' farms and they will have to cross rivers to sell their FFBs.

fertilizer for rice and rubber). Through consultations and interviews, it is found that smallholders in Sabah are more likely to use fertilizer that is cheap and affordable due to economic reasons. The other reason why the smallholders are not using fertilizer is that they are unaware and have little understanding on the use and benefit of proper application of fertilizer. Based on the 'TTBK smallholders' readiness for RSPO certification' study, 25% smallholders in TTBK reported that they did not use fertilizer because they simply could not afford to buy fertilizer consistently.

Some smallholders are aware on the importance of scheduled application of fertilizer, however, due to economic constraints, investment on fertilizer is not prioritized. Typically, the smallholders will wait for the subsidized hand-outs and most of the time, these hand-outs are poorly timed, not targeted and insufficient. It appears that TTBK smallholders are not being selective as they are satisfied with only buying what is available at low price. After attending talk sessions organized by MPOB and Forever Sabah, the smallholders are becoming more aware of the importance of scheduled fertilizers application for better yield and more convinced to use better fertilizers instead of relying on the untimely subsidized fertilizers from MPOB.

After attending the talk sessions, smallholders are also committed in ensuring the right timing of fertilizer application for better yield. In addition to that, the smallholders also learned the environmental impacts resulting from poor fertilizer application. MPOB and Forever Sabah provide scheduled talk sessions and trainings to smallholders to make sure that they keep improving and are up to date with the Best Management Practices.

Through this project, mills around TTBK are also further involving themselves with smallholders. Since mills are sourcing Fresh Fruit Bunches (FFBs) from the smallholders, they see the importance of training smallholders to produce better yields with minimal environmental impacts. Together with MPOBs and Forever Sabah, the mills are also providing trainings on Best Management Practices (BMPs) which include the application of fertilizers. Even though the use of good fertilizers is very much dependent to the smallholders' financial power, increasing awareness is the first step to improve the current practice.

In Seruyan

Similar to the situation in TTBK, Sabah, the smallholders in Suka Maju and Sukoreko village are not widely using fertilizer as they are supposed to. They usually obtain non-subsidized fertilizers at kiosks or fertilizer distributors as the government-subsidized fertilizers are rarely available in the market. The smallholders are using compound fertilizers and often, they are not being selective with their choices of fertilizers. Their best choice is to buy what is readily available in the market at a low price.

As for the awareness on fertilizer usage, a number of smallholders in Seruyan are aware of the importance of buying good fertilizers. However, they are lacking information and resources to invest in a good fertilizer. In addition to that, they lack knowledge on proper methods of fertilizer application. They only apply fertilizer based on their previous experience or seeing how/when other smallholders farmers do it. Application of fertilizer is not scheduled and it depends greatly on time and resources.



Photo 5: The ICS, with the help of the surrounding mills collect palm leaves sample to determine the recommended amount of fertilizer per tree.

Fortunately, the situation has improved after several rounds of BMP training sessions. The smallholders attended trainings conducted by mills and the Agricultural Facility on BMPs, which include the use and application of fertilizer. Once the Internal Control System (ICS) was established, awareness level among the smallholders on fertilizer usage improved and they are more willing to spend their resources wisely to invest on better quality fertilizer.

The ICS worked with the surrounding mills to conduct a laboratory test of leaf and soil sample from the smallholders farms to establish the recommended amount of fertilizer per tree. In addition to that, mills also trained smallholders on fertilizer application and the environmental impacts of poor fertilizer application. With all the training, smallholders are more committed to improve their fertilizer application techniques.

C. Human-Wildlife Conflict Management

In Sabah

Almost half of the smallholders in 20 villages in TTBK had experienced some wildlife conflict in their oil palm smallholdings. Most of the threats are from elephants, wild boars, pig tailed and long tailed macaques. Traditionally, to solve the issue of wildlife encroachment, the smallholders resort to hunting these animals down as they are also the source of food for the local communities. The Sabah Wildlife Department had step up to this issue and organized training and talk sessions to educate the communities on human-wildlife conflict management.

In the past, smallholders in Kg Liningkung (Telupid), Kg. Tampasak (Tongod), Kg. Balat (Kinabatangan) particularly had issues with elephants destroying and eating their crops and oil palm smallholdings. To help TTBK smallholders to deal with wildlife encroachment, Forever Sabah has established an initiative called the “Human Elephant Harmony” (HEH) with the objective to reduce the conflict and impact towards their smallholdings by evolving mitigation method and increasing awareness on human-wildlife conflict. A Community Elephant Ranger Team is established in HEH to ensure that when conflict arises, there is a platform for the smallholders to go to and have the conflict averted/solved.

In Seruyan

Smallholders had problems with wild animals in their oil palm smallholdings ranging from snakes (cobras and pythons), bear, tiger, and wild cats encroaching into the farms. Since the farms are away from the primary forests, there are no casualties reported involving elephants and other wildlife encroachment.

Smallholders are prone to solve the issues by hunting and killing them as a traditional practice. They tend to hunt, as a group, as the wildlife are also considered dangerous to the human population. Although not related to oil palm, the smallholders also hunt down owls that prey on their swallows. In Seruyan, smallholders also rely on bird nests business in addition to oil palm.

INOBU has organized multiple trainings on Human-Wildlife conflict for the smallholders. The training was facilitated by High Conservation Values (HCV) assessors together with the ICS team. Smallholders were informed of the procedures that they need to follow in the event that they encounter a wildlife in their farms which is to evict the animals from residential areas and catch them safely. Smallholders are introduced to the *Balai Konservasi Sumber Daya Alam* (BKSDA) so they can get assistance whenever they encounter wildlife encroachment problems. The BKSDA is responsible to catch and release the wildlife back to the wild.



Photo 6: Banners are installed to increase awareness on wildlife hunting and forbid communities to hunt protected species.

In addition, the ICS also installed billboards related to the protection of high conservation values at several points within the farms and the prohibition of hunting and capturing wild animals. The smallholders are becoming aware that the endangered animals are part of the ecosystem that need to be protected.

D. Storage and Facilities for Chemical & farm Equipments

In Sabah

In TTBK, most of the smallholders store their chemical containers, fertilizer and other agrochemical related for their farm or under their houses. Smallholders find it costly to build storage facilities when they can just place them anywhere around their farm. MPOB is struggling to find ways to ensure smallholders place their pesticides in farmhouses with proper labels to indicate hazardous chemical.



Photo 7: Traditionally, smallholders utilize the space under their houses to store chemicals and fertilizers. They did not practice labelling of the chemicals.

To aide MPOB's effort, Forever Sabah worked with the local mills to provide training sessions on chemical handling and storage. MPOB is currently supporting the smallholders by building more storage facilities for common use. Some of the smallholders in TTBK own a small farmhouse but unable to follow the requirement of labelling the containers, separating fertilizer in different partition and away from water sources.

In Seruyan

Republic of Indonesia Government Regulation No. 101 of 2014 on Hazardous Waste Management regulates hazardous waste handling mechanism that is applicable to all parties who generate hazardous waste as byproducts, regardless of the nature of the business. This regulation has been used as a reference by the smallholders who utilize chemicals for their agricultural activities.

Only a small number of smallholders store agrochemicals, such as pesticides, herbicides and fertilizers, at their houses or warehouses. The usual standard practice for most smallholders in Seruyan is that they buy the agrochemicals in store and immediately apply them on their fields. Only a small number of smallholders own warehouses at their houses. These warehouses, however, are

used in conjunction with another goods storage. According to Best Management Practices related to storage of chemicals, there are several requirements or guidelines to store agrochemicals at home:

1. Applying a label or text to indicate the goods as hazardous materials.
2. Pesticides/herbicides are stored in a safe place, separate from fertilizers, food ingredients and water sources
3. Separating types of pesticides/herbicides according to their respective groups (herbicides, fungicides and insecticides).
4. Agrochemicals should be kept away from the reach of children, not to be exposed to direct sunlight and kept away from sources of ignition.

Currently the RSPO-certified smallholders group has a temporary waste collection facility, also known as locally as TPS LB3, for the hazardous waste generated from their agricultural practices. TPS LB3, as stipulated by the regulation, is needed before the hazardous waste is transferred (once in three months) to other processing facilities for further handling. TPS LB3 is also equipped with a safety sheet, first aid kit and sand as a countermeasure in case of fire. The followings are the practice of hazardous waste handling mechanism by the smallholders in the villages:

1. Used chemical packaging/containers are collected and placed to TPS LB3, which is located not far from the farmers' field
2. The waste facilities consist of containers with different labels of hazardous waste.
3. Each farmer group leader records the name of the farmers who put their hazardous waste in TPS LB3
4. Each farmer group leader reports the record to the ICS in the end of spraying period
5. Hazardous waste that has been stored for three months in TPS LB3 shall be transferred to other waste processing facilities for further handling

INOBU assists the smallholders by providing intensive training regarding hazardous materials and hazardous waste management in agricultural practices. INOBU also assists the ICS in both villages to



Photo 7: A smallholder using the hazardous waste facilities to dispose used fertilizer sacks.

apply for a permit for hazardous waste handling mechanism, which is stipulated by Indonesia Government Law No. 101 Year of 2014. To increase smallholders' understanding on hazardous materials, the ICS also provides socialization on the labelling of hazardous materials and informs smallholders to store their agrochemicals properly in warehouse or outside the house with appropriate labels. On the other hand, the used packagings or containers of agrochemicals are placed by the smallholders in a communal hazardous waste collection facility provided by the ICS.

III. CONCLUSION



Photo 8: Second round of harvesting for one of the smallholders in Beluran.

Changing of farming practices is one of the initial early steps to sustainable production of palm oil. In the span of the project, it is made evident that, with the right support, smallholders are capable of producing sustainably. The tables below summarize smallholders farming practices before and after the project intervention.

Table 1: Sabah smallholders farming practices before and after the project intervention.

Sabah	Traditional	Now
Pests and Weed Management	1. Slash unwanted weed around the farm.	1. Slashing or using chemical (in small amounts and only if necessary) such as Monsanto Glyphosate (Roundup and Sentry) and Paraquat (Gramaxone) for weed management.
Fertilizer Management	1. Rely on MPOB subsidised fertilizers and Persatuan Peladang 2. Lack knowledge in fertilizer application and management	1. Smallholders are aware of the importance of using good quality fertilizer. They are more willing to spend more for good quality fertilizer. 2. Scheduled fertilizer application.
Human wildlife conflict management	1. Hunting and killing them as a traditional practice	1. Less hunting and killing after attending talks and workshops organized by government agencies and Forever Sabah*. 2. Report wildlife encroachment to responsible bodies such as the HEH.
Storage and Facilities for Chemical & farm Equipment	1. Stores fertilizers, chemicals and farm equipment under their house. 2. Do not practice labelling.	1. Chemicals, fertilizers and farm equipment are still stored under their houses although some smallholders are now able to store them appropriately in personal

Sabah	Traditional	Now
		warehouses and MPOB provided warehouses. 2. Smallholders are moving towards the practice of labelling their chemicals.

*based only on interviews with local communities

Table 2: Seruyan smallholders farming practices before and after the project intervention.

Seruyan	Traditional (before RSPO intervention)	Now (after RSPO intervention)
Pests and Weed Management	1. Using chemicals to control pests and weed. 2. Did not wear protective gear while applying pesticides/herbicides.	1. Using biological agents such as owls and yellow alder to control pests. 2. Wear protective equipment when applying pesticides/herbicides.
Fertilizer Management	1. Lack of information and resources to invest in a good fertilizer. 2. Focus on cost rather than quality of the fertilizers.	1. Invest in good quality fertilizers. 2. Scheduled application of fertilizers.
Human wildlife conflict management	1. Hunting and killing them as a traditional practice.	1. Following the right SOPs to address wildlife encroachment.
Storage and Facilities for Chemical & farm Equipment	1. Store in homes or warehouses (without proper label)	1. Store in permitted temporary waste disposal (with appropriate labels and safety equipment)



Photo 9: The visit to KUD Tani Subur In February 2019. KUD Tani Subur is RSPO certified since October 2017. The group is also an applicant to the RSPO Smallholder Support Fund (RSSF). The fund covered the cost of the surveillance audit in October 2018.

The smallholders have benefited massively from this project, from learning best management practices and changing their farming practices to improved yield, hence, leading to improved livelihood. This project has created a useful platform where smallholders can share knowledge and solve common challenges together. This platform has also managed to bridge relationships between stakeholders with similar interests. Platforms such as this should be continued and expanded to other regions for wider impact. Smallholders hold the key to achieving the RSPO's mission which is to make sustainable palm oil the norm. Together with other smallholder outreach efforts by the RSPO, this project enables communication and learning among smallholders, hence ensuring connectedness and sustainable farming practices being implemented by smallholders.

In addition, this project is useful to inform stakeholders on the RSPO jurisdictional certification efforts and be benchmarked continuous improvement. Achieving the RSPO Jurisdictional Certification will take time, especially in areas jurisdictions where there are many smallholders operating. Reaching to individual smallholders for RSPO Jurisdictional Certification can be tricky but with the right tools and support from the local governments, NGOs and medium/big sized growers, this is possible.

Forever Sabah and INOBU thanked RSPO and UNEP for the opportunity to implement this project. The project has provided useful insights to continue with the journey towards achieving RSPO Jurisdictional Certification in Sabah and Seruyan.