



**REPORT OF ASSESSMENT OF EFFECTIVENESS OF
GOOD MANAGEMENT PRACTICES (GMP) INTERVENTION MODELS
IN 20 VILLAGES OF TELUPID, TONGOD, BELURAN AND KINABATANGAN**

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Certified Sustainable Palm Oil Smallholder Team – Forever Sabah

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and to our private, government and NGO Training Partners

EXECUTIVE SUMMARY

1. Sabah's oil palm producing smallholders are mostly still living in poverty. They need assistance to improve productivity and sustainability and to reach federal and state government mandated Malaysian Sustainable Palm Oil (MSPO) and Roundtable on Sustainable Palm Oil (RSPO) standards. Failure to reach those standards could hinder smallholder, and Sabahan, access to premium global oil palm markets
2. In close collaboration with government agencies, private mills and NGOs, Forever Sabah facilitated hands-on training of 282 smallholders from 20 pilot villages in the Telupid, Tongod, Beluran and Kinabatangan (TTBK) Districts in Good Management Practices (GMPs) over one year. We recently assessed the impact of this training on farm practice.
3. As a result of the diverse training opportunities provided, the TTBK smallholders are much better informed about relevant GMPs and demonstrating strong desire to reach them.
4. In those areas where little financial investment is required, and where training builds upon existing smallholder abilities and strengths, namely careful observation of - and physical work with - plants, such as in pruning, harvesting, and FFB grading, change in practices has been rapid and substantial, reinforced by immediate market-place signals, and over the next several years these improvements will substantially grow household income.
5. However, in areas where significant financial investment is required by smallholders to meet standards – such as in the acquisition of protective clothing and the establishing safe storage spaces for chemicals – smallholders are making a start, and are finding intermediate solutions, but reaching health and safety standards will take time. Where the Malaysia Palm Oil Board (MPOB) has provided them equipment as part of reaching Malaysian Sustainable Palm Oil standards this has had an immediate positive impact. Further capitalization towards health and safety requirements to help smallholders rapidly achieve MSPO and RSPO standards would be valuable.
6. One of the more notable results is in the use of agricultural chemicals (basically herbicides as TTBK smallholders are not finding need for much use of pesticides). Smallholders are now using significantly less herbicides, especially less paraquat (which they access illegally), and using smaller volumes of other herbicides in a more targeted fashion rather than their previous wasteful and destructive “blanket spraying”. This is reflected in more spatially complex plantation management, including through more use of physical methods of clearing vegetation between their palms, and some have even begun to manage for closed cover with soft weeds whereby farmers benefit from a healthier soil.
7. Meanwhile there is a big advance in the understanding of Health and Safety Issues. The proportion of smallholders using more than half of the eight protective gear items recommended by the Ministry of Health when handling agrochemicals has increased from 21% before to 85% after the GMP training. This reflects a heightened understanding of the short and long-term health risks associated with such chemicals. Smallholders also now appreciate the need for safer chemical storage systems.

8. Many Sabahan smallholders are using marginal soils for oil palm, and soil nutrients are limited. Fertilizer use on a perennial tree crop requires long term investment and is expensive. Sabahan smallholders rarely buy it and rely on handouts and subsidies from MPOB and others, or supplies pilfered and sold cheap from commercial estates. Such fertilizer is rarely available in a timely way for the plants, is not selected in accordance with local soil needs, and often appears to be of substandard quality. It is therefore not surprising that our baseline studies showed that current use of fertilizer failed to improve oil palm yields. As a result of this training, TTBK pilot smallholders now understand much better how and when to apply chemical fertilizers to raise yields. However, they report that they lack the funds to invest in fertilizer purchase and instead continue to rely on handouts. The opportunity to develop organic fertilizers is still to be realized: purchased organic types are as unaffordable as chemicals and developing and teaching forms of teas and composts relevant to oil palm will require further work and training. Nevertheless, we have now reached 10% of smallholders using organic fertilizers in these TTBK villages.
9. Smallholders have been remarkably open to learning about Riparian Zones, High Conservation Value (HCV) Forests and Rare, Threatened and Endangered and Species. Local ecological knowledge is high, as is their belief in their rights to decide how to use their land and natural resources. The next stage is to work with them to tackle on the ground how to actually address the HCV and Riparian issues they are grappling with.
10. The proportion of smallholders that are now keeping records of their smallholding productivity (through sales of Fresh Fruit Bunches/FFB) has increased dramatically from 43% to 72% and 22% of smallholders now have a record keeping system with a top 7% meeting international standards, while before the training only 4% of smallholders had any kind of record keeping system. Most trained smallholders now understand how records can improve their farm management; their challenge is doing it practically.
11. We believe reaching a “tipping-point” for change in the smallholder sector will require 20% of the smallholders to feel ownership of new standards that they can confidently share with their relatives and neighbours in their villages. The process of training smallholders must therefore inspire and engage them in ways that empower them to change their communities. They cannot be passive recipients of handouts and knowledge.
12. Smallholders have been inspired by the possibility of developing cooperatives in order to participate more fully in the jurisdictional approach, build community knowledge, and increase their financial returns. The exchange visits and training on cooperatives provided to them to date has given them a good sense of how this might work.
13. Smallholders are (above all) looking to the jurisdictional certification approach to deliver more productive and sustainable agronomic practices to raise long term productivity and enhance livelihoods. They also believe certification will motivate and assist the government to resolve the long-standing land tenure issues that mean that only 20% of TTBK smallholders have land titles. The successful delivery of these GMP trainings with

useful knowledge has increased the confidence of these villages that the jurisdictional process may deliver on these objectives.

14. The Sabah State Cabinet is committed to the Jurisdictional Certification approach to MSPO and RSPO standards and many government officers have made exceptional contributions to this effort. Improving the productivity and sustainability of the estimated 53,000 smallholders would make an enormous contribution to the state economy, to tackling poverty, to the state's transition to a greener economy and to many other state and national priorities. To achieve this requires active engagement by government departments in offering training, in solving land tenure problems, and in many other ways. Certainly, scaling up training will require more government agencies to now step forward.
15. The diversity of training approaches used in this GMP intervention, and with teachers from the different sectors, is valuable; but the most effective learning is done as practical teaching, deep among the oil palms, physically demonstrating the methods and ideas ideally with peer teaching, visual aids and a tight focus on what needs to change. This underlines the value of selecting co-teaching faculty from among the most promising smallholders in each of the communities where we are engaging.
16. Despite all this encouraging progress in different GMP areas it remains the case that most smallholders in these 20 pilot villages have yet to reach RSPO certification standards, even those who have attended training programs, which are about 15% of the smallholders in those villages. This means that follow-up work with these smallholders will be necessary.

Introduction

The purpose of this report is to document the impact of Forever Sabah's experimental training of smallholders for Good Management Practices (GMP) in the 20 pilot villages of the Telupid, Tongod, Beluran and Kinabatangan Districts (TTBK) of east-central Sabah. The assessment is made by comparing practices before and after a series of workshops and training programs using a combination of questions and field verification with the smallholder in their smallholding. The results of training show considerable progress in smallholder knowledge and practices, but constrained by financial ability and by technical challenges areas like the application of High Conservation Value forests to smallholdings in Sabah.

The Intervention Model for Good Management Practices (GMP) was based on detailed baseline studies in the area and the gathering of technical knowledge around what was needed to improve smallholders' land cultivation and productivity levels and to achieve MSPO and RSPO standards. The underlying issue is that average smallholder yields (10 tons/FFB/ha/year) are about half that they could achieve, while they live around or below the poverty line. Meanwhile many of their practices threaten the health of their families, their watersheds and ecosystems. Training was conducted between August 2018 and September 2019 with funding underwritten by a grant from UNEP/RSPO, with substantial contributions in time and expertise from a wide variety of government, private, NGO institutions (see Table

One for details). 282 smallholders were trained under these programs from among the approximately 2,000 smallholders in these 20 villages.

The FS's GMP Intervention Model covers the entire requirements laid out in the RSPO Manual on Best Management Practices (BMP) which covers a range of topics such as Environmental Management for Riparian Zones and Peatland, Financial Management and Filing System Training, Agricultural Training (harvesting, pruning, seeding, use of chemicals, FFB Prices Grading and price mechanisms). Training was provided by private sector FFB Processing Mills in Telupid, Tongod, Beluran and Kinabatangan (TTBK) districts as well as Health and Safety Training and talks on Rare, Threatened and Endangered species by a variety of relevant agencies. GMP training and assistance for smallholders is expected to facilitate smallholders shift from their existing practices into sustainable management with higher productivity.



Photo 1: Training with Mills by Mr Perumal Rajoo to Kinabatangan smallholders in at Haranky Palm Oil Mill, Kinabatangan.



Photo 2: CSPO team conducting an effectiveness assessment interview with smallholders in Tongod

According to data published in our 2018 baseline report,¹ most smallholders are still learning how to produce this crop. Indeed, almost 75% of oil palm field plots had been planted only since the year 2000 and 70% of the farmers told us that they had only a “fairly good” knowledge of oil palm production. During the course of our work it became clear that many smallholders struggle with issues like effective handling of agricultural chemicals, FFB grading and long-term planning (especially its financial elements) and had received little guidance with these.

¹ Wilson, K., Abram N. K., Chin, P., Ong, C., Latik, E., Jitilon, H. H., Ramlan, M., Amat Nor, N., Kinsui, C. I., Rosli, M. D., Wasai, J., Kumar, M. (2018). *Smallholder Readiness for Roundtable on Sustainable Palm Oil (RSPO) Jurisdictional Certification of Palm Oil by 2025: results from field studies in Sabah's Telupid, Tongod, Beluran & Kinabatangan Districts*. Forever Sabah

Indeed, only a few smallholders had ever received comprehensive training in the production of this new crop; and studies of the relationship between training and productivity showed that not all of the training agencies were teaching in ways that actually increased smallholder productivity, and that the courses of the Malaysian Palm Oil Board in particular were not actually causing course attendees to have higher yields, probably because of low relevance of material and theoretical delivery. When we designed our GMP program we therefore tried to recognize the precise challenges and realities that these smallholders face and we focused on reducing the gaps between current and desired practices through the implementation of a GMP Intervention model in our pilot districts.

Assessment Methodology

This current report is based on a comparison of practices reported by smallholders and observed in their smallholdings before and after participation in our GMP Training program in the 20 pilot villages in Telupid, Tongod, Beluran and Kinabatangan (TTBK). The GMP training programs themselves were conducted over approximately a year between August 2018 and September 2019 (with small variations in timing by district). The first set of interviews – which provide the baseline data – were undertaken with 85 oil palm smallholders in the 20 pilot TTBK during 2017. These studies were designed to understand the issues of these communities; the gap between their current practices and the jurisdictional certification process; and the attitudes and desires of the smallholders themselves. The post-training studies were designed to see how close the smallholders now were to reaching certification standards. A further sample of 85 smallholders were interviewed between July and October 2019 from these same villages who had participated in the GMP Training Program (we undertook interviews in districts only once the GMP training was complete).



Photo 3: Farm inspection to understand the current practices of one of the smallholders in Kg. Tampasak, Telupid.

The follow-up survey comprised 14 pages of questions that were modelled closely on the requirements laid out in the Internal Audit for RSPO certification, as developed by our partner Wild Asia. (Wild Asia was the lead agency for all 712 Sabahan smallholders currently certified to RSPO standards.) We also supplemented the standard Internal Audit questions with some other questions related to assessing the effectiveness of the training that had been provided. We then combined the questionnaire with site visits to the smallholding together with the smallholders to physically assess agronomic practices such as quality of harvesting, weed control and pruning. We were able to secure high participation in this process because of the

relationships that Forever Sabah has evolved in these villages through community committees we helped them establish several years ago that remain committed, supportive and welcoming. We also conducted “sumuku” (a local cultural approach to FPIC) with each village head to obtain permission before conducting the household interviews. The final sample size for the follow-up training became 82 because two of the 85 trained smallholders interviewed had given up oil palm as a crop, and one gave incomplete answers before disappearing.

The Nature of GMP Training Provided

The training topics given to the smallholders were selected based on our understanding of how best to support smallholders towards the requirements of RSPO standards. Agronomic practise standards for RSPO are essentially similar to those referenced by MPOB and by commercial oil palm producers; but RSPO includes several important environmental and social standards, some of which are anyway part of Malaysian Law. The trainings were crafted to ensure that smallholders are equipped motivated to transform from their traditional practices in oil palm management to others that can better meet their desire to increase productivity and yields and are less harmful to themselves and the environment. Details on the GMP Topics and Training Providers can be seen in Table One below.

Table One: GMP Topics Covered by Training Providers to the TTBK Smallholders

Good Management Practice Topics	Training Providers
Harvesting, pruning, seeding, use of chemicals, FFB Prices Grading and Price Mechanisms	Private Sector Mills: Wilmar, Kim Loong, Kwantas, Tung Hap and Forever Sabah
Financial Management and Filing Systems	PACOS Trust and Forever Sabah
High Conservation Value (HCV) Forest Workshop	Forever Sabah
Riparian Management	Drainage and Irrigation Department, Sabah (DID) and Forever Sabah
Health and Safety Training	MPOB and Forever Sabah
Rare, Threatened and Endangered species	Sabah Wildlife Department and Forever Sabah
Establishment of Cooperatives among Smallholders	Suruhanjaya Koperasi Malaysia (SKM)
Weed Management, Fertilizer Use, Harvesting, and Financial Management and Filing Systems	Aflatoun Smallholder Academy, PACOS Trust and Forever Sabah



Photo 4: MPOB Provided Agrochemical Storage Cabinet in use on Beluran smallholding

This GMP training was mainly undertaken with the logistical support provided under a UNEP/RSPO grant. Time and expertise, and sometimes additional logistical support, was donated by the following training providers: Wilmar, Kim Loong, Kwantas, Tung Hap, PACOS Trust, Sabah Drainage and Irrigation Department, Sabah Wildlife Department, Aflatoun, MPOB & Suruhanjaya Koperasi Malaysia. The Aflatoun Training was underwritten by a separate curricula development contract between RSPO and Aflatoun establishing the Aflatoun Smallholder Academy, with the training itself serving as a “piloting” of a new curriculum. We found the approach, that managed to train 100 smallholders cost-effective in terms of

logistics, highly relevant and effective because of the hands-on small group practical teaching process. Forever Sabah staff, who are themselves mostly smallholders from the area, participated in the most of these trainings both as organizers and as co-trainers.

Although Forever Sabah faced a series of challenges with organizing these GMP trainings, we managed to complete it over a year through responding flexibly to the unavoidable complexities and shifting of plans and dates with our various partners. We had hoped that the Department of Agriculture (DoA) would commit as trainer to our smallholders, but for various reasons connected to state and federal jurisdiction over land and agriculture we were eventually obliged to engage other public, private and NGO agencies who were willing to serve as experts and trainers in the time frame available. Training sessions were conducted in locations around Telupid, Tongod, Beluran and Kinabatangan Districts and sometimes jointly at a centralized location for the smallholders coming from across the 20 villages.

Results

Table Two summarizes key smallholder practices in the TTBK prior and following the GMP Training Programs, as derived from analysis of data from before and after the training. Further detail is provided on declining rates of Herbicide use in Table Three. Meanwhile, Table Four summarises what the CSPO Field staff – smallholders themselves in these villages – observed as the most significant impacts of the training programs. Table Five, also derived from CSPO Field Staff views, in effect underlines the results derived from the surveys in Table Two, while highlighting particular areas of highest change (use of agrochemicals, ability to harvest in a timely fashion, financial record keeping).

Table Two: Comparison of the “Before and After” GMP Intervention Model Training in TTBK districts.

	Training Topic	Smallholders’ Practices before GMP Intervention Model & Training	Smallholders’ Practices after GMP Intervention Model & Training
1.	Harvesting	<ul style="list-style-type: none"> • Most smallholders harvest twice in one month, which is good, but often not at the right moment of ripeness. • Smallholders unaware of the proper length for the stalk of fruit bunches. • Smallholders harvested unripe bunches and this results in loss of oil and kernels. • Lack of mechanisms to receive information about good harvesting practices. 	<ul style="list-style-type: none"> • Smallholders are formally informed via workshops and GMP trainings about the timing of harvesting. • Fresh Fruits Bunches (FFB) are harvested based on observing that 6 to 10 loose fruits had fallen to the ground. • Smallholders aware of the right place to cut the fruit bunch (a 10cm stalk length). • 69% of smallholders now successfully harvest FFB when it ripens rather than too early or too late.
2.	Pruning	<ul style="list-style-type: none"> • Pruning is conducted without knowing the proper steps to do it. E.g. Leaves were cut without leaving any fronds to support the weight of growing fruit bunches so damaging the nearby bunches, fronds and palm trunk. • Fronds were only rarely arranged properly according to the topography of the land (i.e. below the tree on a slope). 	<ul style="list-style-type: none"> • 42% of smallholders practiced the right method of pruning after receiving GMP training. • 54% of smallholders now arranged the oil palm fronds in the proper way on the ground.

3.	Seeding	<ul style="list-style-type: none"> • 20% Smallholders planted Volunteer Oil Palm seedlings (VOP). Others used unverified seedlings from dubious sources. Analysis showed significant differences in yield between seedlings derived from quality nurseries like Dept of Agriculture (12 tons/FFB/ha/yr), compared to seedlings from MPOB (8.3tons/FFB/Ha/yr) that include a mix of pedigree and non-selected lines, and self-seeding VOPs (7.7 tons/FFB/Ha/yr). • Smallholders still learning about importance of good quality seed stock, except those with previously work on estates or mills. 	<ul style="list-style-type: none"> • Smallholders are now properly informed about seedling quality issues and have been taught how to choose a good quality and good breed of oil palm. • Whether will make better planting choices in future years remains to be seen but it is clear that nearly all smallholders now understand the VOPs are very low yielding, and that there are big differences between seedlings derived from trusted registered suppliers, and others that may be provided by unreliable agents or officials.
4.	Weed Management	<ul style="list-style-type: none"> • 85% smallholders spray herbicides to clear vegetation and remove unwanted weeds on their farms rather than deploy the heavy labour of manual or grasscutter clearance. • Few smallholders were able to judiciously apply herbicides only to the level required in each area of the plantation, and instead used inefficient “blanket spraying” with over-use and increased contamination. • No knowledge of the value of establishing soft grass ground cover to maintaining soil. 	<ul style="list-style-type: none"> • Smallholders have learned much about the correct use of herbicides. Only 26% still “blanket spraying”; most now target different areas of the plantation for different levels of herbicide. Furthermore, safety concerns mean they are using less herbicide for the same task. • The recognition of the environmental health risks of herbicide use also mean that many fewer farmers are purchasing paraquat based products (down by two thirds) and imazapic products (down by nearly half). • Smallholders are also more aware of the impact of using chemicals for weed management on soil fertility.

			<ul style="list-style-type: none"> • In consequence more farmers are clearing their weeds and grass by hand (11% to control soft grasses, and 42% in the inter-row areas between oil palms); Some learned to create a closed cover of soft weeds in the plantation to keep the moisture in soil and prevent soil erosion.
5.	Chemical storage	<ul style="list-style-type: none"> • 50% of Smallholders had some form of (usually makeshift) storage for agro-chemicals; while 42% stored them under their house and others stored them in the house (even in the kitchen) or in the open. • Smallholders consider that it is not safe to store these chemicals, fertilizers and farm equipment far from their houses as they could get stolen by irresponsible people. 	<ul style="list-style-type: none"> • MPOB storage boxes are used where distributed, and some have constructed storage huts so 39% now have adequate storage. However, most chemicals, fertilizers and farm equipment are still stored under their houses or in makeshift stores in the fields. • 96% of smallholders are not yet organizing and labeling their chemicals, even when using stores. • Only 22% of the respondents stored chemicals in locked storage.
6.	Pest management	<ul style="list-style-type: none"> • Smallholders have little experience in pest management, because pests are actually not a major problem for TTBK smallholders. • Smallholders were purchasing small amounts of a wide range of pesticides, but are mostly unable to store and use them according to Malaysian or international health and safety standards 	<ul style="list-style-type: none"> • Do not have any further plan for pest management as 77% of the smallholders do not have a pest problem. • Only 2% of smallholders used pesticide to control pest problems on their farm. • None are yet using Integrated Pest Management, even though this was included in some of the private sector (mill) trainings and witnessed in the exchange visit with Seruyan (Kalimantan) where owls are deployed.
7.	Fertilizing	<ul style="list-style-type: none"> • 75% smallholders use fertilizer, but rarely purchase it, instead relying on donated and subsidized fertilizer from MPOB, politicians 	<ul style="list-style-type: none"> • Smallholders are now more aware of the amount of fertilizer required by each oil palm tree and the timing of use, and on the qualities of different fertilizer types

		<p>and others (including re-purposed from supplies for rubber trees); and cheap, possibly adulterated sources pilfered from commercial estates; fertilizer from such sources rarely matches the soil type, plant age, amounts per plant and/or application frequency required.</p> <ul style="list-style-type: none"> • Smallholders claim they lack the financial means to purchase fertilizer at market rates. • Few smallholders knew the most agronomically effective methods and timings for applying fertilizers • No statistical relationship between amount of fertilizer used and FFB yield was found in sample plots (management was so poor). 	<p>and brands in relation to soil and plant needs; however, they cannot afford to purchase fertilizer regularly (their priority is to provide food on the table for their families); therefore, use of knowledge is constrained by still relying on random fertilizer handouts</p> <ul style="list-style-type: none"> • 24% were observed to be applying fertilizer at the right timing, quantity and method; this is an improvement but it is still far from what is needed. • Knowledge and awareness of the benefits of organic fertilizer among smallholders is still low (10%). In addition, organic fertilizer available in the market is even more expensive than inorganic fertilizer. Farmers will have to learn how to produce their own composts and teas.
8.	FFB Grading and Price Mechanisms	<ul style="list-style-type: none"> • Most smallholders (59%) said they did not know how to grade the FFB because they were sending it to Collection Centres (not mills), and Collection Centres were not (then) grading, but were paying prices equivalent to low grades. 	<ul style="list-style-type: none"> • Most Collection Centres are now grading the FFB due to the requirements of MSPO certification implemented in 2019 meaning this skill matters more to smallholders. • Nearly all smallholders can now grade satisfactorily • Training has thus proved timely and this has encouraged smallholders to learn quickly, as they are paid by grade.
9.	Financial Management and Filing System	<ul style="list-style-type: none"> • Few smallholders use record keeping & financial management in their business. • 43% were keeping record of their FFB Sales (i.e. monitoring productivity and income) 	<ul style="list-style-type: none"> • Many more smallholders are now capable of keeping records but still a minority in an organized manner. A threshold has been crossed: most smallholders now understand that records can help them.

		<ul style="list-style-type: none"> • Only 4% had any kind of record keeping filing system. • 80% smallholders did not keep any record or receipts of purchase of fertilizer, pesticides, and other inputs 	<ul style="list-style-type: none"> • 72% are now keeping records of FFB Sales (i.e. monitoring productivity and income) • 22% now have a filing/record keeping system (with 7% meeting international standards) • However, most are still not keeping records of worker salary receipts (46%), agrochemicals (65%), harvesting (68%), fertilizer use (83%), herbicide use (84%)
10.	High Conservation Value (HCV) Forests	<ul style="list-style-type: none"> • Smallholders are not familiar with the formal concept of High Conservation Value (HCV) Forest but they have their own local reference terms to refer to location that they consider sacred or especially valuable for their communities, families or ethnicity. • Smallholders believe they have the right to conserve or clear/make productive use of the forest in their territorial lands. • Many smallholders assert historic rights to areas gazetted as Forest Reserves by the State Government, and 20% of smallholdings are in the Forest Reserves. 	<ul style="list-style-type: none"> • Smallholders now able to understand how and why RSPO and the international community view HCV and what is expected of them to protect these areas. • How the Sabah Jurisdictional HCV process will interface on the ground with smallholder traditional forest protection practices (HCV classes IV, V and VI) and how smallholders will react to specific cases where the state denies clearance rights to smallholders on the basis of HCV classes I, II and III status is still unclear. • Pilot programs for 2020 and beyond to phase out smallholder oil palm in Forest Reserves as part of alternative livelihood building have been conditionally welcomed by smallholders in these villages.
11.	Riparian Management	<ul style="list-style-type: none"> • Unable to differentiate or understand what riparian areas are and unaware of their importance under RSPO and Malaysian Law. 	<ul style="list-style-type: none"> • Most smallholders are now able to identify riparian areas and now know how to manage them. • Smallholders who had already planted oil palm in areas they now realize are riparian are asking what they should do about it.

12.	Health and Safety Training	<ul style="list-style-type: none"> • Of the 8 protective gear items noted by the Malaysian Ministry of Health (overalls, gloves, goggles, mouth & nose mask, cap/hat, boots/shoes, apron and face shield) that people should wear when using chemicals; 16% of smallholders do not wear any protective gear; 63% of smallholders wear 1 – 3 protective gear items and 21% of smallholders wear 4 – 8 protective gear items. Most popular protective gear is boots (71% use) and face mask (69% use). • Many smallholders just use hat, towel as mask and rubber shoes called “<i>adidas kampung</i>” because of ready availability and comfortable under the hot sun. 	<ul style="list-style-type: none"> • Smallholders much more aware of the hazardous nature of the chemicals they are using and the value of using Personal Protective Equipment (PPE). • 8% of them are now wearing PPE completely while 77% of them are using more than half of the PPE necessary, with incomplete items due to cost or comfort. • MPOB has provided most smallholders with six out of the eight protective gear items as part of MSPO process. • However, 15% of trained smallholders are still not wearing any protective equipment. • Many more smallholders are also now storing their machines in a safe place and using a cover for their sickle blade.
13.	Rare, Threatened and Endangered Species	<ul style="list-style-type: none"> • Limited knowledge on the global significance of Rare, Threatened & Endangered species. • Hunting and killing wildlife encountered in and around the fields is a traditional practice irrespective of IUCN Red Lists and Malaysian Law. • 50% of smallholders reported wildlife conflicts 	<ul style="list-style-type: none"> • After attending trainings from Forever Sabah, other related NGO and government agencies such as Sabah Wildlife Department (SWD), smallholders are now able to identify which are the protected wildlife species around their smallholding. • Hunting activities are reported to be less compared to 5 years ago. This reflects growing awareness of wildlife and wildlife laws; loss of wildlife in some areas; reduced reliance on the subsistence economy in some areas.

			<ul style="list-style-type: none"> • 23% of smallholders reported wildlife conflicts in their oil palm plantations, mostly with wild boar, long-tailed macaque and porcupine; but also, in some areas, with elephant. The decline in this response may suggest greater sensitivity to the issue, and/or recognition that the outside world is sensitive to the issue.
14.	Establishment of Cooperatives among Smallholders	<ul style="list-style-type: none"> • Limited knowledge of the possibility or procedures for establishment of cooperatives & other local institutions. 	<ul style="list-style-type: none"> • Demonstrate basic knowledge on the purpose and operation of cooperatives and showing more interest in forming local cooperatives in each village to increase the value of their product and help manage the process of certification.

Table Three: Smallholder Use of Herbicides

Brand Names	Active Chemical Ingredient	% Use Before Training (2017)	% Use After Training (2019)
Sentry & Spark	Imazapic	100	56
Round-up, Speed-out, Sekali, Sarung, ISO, Ecomax, Dewana, Glenphosphate, Shoot, Ken-up, Aglow 136	Glyphosate	28	28
Ally	Metsulfuron	17	13
Ansar & Monex HC	Monosodium methyl arsenate		2
Gramoxone & Paraquat	Paraquat	21	7
Kenlon	Tri-chloro butoxyl		1
	Unknown	4	

Table Three breaks down changes in the level of herbicide use before and after GMP training. While the training did not target agrochemical use as negative, but only repeated official Ministry of Health, MSPO and RSPO guidelines, as well as the views of experienced agronomists on the correct application systems and amounts of these chemicals, the result was a major growth in community awareness of the fact that most smallholders were using them in unskilled and incautious ways that were dangerous to family health, to the environment, to the wellbeing of their soil and ultimately to their profitability (including because of over-use). The table above only shows the number of smallholders purchasing each product, and does not capture the fact that even when purchasing a product, the smallholders since training are often using it in much smaller quantities and much more skillfully for its purposes.



Photo 5: One of the storage facilities witnessed during the assessment of effectiveness of intervention model

Table Four: Principal Changes in Smallholder Practices (CSPO Team Views)

Changed Practices Among Smallholders	Number of Times Reported	Percentage (%)
Reduced Agrochemical Use	4	24
Financial Record Keeping	2	12
Fertilizer Selection & Application methods	2	12
Better Knowledge of Harvest Timing	2	12
Knowledge of Riparian Zones	1	6
Health and Safety On-Farm	1	6
FronD Cutting and Layout	1	6
Farm Equipment in Storage	1	6
Managing Grass and Weed Removal Without Chemicals	1	6
No Longer planting VOP	1	6

As indicated in Table Four, CSPO staff asked to identify the top three changes seen, observed a wide range of significant change in smallholder practices following training, most especially the increased sophistication in regards to agrochemical use; but also in record keeping, harvesting and fertilizer use.

Patterns of Change

As indicated in Table Two and Table Three the intensive GMP Training program has led to widespread and rapid changes in those practices that play to the strength of smallholders as Indigenous People and experienced farmers. For example, they have quickly learned better ways of pruning, of how to assess the ripeness of fruits and so forth, and where these have been combined with market signals (the grading of fruit bunches at Collection Centres) this has led to systemic change in practices. More difficult for them has been the adoption of financial record keeping systems, not only for reasons of modest educational backgrounds, but also because their homes are not constructed or managed in a way conducive to record keeping, and in unusually humid conditions. Nevertheless, it is striking how much

smallholders have improved in their record keeping after training and how much enthusiasm some smallholders have to make record keeping a way of learning to be more productive, efficient and profitable. (Of course, for others the attraction of oil palm is that it will provide some returns even with very limited management allowing smallholders to busy themselves with other activities and livelihoods.) An important learning about financial record keeping is that in general this will best be done by women, who were much the most successful in learning this both in the trainings and the follow-up (and in cases aged from as young as 16 to 60 years old).

Another interesting finding about the impact of the GMP training activities was around Health and Safety and Weed Control. Here smallholders learned quickly the hazards of agrochemicals and successfully reduced their use of these chemicals, more effectively targeted chemicals in their plantations, shifted from the most toxic, and increased their use of protective gear. Although pests are much less of a problem for smallholders than weeds in this district, there remains considerable scope for Integrated Pest Management, which while referenced in many courses has yet to be embraced by the smallholders themselves. (The most example most interesting opportunity to smallholders was the encouragement of owls which they saw on their exchange visit with the jurisdictional certification program in Seruyan District in Kalimantan.) Similarly, the use of organic fertilizers, and of green cover crops are still largely new ideas for smallholders who are only now beginning to understand as a group the possibility of improving yields and financial returns by reducing expenditure on agrochemical inputs.



Photo 6: Our Field Coordinator, Joannes Wasai interviewing one of the respondents, Mr Palinus Soilpat at Kg. Semundoh.

Survey results also reminded us that knowledge is not the only factor in changing management: costs matter too. The capital requirements needed to make the change in agrochemical management have delayed improvements even for the willing, and the provision by MBOB and other donors of Protective Personal Equipment (PPE) and Storage Containers can make a big difference to adoption, and therefore health and safety. Protective Clothing can cost over RM 300. We have also learned that protection from chemicals is not the only health and safety issue for smallholders. It is uncomfortable to be wearing a complete set of PPE under the hot scorching weather as high as 36 Celsius in Telupid, Tongod, Beluran and Kinabatangan. This means people have to compromise about how much to cover themselves. With more and better information, they can make better choices. Finance is also

critical with fertilizers. Subsidized fertilizers from Malaysian Oil Palm Board (MPOB) and other government agencies such as Lembaga Pertubuhan Peladang are the only ones used widely, as very few smallholders say they can afford to invest in fertilizer. This remains a significant constraint to improved fertilizer use practices.

Despite all this encouraging progress in different GMP areas it remains the case that most smallholders in these 20 pilot villages have yet to reach RSPO certification standards, even those who have attended training programs, which are about 15% of the smallholders. This will have to be revisited in due course.

What Makes Training Effective

It was not possible with this methodology to identify statistically which training sessions had achieved the greatest impact. Indeed, it is likely that one of the reasons for the substantial impacts seen over the course of the GMP initiative was that smallholders heard messages from a wide variety of different teachers, sectors and formats. However, a survey of the views of the five CSPO Smallholder staff team, themselves smallholders from these villages, and co-teachers and participants in all these programs and de-briefers of the smallholders involved, identified an almost common set of conclusions about what teaching approaches were most effective (see Table Three).



Photo 7: One of the Trainings Conducted in Kg. Gambaron, Telupid by the Department of Drainage and Irrigation (DID).

Table Four: The Most Effective GMP Teaching Methodologies (CSPO Team Views)

Teaching Approach	Percentage (%) Reporting
Practical Learning – in the plantation among the oil palms doing the practice being taught	100
Peer Teaching – Smallholder to smallholder; grower to grower	20
Use of Printed Photographic and other Visual Aids (rather than theoretical or conceptual description)	20
Focus on One Topic at a Time	20

Conclusion and Next Steps

This analysis of the effectiveness of the Good Management Practices (GMP) demonstrates the wide scope – and limitations – on the impact made by training against key gaps and challenges between the current practices of TTBK smallholders and more productive and sustainable practices to improve wellbeing, income and environmental health and safety.

Training towards jurisdictional certification of smallholders appears to be a catalyst for improving social wellbeing, especially if it can be done in ways that empower them to drive change in their communities. However, training needs to be integrated with financial support to capitalize better practices (from MPOB) and the integration and engagement of State Government departments to back solutions to the related land tenure and environmental management issues. Clearly, there are significant gaps here that need to be addressed.

Forever Sabah can also learn from this experience how to improve the intervention model to ensure the GMP delivery method is maximally relevant and effective for the use of smallholders going forward. We also need to find ways to encourage the smallholders to use their new knowledge and practices, something often challenging even as they deliver benefits and improved livelihoods. In that regard we are eager that farmers are able to become trainers to help their friends and family in the villages. We believe it is important to empower smallholders and they should know that they are also “professional” and capable of learning and teaching other smallholders besides managing their own farm. For farmers the “learning-by-doing” method develops their confidence, enabling them to become experts in the particular topic that they are teaching. We have observed that smallholders are not individuals who manage their smallholdings alone. In the context of the Indigenous village communities of Sabah they are members of extended families and tight-knit communities where people share in knowledge and decision-making with their relatives and neighbours. Therefore, if we can manage to train 20% of the smallholders, especially the more active and innovative members of their communities, we can benefit from the classic “tipping point” theory that the 20% will make it easy for the 80% to adopt new approaches and values. This reliability of this concept will require continued observation for verification and adaptation.

The Sabah State Cabinet is committed to the Jurisdictional Certification approach to MSPO and RSPO standards and many government officers have made exceptional contributions to this effort. Improving the productivity and sustainability of the state’s estimated 53,000 smallholders would make an enormous contribution to the state economy, to tackling poverty, to the state’s transition to a greener economy and many other state and national priorities. To achieve this will require active and systemic engagement by government departments in offering training, in solving land tenure problems, and in many other ways. Certainly, scaling up training will require more government agencies to now step forward.

These results feed into the next steps in the Smallholder Certification Road Map, namely the scaling of GMP training of a cohort of smallholders first across the TTBK and Sandakan Division as a whole, and then across each of Sabah's five administrative divisions, working systematically to cover the state in partnership with government, private sector and NGOs committed to transformation of this major component to our rural economy and land-use.