

Guidelines for setting up a smallholder oil palm plantation



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1. Introduction

In the context of increasing demand for palm oil and related environmental and social concerns about oil palm expansion, there is a demand for knowledge on how to increase the average palm oil yield per hectare in a sustainable way, thus increasing overall palm oil production without additional land use. In 2007 smallholders held 41% of the oil palm area in Indonesia and produced 34% of Indonesian oil palm fruits. The sheer size of smallholder engagement in palm oil production and their contribution to regional development indicates the need to investigate further the current and potential role smallholders can play in providing sustainable palm oil.

This document is the set of guidelines that were provided as part of a study on the Ophir smallholder oil palm project. The Ophir project was part of the Government of Indonesia's (GOI) Nucleus Estate Smallholder (NES) programme, and the study provided an opportunity to assess the development of an oil palm smallholder project over a 25 year period since its inception in the early 1980s till 2009. The NESP Ophir project is an 8,000 ha oil palm plantation, with 4,800 ha managed by smallholders and 3,200 managed by the nucleus estate. The nucleus estate runs the milling facility and is mainly supplied by the smallholders and its own plantations. The project proved to be highly successful as smallholders maintained fruit bunch yields of between 22 and 29 t ha⁻¹, thereby continuously outperforming the nucleus estate and many leading private sector oil palm companies. We embarked on this study as it was perceived that a review of this successful project would provide a wide range of insights into what determined the success of this smallholder oil palm project.

This set of guidelines on smallholder oil palm development is based on the lessons learned in the Ophir and experience of the research team concerning smallholder oil palm development. The guidelines deal with the following issues:

- Plantation establishment;
- Plantation company responsibility;
- Smallholder selection;
- Extension services;
- Government services required;
- Plantation management;
- Financial management;
- Smallholder organisation.

A clear lesson from the Ophir project is that pragmatism is key and although a set of guidelines provide direction, they should not be seen as the path to success. Under different circumstances strategies might have to be adapted. These guidelines however do provide a solid starting position and practical advice on several aspects in setting up sustainable and intensive smallholder oil palm plantations.

2. Land

- Identify land that meets RSPO criteria:
 - o Focus on degraded land evidenced by satellite imagery shots taken at 5-10 year intervals and above ground biomass assessments.
 - Ensure that land was acquired with the 'free, prior and informed consent' of local people. Landownership is a highly complex issue in Indonesia as there is much debate over traditional land rights versus formal land rights. There are even competing claims on land between the various governmental organisations.
 - o Avoid plantation development at peat soils.
- Calculate carbon payback time based on yield assumptions and biomass displaced at planting
 and develop sites where carbon payback time is less than one planting cycle (i.e., <25 years).
 Sites carrying a small amount of standing biomass provide opportunities to develop oil palm
 plantings with short ecosystem carbon pay back times. An oil palm carbon budget simulation
 program OPCABSIM has been developed by the Malaysian Palm Oil Board (MPOB).
- Farmers should be provided with a land title once they have completed loan repayments but the certificate should be deposited in trust with the bank at the start of the loan.
- Plot size should be adapted to (potential) income so that reasonable incomes for families (and farmer groups) are feasible. This mean that plots (or land of a group) with poor conditions might have to be larger than plots with optimal conditions. However, very productive oil palm plantings can be established on low fertility status soils in Indonesia provided proper techniques are used to establish and maintain the crop.
- Home plot areas are important for farmers for food security during the first few years after
 occupying their plots and are recommendable. As oil palm income increases with repayment
 of loans, home plots can be used to diversify farm income (e.g., with production of other tree
 crops or fish ponds in Ophir). Home plots are a basic insurance for times of low palm oil
 prices, and the size of a home plot in Ophir (0.5 ha) appears to be sufficient.

3. Plantation establishment

- Follow RSPO guidelines on plantation establishment (requirement for buffer zones along rivers, High Conservation Value (HCV) area identification, demarcation and preservation).
- Use data base and GIS system to monitor all agronomic and environmental issues for each farmer group. This provides a basis for benchmarking performance within and between sites
- On degraded land Ultisols (red-yellow podzolic soils), invest in soil fertility recapitalization
 with reactive rock phosphate and legume cover plants to restore soil fertility and ensure
 short time to maturity and large early yield (important for rapid loan repayment).
- Use of high quality identified planting material is important. Recommendable providers of high quality indentified planting material in Indonesia are Lonsum and SOCFINDO, otherwise we recommend imported seed from Dami (PNG) or ASD (Costa Rica).

4. Plantation company responsibility

Full commitment to a partnership relationship with the smallholders is a prerequisite for genuine smallholder development. The nucleus estate company is responsible for plantation establishment and farmers should then take over plots when a farmer group area is ready for harvest. Key indicators for a company's capacity to develop oil palm smallholdings include:

- Proven ability to bring new plantings into production in 24-30 months.
- Yield in 3-7 years after planting (because early yield is key driver of IRR).
- Transparency on cost of development (USD ha⁻¹ from land clearing to maturity).
- Transparency on cost of production (USD t⁻¹ palm product).

5. Smallholder selection

- A set of criteria to guide the selection of smallholders is required. In the selection process it is
 important to select farmers that will become active participants in the smallholder
 organisation and demonstrate commitment to their plantation and the organisation.
 Evidence of past active and direct involvement in agriculture or small enterprise
 management is therefore an important selection criterion.
- A feature of the Ophir project is the diversity of backgrounds amongst farmers, which
 included people with different ethnic and occupational (economic) backgrounds. This meant
 the project could draw on a wide range of experience to fill key positions in the farmers'
 organization and no single ethic background dominated the development of the farmers'
 organization. This diversity appears to have strengthened the organisation and therefore we
 recommend including diversity in smallholder selection. Farmer groups should be formed
 with farmers from a range of compatible backgrounds.

6. Extension services

- Extension services are responsible for training farmers on best management practices in oil
 palm cultivation (suitable handbooks, training, monitoring and evaluation). Success in the
 Ophir project was strongly related to intensive, persistent and long-term training provided by
 the extension services (GTZ, government tree crop extension services).
- Initially, extension services may be supplied by the government, a qualified NGO working under contract to the government and/or the private sector plantation development company (the investor).
- If the private sector provides extension services there needs to be considerable knowledge, and preferable experience, in setting up proper extension services. Many oil palm companies however have set up their own extension services, although not all of these extension services have the capability to support smallholder development properly.
- Best practice would be for a third party supply the necessary initial extension services whilst
 the plantation company is responsible to develop the smallholder plantings and establish
 infrastructure. Otherwise the likely monopsonistic relationship between smallholders and
 the plantation company can easily become strained as extension services provided by the
 company are perceived by the smallholders to serve the interests of the company before the
 interests of the smallholders.
- The plantation company should train the third party organisation in oil palm best management practices. These extension services should however also focus on the development of smallholder capacity to manage their own extension service, as in the Ophir project.
- In the Ophir project GTZ was the qualified NGO providing extension services to smallholders under contract with the Indonesian and German governments (who in this case might be regarded as the investors). However, GTZ also worked together with government extension services who were trained by GTZ and who aided in transfer of GTZ knowledge to smallholders. This was agreed at the outset of the project and should be clear before starting a project. GTZ also hired outside experts from institutes as the Bogor Agricultural University (IPB) for special tasks. It was clear, however, that GTZ was responsible for the organisation of proper extension services. It is likely that organisations as GTZ still possess the knowledge and capability to organise proper extension services.
- Smallholders should be involved in setting up the farmers' organisation from the outset.
- In order to establish viable self-reliant smallholder organisations there need to be training on technical, administrative as well as social aspects. This certainly includes trainings on rights and obligations, and making farmers understand the rationality for the establishment of rights and obligations and why to follow the agreed procedures.

• Farmers need to have a high degree of trust and confidence in the farmer organisation and the partner milling company in order to make a smallholder project function. This does not happen without intensive training over a period of at least five years.

7. Government services

- From the outset it is important to plan with full local government involvement the requirement for infrastructure (roads, police, medical services, schools, markets) so that there are opportunities for a community to develop, and a means for local farmers and service providers to trade with smallholders for goods and services.
- Banking services are required to process payments made by the milling company and accredit repayments made by farmers.

8. Plantation management

- Irrespective of the type of farmers' organisation model, farmers require services including crop transport, provision of inputs (fertilizers, tools, and agrochemicals), and pest and disease control.
- Clear rights and responsibilities for stakeholders should be agreed upon by smallholders in democratic processes in which the smallholders themselves understand and value agreements. This is necessary to achieve full committed by smallholders to the scheme. Extension services might have to teach smallholders the skills on how to agree on rights and responsibilities.
- The RSPO criteria for plantation management should be followed, these include:
 - Use of appropriate best practices by growers and millers which includes issues as recycling of crop residues (smallholders should recycle proportional amounts of empty bunches and decanter cake) and soil erosion control measures.
 - Demonstrate commitment to long term economic and financial viability. This
 includes timing of replanting (i.e., 25 years after plantation development or when the
 distance from ground level to bunches is >12 m, whichever occurs first) and possibly
 organising an assessment of ongoing practices and provide advice on possible
 improvement points and latest techniques.
 - o Implement clear procedures in which complaints from smallholders and local communities can be dealt with.
 - Stimulate best practices as correct procedures, up to standard storage and disposal depots for (legal) agrochemicals, safe working conditions and monitoring (regular checks). The implementation of these best practices might be facilitated by providing smallholders with a financial incentive.
- Third party labour is likely to be included in a plantation when smallholders have increased their wealth. In Ophir this happened already soon after the start of the project and there was little regulation in place concerning organisation of labourers and these labourers did not receive formal training. In future projects it might be advisable to have procedures in place for labourers which include proper trainings by primary or secondary cooperative.
- Smallholder (organisations) should provide suitable tools and proper conditions for
 plantation labourers using financial incentives. In areas which are more remote and there is
 a shortage of labour it might be more important to set up proper procedures for attracting
 and housing a skilled workforce which works under safe conditions for a fair wage.

9. Financial management

 A transparent payment system similar to the Ophir Amprah (Annex I) is required. This system shows how price is calculated, gross proceeds, lump sum deductions made to meet approved

- budgeted costs of fertilizers, road maintenance, pest and disease control, replanting, *pro rata* deductions (USD/kg) for transport costs appear to function well.
- Stabilization schemes have been tried in smallholder schemes but usually found to be
 inefficient or difficult to implement. In most schemes, farmers are paid based on a pricing
 formula that takes account of world crude palm oil and kernel prices, milling efficiency and
 proximity to markets.
- The smallholder's financial position is usually fairly weak at the outset and therefore a grace period should be implemented, meaning that smallholders do not start repaying their loan immediately but start repaying after a certain period. Grace period between handover of plot to farmer and start of loan repayment is desirable in order for smallholders to establish financial security and thereby create commitment to the project. In Ophir a three year grace period was used, but the length of the grace period should be adjusted according to the local situation.
- Rate of loan repayment in Ophir was 30% of gross proceeds and appears to have worked well. However, also here we recommend adjusting loan repayments to repayment capacity of smallholders, which is influenced by palm oil prices.
- With a huge increase in the number of processing mills in Indonesia, farmers have much more opportunity to sell crop to the highest bidder, as is happening in Thailand. This leads to poor quality fruit as mills compete aggressively to fill their installed mill capacity. Therefore consideration should be given to providing smallholders with opportunities to invest in the mill. This might increase smallholder commitment to supply the nucleus estate mill and stimulate the smallholders to harvest ripe crop that delivers high oil extraction rates. More research is needed on this.
- Group structures in smallholder organisations are recommendable to avoid individual smallholder sales to other mills.

10. Smallholder organization

- Several different organisational models are possible, each with advantages and disadvantages:
 - Low level of farmer participation and responsibility (e.g., KKPA) where company manages the plantations and the farmer is paid a dividend and has limited influence on how the plantation is managed (e.g., level of input use). Simpler to manage but less impact on regional development.
 - High level of farmer participation (e.g., Ophir project) with farmer organisation taking responsibility for roles otherwise carried out by company (crop transport, supply of inputs, administration of payments). More difficult to set up but greater impact on regional development. For an overview of the organisational structure of the Ophir project and responsibilities at different levels see Figure 1.
- Farmers achieve more efficient plantation management when working in groups. Group size
 of 15-20 farmers where each farmer owns 2 ha results in management units of 30-40 ha,
 similar to management unit size in estates.
- The Ophir model, where revenue is shared amongst members of each group, has distinct advantages in terms of facilitating solidarity and peer pressure amongst group members, and thereby uniform standards of plantation management.
- Farmers live in a village spatially separate from their plantation to promote community development and reduce cost of developing housing, road and related reticulation.
- Financial management at primary cooperative level should be set up to achieve maximum transparency with easy auditing and paper trails.
- Lessons from Ophir indicate that smallholder control on management is most direct at the lower levels of management and that the highest level of management has least direct control by smallholders. Therefore it appears recommendable that payments of mill to

- smallholders take place via the primary cooperatives, leaving the secondary cooperative out of financial issues as much as possible, and thereby decreasing possibilities for mismanagement.
- Secondary cooperative function should be restricted to representing smallholders to outside
 organisations (the milling company) and setting policy that applies to secondary
 cooperatives. Secondary cooperative should probably not operate business activities and
 process farmer payments but should provide services where this can be done more
 efficiently than primary cooperatives.
- Setup of a transparent system for exit and entry to the scheme is important. The system in Ophir appears to work quite well where farmers can sell their plot and house and prospective buyers must be approved by the farmer group before a sale is made. In the Ophir project a sensible rule prohibits an individual farmer from owning more than one plot.
- Inheritance rules should be in place as part of entry strategies. In Ophir this happens according to the (Suami, Istri, Anak) SIA principle which implies plot is inherited from man to wife and finally a child inherits the land from the mother. Plots cannot be split amongst children and can only be registered to one owner in order to avoid fragmentation and unclear landownership. In the project administration there is always only one owner of a plot of land and this is the person that has responsibilities towards group management. In practice however families might divide profits and responsibilities differently. Plots can of course also be sold.

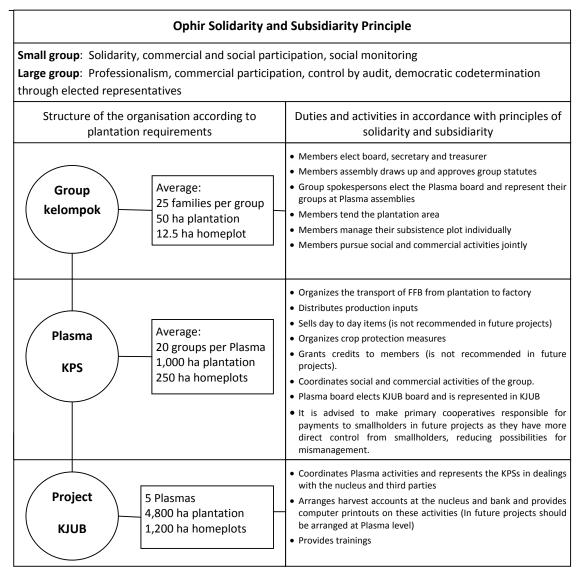
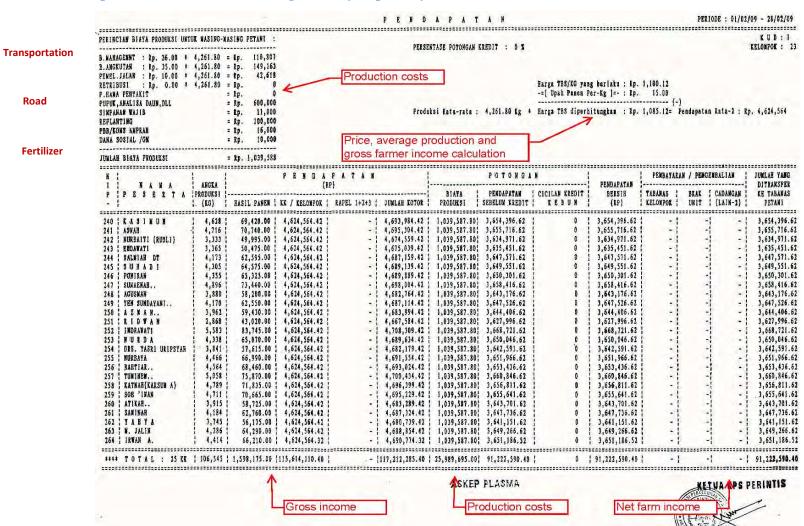


Figure 1. Overview of smallholder structure in Ophir, including responsibilities of management levels (Based on schematic overview provided by Klaus Dieter Peters, a former NESP project leader).

Annex 1: Example of a farmer accounting sheet (Amprah I)



Annex 1 continued: Example of a farmer accounting sheet (Amprah II)

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