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Sustainability Certification in the Indonesian Palm Oil Sector

Benefits and challenges for smallholders

Clara Brandi
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Christoph Hosang
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The authors Bonn, February 2013

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Abbreviations

AIP	Agrindo Indah Persada
ASEAN	Association of Southeast Asian Nations
BAL	Basic Agrarian Law
BLE	Bundesanstalt für Landwirtschaft und Ernährung (German Federal Agency for Agriculture and Food)
BPN	Badan Pertanahan Nasional (National Land Agency)
BPS	Badan Pusat Statistik Indonesia
BRI	Bank Rakyat Indonesia
CO2	Carbon Dioxide
CPO	Crude Palm Oil
CSPO	Certified Sustainable Palm Oil
CSR	Corporate Social Responsibility
EC	European Commission
EPA	Environmental Protection Agency
EU	European Union
EU-RED	European Union Renewable Energy Directive
FAO	Food and Agriculture Organization of the United Nations
FFB	Fresh Fruit Bunch
FPIC	Free, Prior and Informed Consent
GAP	Good Agricultural Practice
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GRDP	Gross Regional Domestic Product
ha	Hectare

HCV	High Conservation Value
HGU	Hak Guna Usaha (business-use permit)
ICS	Internal Control System
IDH	Initiatief Duurzame Handel (Sustainable Trade Initiative)
IDR	Indonesian Rupiah
IFC	International Finance Corporation
IOPRI	Indonesian Oil Palm Research Institute
IPK	Izin Pemanfaatan Kayu (land-clearing permit)
IPM	Integrated Pest Management
ISPO	Indonesian Sustainable Palm Oil
ISCC	International Sustainability and Carbon Certification System
IUP	Ijin Usaha Perkebunan (plantation business permit)
IUPHHK	Izin Usaha Pemanfaatan Hasil Hutan Kayu (forest-use permit)
KUD	Kooperasi Unit Desa (smallholder cooperative)
MoA	Ministry of Agriculture
MRV	Monitoring, Reporting and Verification
N2O	Nitrous Oxide
NES	Nucleus Estate Smallholder
NGO	Non-governmental Organisation
NI	National Interpretation
NPV	Net Present Value
OER	Oil Extraction Rate
P&C	Principles and Criteria
PIR	Perkebunan Inti Rakyat (nucleus scheme for smallholders)
PKO	Palm Kernel Oil

POME	Palm Oil Mill Effluent
PTPN III	PT Perkebunan Nusantara III (one of the fourteen Indonesian state-owned enterprises which operate in the plantation industry)
RED	Renewable Energy Directive
REDD	Reducing Emissions from Deforestation and Degradation
RFS	Renewable Fuel Standard Program
RILO	RSPO Indonesia Liaison Office
RSGs	Responsible Sourcing Guidelines
RSPO	Roundtable on Sustainable Palm Oil
SEIA	Social and Environmental Impact Assessment
SKGR	Surat Keterangan Ganti Rugi (official statement of land ownership letter)
SKT	Surat Keterangan Camat (official statement of land ownership letter)
TFS	Task Force on Smallholders
TFT	The Forest Trust
UNDP	United Nations Development Programme
WALHI	Wahana Lingkungan Hidup Indonesia / Indonesian Forum for the Environment

Executive summary

This study analyses sustainability standards for smallholders in the Indonesian palm oil sector – focussing on the challenges and gaps of smallholder certification and the benefits that can be gained.

Introduction: palm oil in Indonesia – socio-economic and ecological impacts

Hardly any type of agricultural crop is experiencing a bigger boom and is the focus of more contentious debate than the oil palm – the highest-yielding provider of vegetable oil worldwide. Palm oil is used in most processed foods, many household products as well as a renewable feedstock for electricity and biofuel production.

Palm oil production is an essential economic sector for Indonesia. An ever increasing demand from European, American and Asian markets, paired with the economic attractiveness of the crop, has led to a fast expansion of the Indonesian palm oil sector, making Indonesia the biggest producer and exporter.

Palm oil production generates substantial positive (socio-)economic benefits as well as negative ecological and social impacts. It poses a lucrative source of income by offering high returns on land and labour and generates a substantial amount of export revenues. Thus, it can function as an important engine for (rural) development – and not just in Indonesia.

At the same time, palm oil production has serious negative impacts regarding ecological and social sustainability, including the large carbon footprint, deforestation, reduced biodiversity and conflicts concerning land rights. The growing global demand for palm oil increases the relevance of concerns about sustainability in the sector.

Smallholders in Indonesia

Oil palm plantation ownership structures in Indonesia are heterogeneous. The Indonesian palm oil sector is characterised by three different ownership models: (i) state-owned companies, (ii) private-owned companies and (iii) smallholders.

Smallholders can be categorised into two broad and distinct types: (i) supported or scheme smallholders and (ii) independent smallholders. Supported smallholder farmers are tied to a formal partnership with a palm oil company and receive assistance. Independent smallholder farmers, on the other hand, operate independently through all phases of production. The average hectare area size of both types of smallholders is 5 ha, with the most common size being 2 ha.

Plantations exhibit higher levels of productivity than smallholders. The productivity of smallholders – both supported and independent – is significantly lower compared to plantations owned by private or state-owned companies. In addition, productivity of supported farmers is higher compared to that of independent farmers.

Sustainability standards for palm oil

Campaigns by non-governmental organisations (NGOs) have alerted concerned consumers and companies to the negative impacts of palm oil production. This led to various initiatives to introduce sustainability standards and certification schemes.

Different standard-setting initiatives have evolved in the palm oil sector over the last years, most notably the (i) Roundtable on Sustainable Palm Oil (RSPO), (ii) Indonesian Sustainable Palm Oil (ISPO) and (iii) International Sustainability and Carbon Certification (ISCC). ISPO is a mandatory government-led certification scheme. RSPO is a multi-stakeholder voluntary international standard, while ISCC is a voluntary international standard focussed on sustainable production of biomass for biofuels under the European Union Renewable Energy Directive (EU-RED). This study focusses on the RSPO standard, since it is currently the most important and advanced standard for palm oil.

It is essential – and challenging – to include smallholders in RSPO certification. Smallholders are an important group of producers in the Indonesian palm oil industry. They account for 38 per cent of total cultivation area and 35 per cent of total production output. The RSPO standard is thus more effective from economic, environmental and social perspectives if it includes this important group of palm oil producers

from the outset. Nevertheless, RSPO certification of smallholders poses several challenges, as it demands a set of financial, managerial and agronomic capacities, which smallholders in most cases lack.

Research objective, research tools and data collection

Since smallholder certification is a new development, there is a lack of knowledge. This study aims to contribute to closing this knowledge gap by pursuing the following main research question: Which are the main challenges and gaps in the context of smallholder certification processes and which benefits can be gained?

The study comprises (i) an extensive literature review, (ii) baseline data on smallholder certification, (iii) insights into and lessons-learnt from ongoing certification projects and (iv) input for closing existing research gaps, especially regarding challenges on the ground.

	Plantation company / Pilot project	**Province**	**Status of certification**
1	Independent Smallholders (RSPO Pilot)	North Sumatra	Under preparation
2	Independent Smallholders (RSPO Pilot)	Jambi	Under preparation
3	Independent Smallholders	Riau	Under preparation
4	Scheme Smallholders	South Sumatra	Certified in 2010

In March 2012, the research team conducted research at four smallholder certification projects located in four different provinces in Sumatra, which comprised both independent and scheme smallholders. The research team focussed on independent smallholders in North Sumatra and Jambi – both locations are part of RSPO pilot projects. Correspondingly, most of our data originates from these two provinces,

comprising data from a survey that was conducted with 196 independent smallholders as well as from 71 semi-structured interviews with smallholders, heads and staff of smallholder groups *(kelompoks),* and collector groups, mill and plantation company staff and local experts. In addition, 25 semi-structured interviews with experts in Jakarta added important insights.

Benefits of certification

Smallholder certification offers a set of benefits that can be divided into economic, ecological and social benefits. However, as the empirical findings of this study show, often not all benefits are realised on the ground.

Economic benefits: an increase in yields is one of the most significant and achievable economic benefits of RSPO certification for smallholders. A higher yield is achieved by applying good agricultural practices (GAPs), which are an integral part of the RSPO principles and criteria (P&C). In addition, an increase in the quality of oil palm fruits poses another potential economic benefit of RSPO certification. However, it depends on whether smallholders are integrated into a selling structure that rewards better quality, which is often not the case.

Ecological benefits: while it is highly difficult to combat large-scale negative ecological impacts of palm oil production like deforestation on the basis of smallholder certification, small-scale effects can indeed be realised. Small-scale effects include reduced chemical usage via the application of an integrated pest management (IPM) system, soil quality improvements (e.g. higher soil fertility), erosion control, improved waste management and buffer zones near rivers.

Social benefits: smallholder certification can contribute, for example, to the reduction of negative health and safety impacts as well as to providing mechanisms for dissolving land conflicts. Yet, social benefits did not play a prominent part in the expectations and the awareness of interviewed smallholders.

Challenges and existing gaps for standards compliance

The collected data of the survey and semi-structured interviews demonstrate a number of gaps between the standard requirements and current

practices on the ground. These gaps can be broadly distinguished into two groups: (i) specific requirements that will be difficult to achieve in view of current practices and (ii) more fundamental, underlying gaps that make standard compliance a potential challenge.

(i) Gaps between requirements and practices

- **Land titles:** while the majority of smallholders in our sample posess adequate land titles, for those who do not, this "major must" of RSPO constitutes a main stumbling stone for achieving certification.
- **Seedlings:** smallholders predominantly employ low-quality seedlings due to lack of money, lack of knowledge and lack of access to good quality seedlings.
- **Pesticides**: smallholder practices with respect to pesticide storage, application and empty container disposal do not sufficiently consider the health and environmental risks associated with hazardous chemicals.
- **Documentation:** in contrast to RSPO requirements, most smallholders do not document their farming activities.

(ii) Underlying gaps

- **Capacity gap:** farmers often lack both the knowledge and the financial capacity to apply good agricultural practices and to act environmentally responsibly.
- **Information gap:** awareness and knowledge of standards is still very low among smallholders and more active and transparent information dissemination is needed to overcome this information gap.
- **Motivation and incentive gap:** smallholders do not have an intrinsic motivation or incentive to get certified, and economic benefits from certification might thus serve as the right entry point to motivate smallholders.
- **Financing gap:** smallholders usually lack the financial means to shoulder certification costs without financial support.

While the studied pilot projects are still at a very early stage, overcoming both types of gaps might prove challenging when preparing the independent smallholders for certification.

Solutions – training, organisation and support

To close the above-mentioned certification gaps, it is necessary to provide extensive, well-structured and effective training. The training must be complemented and supported by the organisation of smallholders into groups. Implementing both these measures is only possible with external support. The reason is that certification has not yet become a self-selling item with smallholders and only takes place in the context of projects that are funded by development cooperation or the private sector.

Training

Data shows that there has been a lack of training in the past. This is one reason for the existing knowledge gaps – and at the same time, it offers potential for considerable improvements.

Smallholders perceive trainings as being very useful. They want to receive more training and are even willing to pay for it, if prices are reasonable.

This strong demand provides a solid basis for successful trainings. In order to achieve the purpose of trainings, the following points should be taken into account:

Recommendations for training:

- **Scale up government extension services and well-planned trainings –** in terms of quantity, quality and frequency.
- **Create demonstration plots,** where good agricultural practices (GAPs) can be illustrated and their positive effects on productivity can be observed.
- **Conduct practical training sessions,** ideally in small groups and on demonstration plots.
- **Teach well-tailored content:** include a wide range of topics; be at least partially in line with the demands of the smallholders and emphasise the ecological dimension of sustainability.

- **Plan training schedules meticulously:** design focussed, topical modules; ensure high frequency of training; and coordinate all topical modules.
- **Target effective scope of audience:** Training sessions have to focus on plot owners but should also encompass a broader audience, especially hired workers.
- **Establish systematic knowledge transfer:** effective training has to be complemented by a system that helps to transfer the knowledge systematically from those who have received training – above all smallholder group staff – to other smallholders that aim at receiving certification. Knowledge transfer should mainly be based on group staff serving as knowledge multipliers.

Organisation

When looking at RSPO certification of independent smallholders, two kinds of groups have to be distinguished:

- First, the (certification) group manager, whose existence is a requirement stipulated by the RSPO standard for group certification, is responsible for preparing the smallholders for certification and for ensuring their standard compliance via an Internal Control System (ICS).
- Second, smallholder organisations at lower and higher group levels (i.e. *kelompok / gapoktan*) that are not a formal requirement for RSPO certification but are nonetheless necessary for a successful certification.

Organising smallholders into groups is essential for a successful certification process mainly for two reasons: first, group certification makes certifying smallholders economically feasible and smallholder organisations complement the functions of the group manager, thus reducing the organisational and scale challenge of certification. Second, smallholder organisations serve as essential instruments for a systematic knowledge transfer. They are a platform in which the distribution of knowledge and information on standards and agronomic practices can be institutionalised.

In addition to their relevance for certification, smallholder organisations can offer their members a wide array of benefits. First, they can offer a better bargaining position towards oil-extracting mills and can help members to advocate their interests. Second, they can provide support and training. And third, they can offer beneficial activities such as marketing the members' fresh fruit bunches (FFBs) (paying a higher price than middlemen), providing better access to inputs (also subsidised inputs), maintaining infrastructure, organising savings plans for inputs and replanting, as well as potentially providing loans and insurance.

On the ground, the team encountered that not all smallholders in certification projects were organised into groups and that existing groups' capacities and functions were limited. When smallholders were organised, they were organised only in small groups. A gapoktan / cooperative only existed in one village. In addition, existing groups were characterised by a limited set of provided activities, lack of internal regulation, lack of professionalised staff and had problems with the initial recruiting of members as well as with ensuring continuous participation by their members.

On the basis of the data the research team recommends the following:

Recommendations for organisation:

- **Smallholders should be organised at two levels: (i) *kelompok* and (ii) cooperative / *gapoktan:*** *kelompoks* ensure engagement with smallholders and systematic knowledge transfer. Cooperatives / *gapoktans* provide for economies of scope and scale.
- **Disseminate information on the existence and benefits of groups.**
- **Establish smallholder groups in a participatory manner:** generate identification by and the commitment of smallholders by including them in the decision-making process.
- **Establish regulations for organisations that formalise relations, ensure efficient labour division and define responsibilities and accountabilities.**

- **Contemplate carefully who is to become the group manager (of the certification group):** consider the different incentives and interests concerning the establishment of smallholder organisations as well as the capacity of potential group managers.
- **Implement control and transparency mechanism in the respective organisations.**
- **Envisage the financial self-sustainability of groups, for instance on the basis of selling FFBs.**
- **Pay *kelompok* staff:** one possible mechanism can be payment linked to group performance.
- **Develop incentives and/or sanction mechanisms to increase participation in groups.**
- **Think about how to engage with middlemen given their potential obstruction to group establishment.** Often farmers prefer to sell to middlemen, as they provide loans or they cannot join new groups because of debt obligations to middlemen.
- **Provide for a selling structure that allows independent smallholders** to realise the economic benefits of producing fruit of better quality.

Supporting and planning smallholder certification projects

Support for smallholders as well as implementing agents at different stages of the certification process is very important for the successful certification of smallholders. Support provided to smallholders by government – as well as non-government agents should be scaled up.

Recommendations for support:

- **Provide financial support to cover at least the start-up costs of certification,** as they exceed the financial capacities of smallholders in most cases.
- **Aim at making projects financially sustainable.** Groups should be able to finance costs after the first audit.

- **Strengthen the ecological component of smallholder certification projects:** the ecological aims of RSPO should be paid the same attention – from the beginning – as the socio-economic aims.
- **Choose a capable and committed partner:** project partners should identify themselves with RSPO, and not focus primarily on their own agendas. Moreover, a partner should have the human and finan cial capacities to run a complex project for at least three to five years.
- **Draft budget and time schedule:** it is important to draft a realistic, yet flexible, budget and time schedule for the smallholder certification project together with all relevant project partners.
- **Start trainings and the establishment of organisations simultaneously:** it is less effective to give trainings when a *kelompok* (and thus a system of knowledge transfer and sharing) is not yet in place. Likewise, it is not viable to establish *kelompoks* without an immediate benefit for the smallholders (i.e. such as regular trainings or sys tematic knowledge transfer). If there is no immediate benefit, the smallholders might no longer attend *kelompok* meetings and the *kelompok* will become inactive.
- **Determine the right stage in the process at which to ask smallholders to become certified:** the research team recommends to decide early on at which stage of the process the smallholders will be asked whether they want to become certified or not. This can take place at the beginning, with the risk that smallholders know too little or are scared away by the magnitude of the task. Or it can take place at the end, with the risk that smallholders profit from extensive support, especially trainings, without becoming certified.
- **Improve access to inputs:** data collected in the field demonstrates that smallholders often struggled with access to enough high-quality and affordable inputs. Thus, access to inputs, such as fertiliser and high-quality seedlings, needs to be improved or eased in order to support smallholders in applying good agricultural practices (GAPs). Thereby, the financial capacity of smallholders has to be taken into account.

The above-mentioned recommendations are targeted at the implementation and management of certification projects. But in addition to making certification projects work, it is important to make the standards themselves work – which requires improving their effectiveness as tools to promote sustainability in oil palm cultivation and palm oil production.

Improving smallholder certification as a tool towards sustainability

Certification projects can create substantial socio-economic benefits for smallholders. Higher income due to higher yields, increased knowledge about palm oil production and better ways of organising into groups are advantages that make such certification projects very valuable. Nevertheless, as mentioned above, generating the aspired to ecological benefits proves very difficult.

In the focus of this study are mainly the potential ecological benefits of sustainability standards and their certification. However, "large-scale ecological benefits" focussing on deforestation and greenhouse gas (GHG) emissions are found to be difficult to achieve. One major reason is that sustainability standards like RSPO are not without loopholes (see Section 3.4.1) and face implementation and control challenges (see Section 3.4.2). Moreover, while sustainability standards demand adherence to technical principles and criteria, social and environmental issues of oil palm cultivation in Indonesia and many other producer countries are largely framed within challenging institutional contexts and poor governance (see Section 3.4.3). Another major reason is that the links between certification and reducing deforestation are found to be weak, and maybe even negative, due to perverse incentives generated by increased productivity as a result of adopting better agricultural practices in the context of certification (see Section 6.2).

It remains a continuous challenge to improve the effectiveness of sustainability standards, above all by reducing the negative ecological impacts of oil palm cultivation. The effectiveness of standards depends on how ambitious and strict the standard and its requirements are formulated; whether the standard is implemented properly and whether its implementation is controlled adequately; and whether the goals pursued are supported by a favourable institutional environment. If sus-

tainability standards like RSPO can address their current shortcomings, certification systems can become a key tool to decrease the social and the environmental problems palm oil production generates. At the same time, wider policy mechanisms that go beyond certification are needed to address these problems, above all by placing strict limits on expanding plantations and encouraging a more sustainable use of land that better safeguards the protection of natural resources.

Recommendations for government

- **Improve coherence of land planning:** private standards alone cannot prevent (indirect) land-use change. It is the task of the government to develop an effective plan for land use that avoids allocating new plantation areas on forested land, peatland or ancestral land of indigenous communities.
- **Reform and strengthen institutional framework:** sustainability standards necessitate a coherent and clear distribution of institutional authority and accountability, an improved collaboration and coordination between the relevant institutions at the national and regional levels, as well as streamlining a transparent provision of adequate relevant data.
- **Improve coherence of laws and regulations:** laws and regulations must be coherent on a national level (i.e. between different parts of the government), as well as between the national and lower regional levels.
- **Strengthen law enforcement:** laws need to be enforced at every level; e.g. regional governors financing their election campaigns by selling licences for protected areas must be held accountable.
- **Fight corruption:** corruption hampers the effectiveness of standards (e.g. when land certificates for protected areas can be bought or auditors are bribed).
- **Monitor protected areas effectively:** neither smallholders nor companies – certified or not – should be able to illegally encroach into protected areas without being discovered and should be held accountable accordingly.

Recommendations for standard-setting bodies

- **Balance trade-off between strict- and easy-to-reach standards:** when (re)formulating a standard, find a balance between a strict, effective standard, and achievable targets for independent smallholders.
- **Balance trade-off between socio-economic and ecological goals:** when (re-) formulating a standard, make sure that ecological and socio-economic aims are given the same weight.
- **Certify whole plantation area:** at least in the longer run, neither smallholders nor companies should be allowed to own certified and uncertified plots at the same time.
- **Increase incentives or external pressure to stay certified:** there is a risk that independent smallholders take along the benefits of certification projects but then choose not to become, or stay, certified. This can be prevented by using incentives, such as adequate price premiums, or through external pressure, such as certified of all local mills.
- **Foster demand for certified sustainable palm oil (CSPO):** intensify information campaigns not only in Europe and the United States, but especially in Asian countries.

Recommendations for supporters of certification projects

- **Avoid conflicting goals:** make sure that an improved socio-economic situation of the smallholders and an increased attractiveness of palm oil production do not lead to an expansion of smallholder plots into forested areas or peatland.
- **Strengthen ecological component of projects:** for example by letting smallholders sign a contract forbidding the establishment of new plots in forested areas or peatland.
- **Choose reputable certification bodies with reliable auditors.**
- **Support the law enforcement unit created under the moratorium:** in order to strengthen the coherence of relevant laws, as well as the enforcement of such laws.

- **Support sustainable land planning and monitoring of protected areas:** both are currently lacking in Indonesia, but are a prerequisite to make sustainability standards more effective.

1 Introduction

This study analyses sustainability standards for smallholders in the Indonesian palm oil sector – focussing on the challenges and gaps in the context of smallholder certification processes and on the benefits that can be gained.

1.1 Why are sustainability standards for palm oil needed?

Hardly any type of agricultural crop is the focus of more contentious debate than the oil palm, the highest-yielding provider of vegetable oil worldwide. Palm oil is an ingredient in half of all foods and many household products that can be found in supermarkets, including pizza, ice cream, soaps, detergents, cosmetics and candles. Palm oil is also increasingly being used as a renewable feedstock for generating electricity and heat and as a biofuel.

Palm oil production generates substantial positive (socio-)economic impacts in Indonesia, which is the largest producer and exporter of this type of vegetable oil worldwide. It offers a lucrative source of income and has positive effects on the livelihoods of farmers and their families, thereby representing a strong engine for rural development.

The demand for palm oil is booming. Two consumption patterns are driving the demand for palm oil: the increasing consumption of palm oil as foodstuff, especially in developing countries and emerging economies, and the expanding use of palm oil in biofuel production. For example, EU-RED further increases demand for biomass like palm oil by requiring that, by 2020, 10 per cent of petrol in the European Union (EU) consists of sustainably certified biofuels. Countries with a considerable production potential for biofuels are worried that the certification requirements will give rise to discriminating trade barriers for biofuels on the basis of palm oil.

At the same time, the growing demand for palm oil underlines the relevance of sustainability questions in the sector: palm oil production has serious negative impacts regarding ecological and social sustainability. This includes the carbon footprint of palm oil production (especially due to land-use changes), deforestation, reduced biodiversity and problems concerning land rights. Indonesia aims at reducing its greenhouse gas emissions and protecting its still vast expanses of rain forest, which is the third largest in the world – and palm oil is one of the major sources of its destruction.

Concerns about sustainability have spurred numerous initiatives for the introduction of standards and certification schemes for sustainable palm oil production. NGOs and consumers are increasingly pressuring companies and governments to mitigate the negative effects of palm oil production. Palm oil growers and processors are increasingly adapting to the pressures being exerted on them by major market actors from Western markets. Sustainability standards and their certification are seen as potentially promising instruments to remedy the negative environmental effects of palm oil production.

In Indonesia, there are three different standards that are most relevant: Indonesian Sustainable Palm Oil, Roundtable on Sustainable Palm Oil and International Sustainability and Carbon Certification. ISPO is a mandatory governmental certification scheme that aims to achieve the certification of all Indonesian growers, including smallholders. RSPO on the other hand, is a voluntary international standard for palm oil resulting from a multi-stakeholder initiative. ISCC is a voluntary international standard that focusses on the sustainable production of biomass for biofuels under EU-RED.

One important challenge of sustainability certification is to include smallholders. Sustainability certification poses a number of challenges for smallholders in producing countries, especially as their production costs and technical requirements rise. Smallholders often lack the financial means and capacity to implement sustainability standards. This is a serious problem because a) standards can help smallholders to improve their yields and the quality of their production, and b) the standards are less effective from environmental and social perspectives if they do not include smallholders as an important group of palm oil producers from the outset.

The respective government institutions and standard-setting bodies are aware of the problem of smallholder inclusion and have begun to tackle it – but important research gaps remain. Since smallholder certification in the palm oil sector is a new development, there are almost no studies focussing on the process of smallholder inclusion and the potential prospects and challenges it entails.[1]

1 While there are, among others, various studies on organic standards, the Forest Steward ship Council and Fairtrade standards and labels, including in the context of smallholders, there are hardly any studies on smallholder certification in the palm oil sector, with few exceptions, including Beall (2012).

1.2 Research objective and research tools

In light of the above-mentioned knowledge gap, the focus of this study is on the following main research question: *Which are the main challenges and gaps in the context of smallholder certification processes and which benefits can be gained?* The study assesses the existing gaps between the *status quo* and the requirements of certification and why and how the certification process – meaning all efforts and activities needed to comply with the standard and to attain the certificate – generates challenges and benefits for smallholders.

There is still limited knowledge regarding the benefits and challenges of sustainability standards for palm oil, above all in the context of smallholder certification. This study aims at contributing to the existing knowledge by presenting (i) baseline data on smallholder certification, (ii) insights into and lessons-learnt from ongoing certification projects and (iii) input for closing existing knowledge gaps, especially regarding challenges on the ground. An analysis of the benefits and challenges regarding the introduction of sustainability standards for smallholders is not only interesting from a research point of view but also highly pertinent from a policy advice perspective, not only for Indonesian partners, but also for international and German development cooperation and other stakeholders interested in sustainability standards and smallholder certification projects.

The basis of this study is an extensive literature review and desk study on the Indonesian palm oil sector. The desk study is based on primary sources (legal documents, strategy documents, websites of public agencies and NGOs etc.) and secondary sources (academic studies and databases). The findings from the literature review and desk study are compiled in Chapters 2 to 4, which analyse the Indonesian palm oil sector; the socio-economic and ecological impacts of palm oil; the significance of smallholders for the Indonesian palm oil sector; the potential and limits of sustainability standards and their certification; and the relevance of including smallholders into certification schemes.

The empirical data collected for this study mostly consists of surveys and interviews conducted with smallholders in Sumatra as well as with experts mostly located in Jakarta but also in the provincial capitals Palembang, Medan, Pekanbaru and Jambi City. Interviews and surveys were conducted primarily with independent smallholders (who operate

independently throughout all phases of production), but also with a small number of so-called supported or scheme smallholders (who are tied to plantations and mills). With regards to scheme smallholders, the research was conducted on a plantation that has recently been certified as a whole (i.e. both the core plantation and scheme smallholders). In the case of scheme smallholders, the goal was to study the challenges and benefits that they have encountered in the context of the certification processes they were part of and the factors that have made the certification process more or less challenging. In the case of independent smallholders, since certification has not yet taken place, the goal was to conduct a baseline study of where they are and a gap analysis of how far away they are from being able to be certified with respect to a number of requirements of the standard in question. The study also presents insights gained into how the certification projects are being set up and organised.

In addition to an extensive literature review, this study is based on a mix of research tools combining a survey and semi-structured interviews with relevant stakeholders, especially smallholders, as well as with expert interviews in Jakarta. There are two main reasons why this combination of tools was used. First, the aim was to improve the empirical quality of our data and to enhance the validity of the findings of this study on the basis of the triangulation of research tools (Flick 1992). The second reason for choosing different tools is the current state of research regarding smallholder certification in the palm oil sector: on the one hand, some studies provide assumptions about potential challenges and benefits of smallholder certification. However, those assumptions have not yet been verified on the ground. Those studies allowed the research team to derive our research dimensions discussed above, which served as a backdrop for developing our questionnaires. On the other hand, the literature base is rather thin and is lacking insights from the field, because smallholder certification in the palm oil sector is such a new phenomenon. Thus, there was a possibility that some challenges and benefits of smallholder certification were not covered by the existing literature – and therefore were not included among the research dimensions that we selected prior to our field research phase. Hence, the research team decided to conduct semi-structured interviews as well. Those interviews included expert interviews in Jakarta as well as at the different research sites. Experts provided aggregate knowledge about smallholder certification that exceeds the perspectives of individual smallholders.

The data generated by the survey and semi-structured interviews is not representative of independent smallholders in the visited provinces or in Indonesia. As Indonesia is a large nation, characterised by strong provincial and local differences in its economy, social institutions and culture, data collected in specific localities cannot be representative of Indonesia as a whole, or even of provinces or regencies. The situations of smallholders – for example, local selling structures, the extent of oil palm cultivation and the existence of local forest areas – differ strongly from case to case. Additionally, time constraints and logistical limitations as well as the decision to partly sample selectively (for example, participants of RSPO trainings) added to limiting the representativeness of our data. For a detailed explanation of the encountered limitations during data collection, please see Section 5.5.

The majority of the data collected for this study is based on a survey conducted with 196 palm oil smallholders. The questionnaire was developed in cooperation with our partners and is based on five sources: first, on our research dimensions elaborated above; second, on a baseline study about palm oil smallholders in the context of a project by the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) in Thailand conducted by Thongrak, Kiatpathomchai and Kaewrak in cooperation with GIZ Thailand (Thongrak / Kiatpathomchai / Kaewrak 2011); third, on a smallholder questionnaire developed by the International Finance Corporation (IFC) in Indonesia; fourth, on documents and information provided by RSPO / RILO; fifth, on information provided by Janice Lee, a PhD researcher at ETH Zürich. The questionnaire enabled the research team to gather data on three main issues: the socio-economic characteristics of palm oil smallholder farmers, their production practices and training, as well as organisation and support.

Moreover, the study is based on 46 semi-structured interviews with smallholders, the staff of smallholder groups and middlemen, and more than 50 expert interviews in Jakarta, the capitals of the relevant provinces and in the context of the studied certification projects. The expert interviews were conducted with persons from very different backgrounds (see Annex). The interview partners were persons who had in-depth knowledge about palm oil production, sustainability standards, and/or smallholders through their professional experiences – for example, in relevant ministries, research institutes, NGOs or as managers of palm oil plantations.

1.3 Case selection

In March 2012, the research team visited four smallholder certification cases located in four different provinces of the Indonesian island Sumatra and which comprised both independent and scheme smallholders. More precisely, the team studied (1) independent smallholders in preparation for certification in an RSPO pilot project in North Sumatra, (2) independent smallholders in preparation for certification in an RSPO pilot project in Jambi, (3) independent smallholders in preparation for RSPO certification in Riau and (4) supported (scheme) smallholders in South Sumatra that are already certified under RSPO and preparing for certification under ISCC (see Figure 1).

Figure 1: Case selection – four locations in Sumatra

No.	Plantation company / Pilot project	Province
1	Independent Smallholders (RSPO Pilot)	North Sumatra
2	Independent Smallholders (RSPO Pilot)	Jambi
3	Independent Smallholders	Riau
4	Scheme Smallholders	South Sumatra

Source: own compilation

The research team selected the four cases according to the following criteria: progress of certification projects, feasibility of the field study and interest of stakeholders in baseline data compiled by the team. Smallholder certification in Indonesia only started very recently, in 2010. Therefore, not many cases can be studied. All selected cases are located on Sumatra because this is where certification projects were initiated (see Figure 2). However, the case selection of scheme smallholder sites was restricted, given that two plantation companies would not grant us permis-

sion to include their scheme smallholders in our research project. The two cases of independent smallholders in North Sumatra and Jambi are both RSPO pilot projects for independent smallholder certification and are currently in an initial project phase. Therefore, in Jakarta RILO as well as all other stakeholders involved in these pilot projects were highly interested in baseline data on their target groups. With this data, they could plan the next steps of their independent smallholder certification projects.

Given the stakeholders' interest in a baseline study on independent smallholders for the RSPO pilot projects, the focus of our research is on the independent smallholders in North Sumatra and Jambi. Correspondingly, most of the collected data originates from these two provinces, compromising data from a survey that was conducted with 196 independent smallholders as well as from 71 semi-structured interviews with smallholders, heads of smallholder and collector groups, mill and plantation company staff and local experts. In addition, a number of semi-structured interviews were conducted in the context of an independent smallholder certification project in Riau. In South Sumatra, an adjusted survey for scheme smallholders was conducted with 21 scheme smallholders (see limitations below in Section 5.5), as well as semi-structured interviews with cooperative and plantation company staff.[2]

1.4 Structure of the study

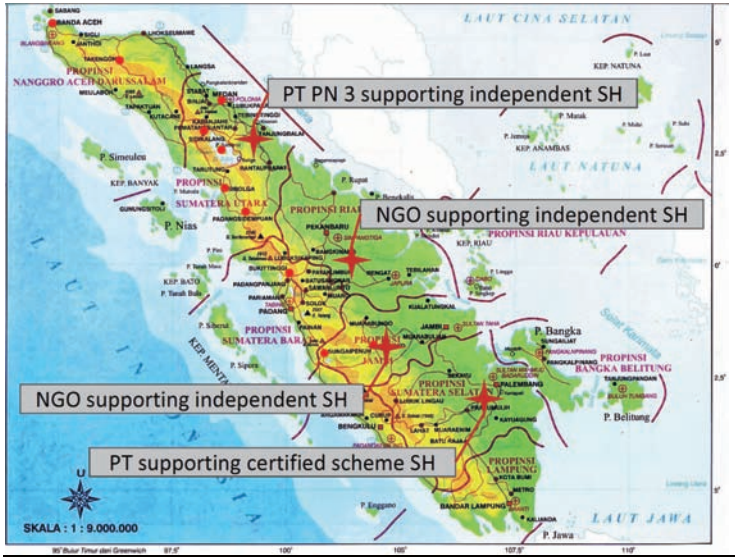
The study is comprised of two parts: the first part (Sections 1–4) introduces the research objective and provides an extensive literature review. The second part of the study (Sections 5–10) presents the empirical findings and puts forward policy recommendations.

The first part is structured as follows: Chapter 2 introduces the relevance of palm oil, both for the global economy and for Indonesia, which is the largest producer of this type of biomass worldwide. It also presents the socio-economic impacts of palm oil and underlines the severe ecological problems associated with the sector and demonstrates the significance of

2 In Riau, eight semi-structured interviews were conducted with smallholder group or cooperative staff, as well as with field staff of the NGO Elang. In South Sumatra, eight semi-structured interviews were conducted with smallholder groups and plantation company staff.

smallholders for the Indonesian palm oil sector. Chapter 3 discusses sustainability standards and their certification as an instrument to address the negative ecological and also social impacts of palm oil production and presents the most important standards for the sector. Chapter 4 shows why the inclusion of smallholders into certification schemes is essential and describes first efforts to certify smallholders in order to foster a sustainability-oriented transformation of palm oil production in Indonesia and beyond.

Figure 2: Map – four locations on Sumatra



Source: http://www.hpgrumpe.de

The second part presents the empirical findings. Chapter 5 lays out a detailed description of the studied cases of smallholder certification. Chapters 6 and 7 present and discuss the empirical findings on certification benefits and challenges and existing gaps for standard compliance respectively. Chapter 8 offers an analysis of the empirical findings on training, organisation and support – the three main pillars in order to successfully address the identified gaps and challenges in the context of smallholder certification.

Chapter 9 presents overarching conclusions on smallholder certification as a tool towards sustainability. Finally, Chapter 10 offers recommendations for government and policy makers, standard-setting bodies and supporters of certification projects, including actors and institutions from German and international development cooperation.

2 Palm oil in Indonesia – socio-economic and ecological impacts

Palm oil production generates substantial positive (socio-)economic effects in Indonesia, which is the largest producer of this type of biomass worldwide, but its production also gives rise to a number of important ecological problems. The expansion of the Indonesian palm oil sector (Section 2.1) has been highly dynamic in the past two decades and it will continue to be so in the near future, thus increasing its already notable importance for the Indonesian economy and underlining the relevance of its socio-economic impacts (Section 2.2) and the ecological problems it causes (Section 2.3). These problems are not only generated by large-scale palm oil plantations, but also by smallholders who represent an important part of the Indonesian palm oil sector (Section 2.4).

2.1 The Indonesian palm oil sector

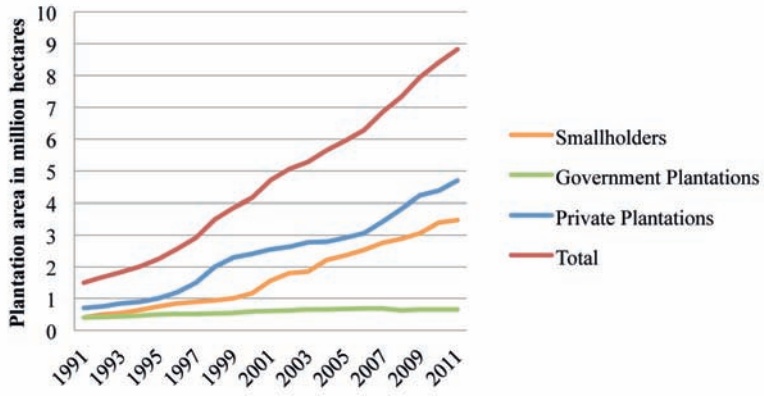
The Indonesian palm oil sector has been characterised by an enormous area expansion over the past two decades (Figure 3). The cultivation area in Indonesia expanded on average 340,000 ha annually between 2000 and 2009 – a growth rate of 10 per cent – to 7.32 million ha of oil palm,[3] an area roughly corresponding to the size of Ireland (USDA-FAS 2009, 5). The cultivated area is expected to continue to grow at current trend levels. At the same time, the production output of palm oil[4]

3 Of this area, 5.06 million ha are mature and 2.26 million ha are planted but still immature plantations (USDA-FAS 2009).

4 Palm oil is extracted as crude palm oil (CPO) from the outer oily flesh (mesocarp) and as palm kernel oil (PKO) from the seed itself (endosperm). Because of the far lower yields per hectare of PKO compared to CPO, literature and prices relate to CPO trade.

has increased with an average annual growth rates of 17 per cent – up to 19 million tonnes (t) in 2009. Because of this dynamic expansion, Indonesia surpassed Malaysia as the world's biggest palm oil producer in 2006.

Figure 3: Historical palm oil area



Source: Indonesian Palm Oil Statistics

The strong expansion has been due to three factors: the comparative advantages of oil palm in relation to other oil crops; the continually growing global demand for palm oil; and the comparative advantages of Indonesia as a country of production.

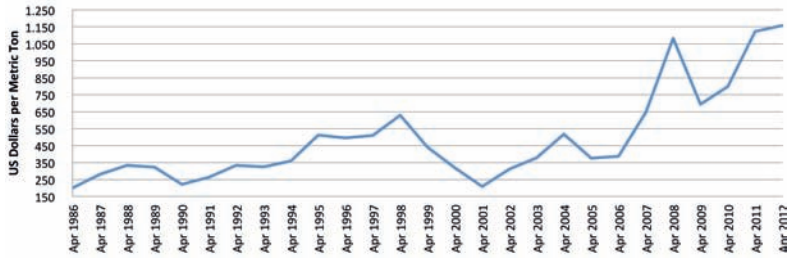
The comparative advantages of oil palm

The cultivation of oil palm is especially attractive because of three comparative advantages in comparison to other agricultural crops: first, the high yield per hectare; second, price competitiveness; and third, the versatility of the potential utilisation of palm oil and its derivates.

First, very high yields per hectare make palm oil an attractive agricultural crop compared to other oil crops. No other oil crop offers a comparable land-use efficiency of up to 5 t/ha of oil (current Indonesian average: 3.9 t/ha), which is 9.3 times higher than soybean, 7.6 times higher than rapeseed and 5.8 times higher than sunflower oil productivity (Teoh 2010, 7; Sheil et al. 2009, 11; MVO 2010, 3f).

Second, palm oil has on average been more price competitive than other vegetable oils in the past. Because of its high yield per hectare as well as low labour and land costs in major producing countries, palm oil offers comparatively high returns on labour and land as an economic incentive for further market expansion. Over the past two decades, the crude palm oil (CPO) price average has been increasing (MVO 2010, 3; Sheil et al. 2009, 19f.). On the one hand, the rising CPO price constitutes an incentive for further cultivation expansion; on the other hand, it can render the production of oleochemical palm oil derivates[5] unviable due to low profit margins[6] (World Bank 2010a, 9).

Figure 4: Development of palm oil monthly price



Source: Index Mundi

5 Oleochemicals are chemicals derived from plant and animal fats. In the chemical processing, CPO is split into its chemical components, which can then be transformed, thus producing oleochemical palm oil derivatives.

6 The same is true for the use of CPO in biofuel production (Sheil et al. 2009, 18). At the same time, the growing linkage of agricultural commodities with energy markets leads to higher price volatility (World Bank 2010a, 5).

And third, the versatility of possible applications of palm oil[7] and its derivates for industrial production processes is a major advantage in comparison with other vegetable oils and a major driver for demand expansion. About 80 per cent of global palm oil production is used mainly in foodstuff production (with about 50 per cent of all processed food containing palm oil), the remaining 20 per cent in a variety of non-edible products (USDA-FAS 2009; Teoh 2010, 7). To name just some potential applications, palm oil and its derivates are used as: frying oil; shortening and spreads for table and industrial use; confectionary fats; imitation dairy products; and in the production of biodiesel. The oleochemicals extracted in palm oil processing are used in an astonishing variety of products like candles, soaps, food emulsifiers, detergents, plasticisers in plastics production, lubricants, cosmetics, pharmaceutical products, fabric softeners, ingredient agents for bitumen and agrochemicals, explosives, glue, and also for paints. Palm oil is part of 50 per cent of all foods and various household products that can be found in supermarkets.

Rising global demand for palm oil

The rising global demand for palm oil is a second factor contributing to its expansion in Indonesia, and demand is projected to increase further in the future. In 2005, palm oil replaced soybean oil as the main global vegetable oil (Sheil et al. 2009, 20). Two consumption patterns are driving the demand for palm oil: the increasing consumption of palm oil as foodstuff, and the expanding use of palm oil in biofuel production.

The main driver is the rising consumption of palm oil as foodstuff, resulting from the increasing per capita consumption of palm oil in developing countries and the overall population growth in these countries.[8] Furthermore, foodstuff producers in industrialised countries are increasingly using palm oil to replace saturated animal fats.

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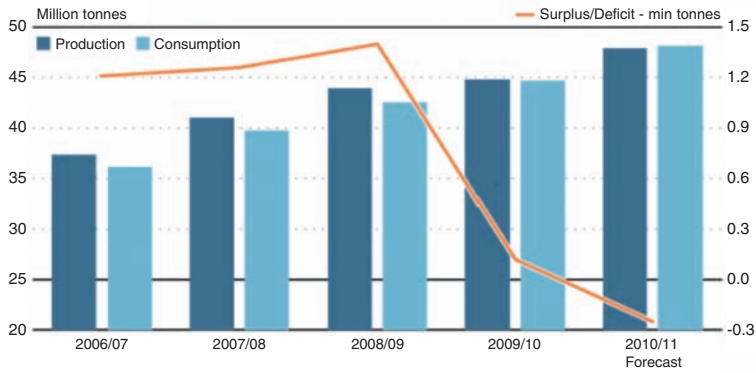
7 CPO and PKO are different in their composition of fatty acids and are preferentially used for different purposes in food as well as in non-food processing (Wahid 2005, 3).

8 The main consumers of Indonesian palm oil as foodstuff are India and China due to their geographic proximity and the high increases in disposable income of households.).

Figure 5: Global palm oil demand and supply dynamics



Source: US Department of Agriculture

The second driver is the expanding use of palm oil as feedstock for biofuel production. In the context of climate change mitigation, novel biofuel policies all around the globe, including EU-RED, are spurring this relatively new demand pattern. Indonesia itself is currently the main consumer of domestic CPO for biofuels (Sheil et al. 2009, 13ff.).

Projections show that overall demand for palm oil will continue to rise in the future, and as Figure 3 shows, in recent years, global demand has already exceeded global production capacity.[9] Against this background, the Indonesian government is pursuing the objective of doubling palm oil production to 40 million tonnes annually by 2020 (Teoh 2010, 10).

9 Total global consumption of vegetable oils increased by 35 per cent – from 108.5 million tonnes in 2004 to 146.6 million tonnes in 2010 – and is projected to rise to 184.3 million tonnes in 2020 (MVO 2010, 5; OECD-FAO 2010).

The comparative advantages of Indonesia as a producer country

The third cause for the rapid expansion of Indonesia's palm oil sector are the comparative advantages of Indonesia as a producer country for palm oil: first, its tropical equatorial climate; second, low labour costs; thirds, availability of land; and fourth, the political promotion of palm oil sector development.

First, Indonesia offers ideal climatic conditions for cultivating oil palm: humid tropical climate with high atmospheric humidity; evenly distributed annual precipitation between 1,800 and 2,300 mm; temperatures between 24° and 30°C; and high rates of solar radiation (Wahid / Abdullah / Henson 2005; Sheil et al. 2009, 5ff.; MVO 2010, 3).

Second, low labour costs in Indonesia and the abundance of labour constitute a strong comparative incentive for palm oil producers to expand in Indonesia. This is even more so because the relatively high labour intensity of oil palm harvesting coincides with low mechanisation possibilities, leading to labour costs constituting up to 30 per cent of total production costs (Casson 1999; Rasiah / Shahrin 2006, 26ff.).

Third, the private sector and the government of Indonesia used to see the "availability"[10] of land for plantation development as a decisive reason for Indonesian palm oil expansion. This driver of expansion was strengthened by decreasing availability of land for development in Malaysia, where a high processing capacity in the late 1990s and the 2000s led to Malaysian companies expanding their palm oil production to Indonesia, in order to produce CPO for the Malaysian processing industry (Rasiah / Shahrin 2006, 37; Casson 1999, 17). Yet, even though large expanses of land are potentially still available,[11] the environmental impacts of further expansion as well as the economic and social value of ecosystem services of land – not yet used in economic value generation – have to be taken into account.

10 In this context the term "available land" is used within the meaning of land previously unused in the generation of economic value, but which is, or was, mostly coveredby rainforests.

11 Currently, the estimated potential of land availability for palm plantations in Indonesia is about 26 million hectares, scattering from Aceh to Papua – with Papua and Kalimantan (West, Central, South and East) constituting the biggest part with an estimated 6 million and 10 million available hectares, respectively (Tambunan 2006, 2).

Last but not least, the political promotion of agricultural cash crop diversification has been a strong incentive leading to the expansion of the Indonesian palm oil sector. The latest incentives comprise: a palm oil estate revitalisation programme via subsidising credits; the subsidisation of down- and upstream processing industries; the promotion of palm oil-based cluster areas for processing and shipping; as well as the new biofuel regulation, which increases demand for domestic biofuel production (PEFINDO 2010).

2.2 Socio-economic impacts

The dynamic expansion of the Indonesian palm oil sector has increased its importance for the Indonesian economy and its potential to foster development, especially in rural areas, but can also generate adverse consequences. A strong palm oil sector has positive economic effects because it generates foreign currency earnings through export, provides employment – especially in rural regions – increases revenues through taxes and tariffs, and offers potential infrastructure development and improvement in peripheral regions. For example, the export value of CPO and CPO-derived products totalled US$ 9.5 billion in 2007, constituting 6 per cent of Indonesia's non-oil and gas export earnings. Additionally, the revenue generated for the central government by export tariffs was estimated at US$ 1.2 billion by Sheil et al. (2009, 37); US$1 billion in World Bank (2010a, 11). The main export destinations, which together account for 75 per cent of all exports,[12] are India, China, Netherlands, Malaysia and Singapore (World Bank 2010a, 11). In the following paragraphs, the socio-economic benefits and adverse consequences of oil palm cultivation will be elaborated in more detail.

2.2.1 Palm oil as engine for development: positive socio-economic effects

Development of oil palm cultivation in Indonesia can lead to multiple positive socio-economic effects. Cultivating oil palm can offer rural households socio-economic improvements by increasing income, employment levels, land value and returns on labour. Furthermore, oil palm plantations may

12 Fifty per cent of Indonesian CPO production is exported directly, the other 50 per cent is processed and refined in Indonesia into food and non-food products, of which the biggest part is also exported (World Bank 2010a, 10).

lead to broad rural infrastructure development, i.e. roads, hospitals and schools (World Bank 2010a, 27–30; Mahmud / Rehrig / Hills 2010, 2; Rist / Feintrenie / Levang 2010, 1011). In addition, oil palm expansion can alleviate poverty through increases in tax revenues and foreign exchange earnings if they are used for social inclusion (World Bank 2010b).

The palm oil sector is a significant source of income. Oil palm cultivation continues to be a significant source of income and employment to Indonesian smallholder farmers and rural communities. Field studies present evidence for the potential of oil palm cultivation to increase income for smallholder farmers and rural communities (Sandker / Campbell / Suwarno 2008; Rist / Feintrenie / Levang 2010, 1011; Susila 2004, 107–108). Average income generated by palm oil is significantly higher than from subsistence farming or competing cash crops. In 2006, oil palm provided annual returns of US$ 980 per hectare, in comparison to US$ 580 from maize, US$ 410 from coffee, and US$ 150 from rubber (Koh / Levang / Ghazoul 2009, 433). As a result, palm oil is an attractive income opportunity, illustrated by the rising number of smallholder communities who engage in it (Sheil et al. 2009, 41–42).

In addition, the palm oil sector is a significant source of employment. It is estimated that 1.7 to 2 million people are employed in the palm oil sector in Indonesia (World Bank 2010a, 12; Zen / Barlow / Gondowarsito 2006, 7; Sheil et al. 2009, 37). However, the number of labourers needed per hectare is lower than for any competing crop, especially when oil palm estates are managed by large industrial companies. Hence, differences in net employment impact exist among the different types of oil palm producers. The Indonesian Ministry of Agriculture estimated that one labourer is employed for every 2 ha on smallholder plantations, whereas on private estates in 2007, one labourer is employed for every 6.7 ha (World Bank 2010a, 28).

Oil palm offers relatively high returns on land and labour.[13] The net present value (NPV)[14] of oil palm ranges from US$ 1,500 to 4,600 per hectare. The exact monetary value depends upon a range of agronomic fac-

13 Return to land: the net added value per hectare of land during one year; return to labour: the return to land divided by the number of working hours per hectare during one year.

14 The net present value is the difference between the present value of cash inflows and the present value of cash outflows.

tors, including the type of soil, availability of know-how, the planting stock and the quality of inputs (Casson / Tacconi / Deddy 2007, 20). Nevertheless, the NPV indicates that oil palm cultivation represents a relatively high value land use.[15] In addition, oil palm cultivation provides greater returns on labour than competing cash crops. Oil palm cultivation requires less work than alternative land uses. The differences in returns on labour are striking: EUR 36/man per day for oil palm; EUR 17/man per day for clonal rubber; EUR 21/man per day for rubber agroforest; and only EUR 1.7/man per day for wet rice paddy (Feintrenie / Chong / Levang 2010, 12).

2.2.2 Adverse development consequences: negative socio-economic effects

While oil palm cultivation can lead to numerous positive socio-economic impacts, significant negative socio-economic effects continue to exist. Negative effects include the loss of access to land by some local communities without just and consent-driven compensation schemes, adverse labour conditions and the impoverishment of some local smallholders because of high debt and low wages (Friends of the Earth / LifeMosaic / Sawit Watch 2008; Rist / Feintrenie / Levang 2010, 1010–1011).

Conflicts over land rights

Expansion of oil palm leads to severe social conflicts regarding issues of land rights and land transfer. Conflicts over land arise predominantly among local communities and indigenous peoples on the one hand, and the state and palm oil companies on the other hand. Industrial estates dominate Indonesia's palm oil sector – in 2008 they held 48 per cent of all plantations. These estates generally consist of large contiguous areas of land. Palm oil companies seek access to large areas of lands to realise economies of scale in clearing, planting and managing. The drive for contiguous land acquisition leads to conflicts regarding the recognition of land rights (incl. customary land rights), consent and compensation schemes (Teoh 2010, 33–35; Colchester et al. 2011, 17–32).

15 Only clonal rubber plantations offer a higher return to land than oil palm. According to Feintrenie / Chong / Levang 2010), the average returns to land on a full cycle of a plantation were: 2,600 €/ha for a clonal rubber plantation, 2,100 €/ha for oil palm, 1,300 €/ha for a rubber agroforest, and only 200 €/ha for a paddy field.

Box 1: Free, Prior and Informed Consent (FPIC)

Free, Prior and Informed Consent (FPIC) is defined by the UN Human Rights Committee Working Group on Indigenous Populations as follows: "Free, prior and informed consent recognizes indigenous peoples' inherent and prior rights to their lands and resources and respects their legitimate authority to require that third parties enter into an equal and respectful relationship with them, based on the principle of informed consent" (Commission on Human Rights 2004). It is based on the principles of "(i) information about and consultation on any proposed initiative and its likely impacts; (ii) meaningful participation of indigenous peoples; and, (iii) representative institutions" (Commission on Human Rights, 2004). In Indonesia, consultations with local communities and indigenous people are often inadequate or even non-existent. However, FPIC is deemed essential for reaching an equitable agreement between local communities and palm oil companies. As a result, FPIC is a prerequisite for RSPO certification.

Land rights of local and indigenous communities are insecure. The Indonesian constitution formally recognises land rights of local and indigenous communities and their legal authority to transfer land-use rights. But land rights in practice remain insecure, as central and local government authorities have retained control over land by controlling titling, land-use restrictions and land appropriation for infrastructure projects. Especially indigenous communities in Indonesia are confronted with a legal and government system that offers only weak and limited actual recognition of their customary rights to land. The Indonesian constitution implicitly recognises customary rights in land and acknowledges the right of indigenous communities to be self-governing.[16] However, the constitution (Article 33) also provides the state with a mandate to regulate and allocate natural resources in accordance with the broader national interests. In addition, the Basic Agrarian Law (BAL) of 1960 further strengthens national interests by identifying customary law to be subordinate to national interest. In the case of palm oil expansion, the national interest over land use – as articulated by state institutions – often conflicts with the interests of indigenous commu-

16 See articles 18 and 28h of the 1945 Constitution as well as article 18b of the 2002 amendments.

nities. For instance, federal ministries consider oil palm expansion via the establishment of large industrial estates to be essential for economic development. As a result, the indigenous communities often face inequitable transfer of land to state and private bodies under the banner of protecting and prioritising national interest (Colchester / Jiwan 2006, 4; Gillespie 2011, 17–19).

Insecure land rights and lack of information about land acquisition procedures impede FPIC over land transfer and lead to unjust compensation schemes. Insecure land rights weaken the bargaining position of local communities during land transfer negotiations. Furthermore, local communities often lack detailed information about – and a thorough understanding of – land rights and prevailing land acquisition procedures. As a result, industrial estates exclude them from decision-making processes by exploiting their lack of information and limited understanding of procedures. The exclusion impedes FPIC between rural communities and industrial palm oil companies over land transfer. In addition, it often leads to unjust compensation packages for local communities, reinforcing land conflicts (Colchester et al. 2006, 42–65; World Bank 2010a, 29–30).

Plantation labour: poor working conditions

Working conditions on oil palm estates are often poor. Of particular concern are issues related to wages, gender as well as child labour.

Minimum wages are set by the responsible government agencies or via collective bargaining between workers' cooperatives and employers. However, standard minimum wages have not yet been applied across the board in Indonesia (Teoh 2010, 36; Vermeulen / Goad 2006, 10–11). Furthermore, existing minimum wages often do not meet the standards for basic living needs calculated by the government, thus leading to the impoverishment of workers (World Bank 2010a, 29).

Especially women are confronted with low health and security standards. Women face adverse health effects, as they are largely employed as sprayers of hazardous chemicals. Many of these women are illiterate and therefore unable to read the warnings written on containers. In addition, they often are not given adequate training, safety equipment or protective clothing. As a result, the use of chemicals leads to severe adverse health effects (Teoh 2010, 36; Colchester et al. 2011, 16). Furthermore, oil palm

estates often do not provide a secure working environment. Women labourers are confronted with sexual harassment, violence and weak protection of reproductive rights (Teoh 2010).

In addition, child labour is widely used in the Indonesian palm oil sector. Oil palm plantations in Indonesia use children predominantly as palm pickers. According to a study by the International Labour Organization, 75 per cent of children working on plantations in Indonesia did not have basic equipment (e.g. gloves), 90 per cent did not receive adequate training and 68 per cent experienced heat exhaustion (ILO 2010). Thus, children face rather poor working conditions on oil palm plantations.

While the expansion of oil palm cultivation is associated with poverty reduction, the potential for positive development impacts varies between different types of producers and modes of production. Reduction in poverty levels can be largely attributed to smallholders (World Bank 2010b, 5–6). In addition, while many smallholders have substantially benefited from the higher returns on land and labour offered by oil palm, current production models hinder many local communities from fully capitalising on the potential developmental benefits (Rist / Feintrenie / Levang 2010). Conflicts with respect to land rights, compensation and development assistance lead to unequal benefit-sharing between local communities and estate companies. More in-depth quantitative and qualitative studies are needed in order fully to scrutinise the socio-economic effects of oil palm development in Indonesia.

2.3 Ecological impacts

Palm oil production in Indonesia has been widely criticised for causing severe environmental problems. Numerous international and Indonesian NGOs, among them Sawit Watch and WALHI (Indonesian Forum for the Environment), are concerned about the ongoing adverse impacts of palm oil plantations (for example, see Lumuru / Jiwan 2008). Recommendations on how to turn palm oil production into an ecologically sound sector have been made, but are rarely implemented. The heated debate about the ecological impacts of palm oil has been focussing on three major topics: (1) the carbon footprint of the palm oil industry and (2) biodiversity loss, which are both linked to the problem of (3) deforestation.

2.3.1 Greenhouse gas emissions impacting on climate

This section deals with the different factors influencing the amount of greenhouse gases (GHGs) released during the production of palm oil. In this regard, the concept of "carbon payback time" is crucial. It denotes after how many years a GHG mitigating process leads to fewer emissions than the process it has replaced (such as using biofuels instead of petroleum-based fuels). It takes into account the GHG emissions released during the pre-operational stage of production (preparing the plantation) as well as during the operational stage of production (running the palm oil mill etc.).

The amount of GHGs released through palm oil production varies significantly – leading to a carbon payback time ranging from 10 to more than 650 years (Danielsen et al. 2009, 24). These differences stem from four major factors: the composition of the soil the plantation is created on; the kind of vegetation originally growing on it; the way this original vegetation is cleared; and the more or less ecologically sustainable management of the plantation and the mill.

The first important factor is the amount of GHGs stored in forest soils that is released during the conversion of tropical forests into plantations. It is a little known fact that the earth's soils contain more GHGs than the atmosphere and the vegetation cover of the earth combined (Phalan 2009, 24). Most analyses focus on the amount of CO2 stored in tropical soils, but more recently, also other GHGs such as methane and isoprene, which have far more damaging effects on the earth's climate, have been taken into account. Due to these GHGs, the carbon payback time for "normal" rainforest soil converted into a palm oil plantation is approximately 75 years, if the rainforest is logged (Danielsen et al. 2009, 353).

In fact, the highest percentage of GHG released from tropical soils stems from the drainage and decomposition of peatlands. When peatland is to be converted into palm oil plantations, it has to be drained to create a firmer soil to provide stability for the seedling roots (World Bank 2010a, 21). Yet, if peatlands are drying or even burnt, they release massive amounts of GHG into the atmosphere, raising the carbon payback time of the plantations created on such soils to approximately 650 years (Danielsen et al. 2009, 353). In Indonesia, an increasing number of palm oil plantations are created on peatland soils (currently: approximately 25 per cent). This is due to the fact

that most of the dryer fertile grounds are already under crop and that peatlands are sparsely populated, so fewer conflicts over land rights occur (Sheil et al. 2009, 27). Due to campaigns initiated by Greenpeace and other environmental NGOs, the peatlands in the Indonesian province of Riau in Sumatra are now in the centre of the debate. According to Greenpeace, the amount of CO2 released by a complete decomposition of Riau's peatlands would equal the global CO2 emissions for one year (Greenpeace 2007, 1).

Apart from the nature of the soil, a second factor impacting the carbon payback time of a palm oil plantation is the original vegetation cleared in favour of the oil palms. With the destruction of tropical rainforests (whether they stand on peat soil or not), major carbon and methane sinks are lost. Recent studies have shown that natural rainforests can store significantly more GHG than oil palm plantations (World Bank 2010a, 22).[17]

The third important factor is the way the original vegetation is cleared, i.e. whether a forest is logged or burnt. Since the 1990s, forest fires have been a concern for the Indonesian government. Clouds of smog floating across the region have caused health problems not only in Indonesia, but also in the neighbouring countries of Brunei, Malaysia and Singapore (Dauvergne / Neville 2010, 639). Since then, several national laws punishing deliberate torching of forests have been passed, with punishment ranging from up to 10 years of imprisonment to 10 billon rupiahs in fines (the latest law was passed in 2004); however, until today, not a single case has been brought to court (Caroko et al. 2011, 11). Especially smallholders continue the old tradition of burning forests for farmland – often because they cannot afford to hire clearing dozers (Sheil et al. 2009, 42). The problem of forest fires is aggravated by the fact that also the forests neighbouring palm oil plantations are more likely to burn.[18]

17 The vegetation of a natural rainforests stores approximately 250 mg of CO2 per hectare, while the oil palms on a plantation store only approximately 90 mg CO2 per hectare (Danielsen et al. 2009, 351).

18 While natural rainforests usually are too wet to burn, forests degraded by roads or nearby drainage catch fire more easily – and a forest once burned is more prone to catch fire again (Sheil et al. 2009, 22).

After the establishment of a palm oil plantation, a fourth major factor influencing the carbon payback time is the way palm oil plantations and mills are managed. Fortunately, there are a number of possibilities to reduce GHG emissions by using by-products of the palm oil industry on the plantations (Sheil et al. 2009, 12): the methane found in the palm oil mill effluent (POME) can be captured and used as fuel for the oil mills, as well as the shells of the fruit. The trunks of old palm trees can be used as furniture wood. The empty fruit bunches can be used as mulch that improves the soil, reducing the need for synthetic fertilisers. This is especially important since synthetic fertilisers are often based on nitrogen, which, in its form as nitrous oxide (N2O), is 300 times more damaging to the climate than a comparable amount of CO2 (Sheil et al. 2009, 28; Prabhakar / Elder 2009).

The destruction of tropical rainforests is an immense driver of global greenhouse gas emissions and undermines President Susilo Bambang Yudhoyono's promise to reduce Indonesian greenhouse gas emissions by 26 per cent by 2020, or by 41 per cent with international support. Because of the burning of forests, the loss of GHG sinks due to logging and the release of GHGs from tropical soils, the destruction of tropical rainforests is causing one-fifth of the global CO2 emissions (Sheil et al. 2009, 25). This amount is higher than the global GHG emissions by cars, trucks and airplanes combined. Therefore, Greenpeace suggests that *"[c]urbing tropical deforestation is one of the quickest, most effective ways to cut greenhouse gas emissions"* (Greenpeace 2007, 9). Mainly because of these problems, Indonesia is ranked as the fourth largest CO2 emitter worldwide (Sheil et al. 2009, 25).

2.3.2 Loss of biodiversity in one of the world's richest ecosystems

The establishment of palm oil plantations leads to a substantial decrease in biodiversity, as the number of species living on plantations is lower than in any other environment. Attempts to increase biodiversity on existing plantations have had little success, so that the biodiversity found on palm oil plantations is lower compared to pristine and secondary rainforests, but also compared to degraded land and even to unused waste land (Danielsen et al. 2009, 354). Only 10 per cent of the mammal species typi-

cally inhabiting Indonesia's rainforests are regularly spotted on palm oil plantations – and most of those 10 per cent are common species without conservation value. But even those mammals prefer other habitats to plantations (except for wild pigs) (Sheil et al. 2009, 31f.).

Since the rainforests in Indonesia's lowlands rank among the species-richest of the world, and are the natural habitat of many endemic species, biodiversity loss is an especially severe problem (Sheil et al. 2009, 31). More than 50 per cent of the earth's living species live in tropical rainforests, and the majority of them in South East Asia or Latin America (Danielsen et al. 2009, 354). In Indonesia, so-called signature species – such as the Sumatran tiger, the Sumatran elephant and, most prominently, the orang-utan – have become symbols of the concern of palm oil-critics that many species might be irretrievably lost due to continued deforestation. Large mammals such as orang-utans and tigers are frequently shot on palm oil plantations neighbouring rainforests – and such rainforests often become hunting grounds for poachers (Sheil et al. 2009, 32).

2.3.3 Deforestation of Indonesia's rainforests

The palm oil sector is considered to be a major driver of both legal and illegal deforestation. In Indonesia, 56 per cent of oil palm plantations were planted on land that had previously been covered by natural forests, and 70 per cent of the plantations were created on land that had previously been part of Indonesia's Forest Estate (World Bank 2010a, 17). Areas of high conservation value (HCV) are not excluded from being cleared, as the logging in 37 of Indonesia's 41 national parks has shown (Sheil et al. 2009, 23).[19] In several instances, planters who obtained permits to create new oil palm plantations logged natural rainforest – and subsequently let the land lie idle, raising suspicions that their only interest was to sell the valuable tropical wood. Both practices – the logging in national parks as well as the failure to plant oil palm seedlings – constitute a breach of Indonesian national laws, which are, however, hardly ever enforced (Sheil et al. 2009, 24) (see also Section 3.4.3). In June 2012, at a global policy address on the

19 HCV areas, first defined by the Forest Stewardship Council in 1999, are regions with a specific environmental, socio-economic, biodiversity or landscape value.

future of Indonesia's forests at the Centre for International Forestry Research ahead of the Rio+20 summit, President Yudhoyono himself underlined that "deforestation is a thing of the past" and "losing our tropical rain forests would constitute the ultimate national, global and planetary disaster" – but reducing deforestation in Indonesia remains a challenge.

Possible solutions: recommendations and obstacles to their implementation

Since deforestation causes both GHG emissions and biodiversity loss, a key solution is to establish plantations on degraded land instead of on forested land. The term "degraded land" is often used as a synonym for land covered with *Alang Alang* (Blady Grass) (World Bank 2010a, 24). If palm oil plantations are planted on such land, the carbon payback time amounts to only 10 years (Danielsen et al. 2009, 354).[20] The problem of forest fires – also in neighbouring forests – does not occur, and it is considerably cheaper to clear *Alang Alang* than to clear a rainforest (World Bank 2010a, 24). Although there is a loss of biodiversity when *Alang Alang* is cleared, the magnitude of this loss is minor compared to the number of species lost by the destruction rainforests (Danielsen et al. 2009, 354).

However, there are three obstacles hindering the implementation of this recommendation: a lack of clear definitions and maps, a lack of sanctions and appropriate incentives, and the existence of habits and prejudices.

To begin with, the terms "forested land" and "degraded land" are ill-defined. Some authors deny the problem of deforestation altogether, because they see palm oil plantations as a kind of forest. Similar confusion exists concerning the term "degraded land", both concerning its legal status and its vegetation cover. Regarding its legal status, the term is used as a synonym for *"land legally designated as having reduced ecological functions by the Ministry of Forestry" (Lahan kritis),* for *"land on which a permit has been issued but has not yet been utilized by the permit-holder" (Tanah terlantar)* as well as for *"areas that are considered unproductive according to national or provincial regulations" (Lahan tidur)* (Hanson et al. 2011). Yet

20 Oil palms 10 years or older absorb more GHGs from the atmosphere than *Alang Alang* does.

these definitions do not necessarily acknowledge that those lands are often inhabited and used by the local population despite the lack of legal permits. Regarding the vegetation cover, many authors use the term "degraded land" to describe Alang Alang, while others use it for forests that have been repeatedly logged (Dauvergne / Neville 2010, 639). Yet such forests still store a considerable amount of GHGs and are often rich in biodiversity, because only the most valuable timber has been logged (Dauvergne / Neville 2010, 639). These unclear definitions are one reason for the lack of valid maps showing the locations of suitable "degraded land".[21] However, it is estimated that approximately 8.5 million ha of *Alang Alang* is available in Indonesia (Danielsen et al. 2009, 350).[22]

In addition to that, (illegal) deforestation is not sanctioned effectively, and there are no sufficient incentives to diminish deforestation. As stated above, national laws against the torching and illegal logging of rainforests are rarely applied. This is partly due to a lack of effective international regulations forbidding the clearance of HCV areas and international conventions sanctioning developing countries for high levels of GHG emissions (Greenpeace 2007, 1). The other reason for deficient law enforcement is a lack of effective governance, which will be discussed below (see Section 3.5). At the same time, there are few financial incentives to preserve Indonesia's rainforests, as the idea of an international fund for forest protection has not been implemented so far. A notable exception is an agreement that Norway and Indonesia ratified under the REDD+ initiative.

Finally, many planters – especially smallholders – prefer to clear rainforest than to create their plantations on *Alang Alang*. The burning of rainforest is a practice that has been used by Indonesian planters for centuries – selling valuable wood from a cleared rainforest often covers the costs

21 Another reason is insufficient coordination of the institutions tasked with the creation of such maps (see also Section 3.4.3).

22 For recent insights from the World Resource Institute and the NGO Sekala on how to implement a method for identifying potentially suitable "degraded land" for sustainable palm oil production in Indonesia, see Gingold et al. (2012).

for establishing the plantation. Moreover, many planters are convinced that oil palms flourish better on forest soils than on *Alang Alang* – an assumption that has been disproved by recent studies (World Bank 2010a, 24).

Box 2: REDD+ and a Norwegian initiative

The main ideas of the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) are a) to compensate developing countries for their efforts in avoiding deforestation and forest degradation, and b) to set incentives for enhancing carbon stocks in such countries, i.e. through reforestation and sustainable management of forests (REDD+). The initiative was introduced by the Coalition for Rainforest Nations during the 11th Conference of the Parties of the Kyoto Protocol in 2005. Although it has been advanced during meetings in the following years, REDD+ still resembles a theoretical framework rather than a fully operational policy instrument.

As a rainforest country, Indonesia is keen on further developing the REDD+ initiative and has gained the support of the UN and the World Bank. REDD+ plays a central role in Indonesia's ambitious national strategy to combat climate change, and by implementing REDD+, the country will become eligible to receive financial payments based on carbon credits. In collaboration with funding bodies and NGOs, the Indonesian Ministry of Forestry developed a REDD+ Readiness Strategy, which has an implementation period from 2009 to 2012 (Masripatin 2010, 6). More than 40 REDD+ pilot projects are already being conducted in Indonesia and the experience gained through those projects shall serve as a basis to finalise a national REDD+ Strategy (Masripatin 2010, 11).

A major bilateral pilot project under REDD+ was launched in 2010: Norway pledged a sum of US$ 1 billion in support of Indonesia's strategy to combat climate change. The sum will be transferred – based on the level of Indonesia's achievements – after the completion of three project phases. The goals of the project shall be reached by diminishing deforestation and by decreasing the conversion of peatlands.

If these obstacles were overcome, i.e. if palm oil plantations were created on *Alang Alang* and managed in a sustainable manner, the palm oil industry could achieve almost zero GHG emissions – at the same time sparing Indonesia's rainforests and rich biodiversity (Sheil et al. 2009, 12).

In order to reach the goal of ecologically (more) sustainable palm oil production, several instruments have been developed, including financial incentives, land swaps, sustainability standards and certification schemes. Financial incentives (e.g. not to clear rainforests on the basis of REDD+) and land swaps (i.e. rainforest for *Alang Alang*) could become prominent in Indonesia in the coming years. Sustainability standards that certify ecologically and socially sound production processes are an especially innovative instrument that may serve as incentives for "green" palm oil production. Our report will focus on this special instrument in the Indonesian context, bearing in mind that sustainability standards have to be seen as complementary to other instruments such as financial incentives and land swaps.[23]

2.4 Smallholders in the Indonesian palm oil sector

The ecological problems related to oil palm cultivation in Indonesia mentioned above are not only caused by large-scale palm oil plantations, but also by smallholders, who play a key role in the sector. In contrast to many other agricultural commodity sectors, in the Indonesian palm oil sector smallholders play a very central role, in part because smallholder development has been strongly promoted by the Indonesian central government in the past. In order to achieve a transformation of oil palm cultivation towards sustainability, it is essential to tackle the above-mentioned ecological problems. This, in turn, is only possible if smallholders – as main actors of the Indonesian palm oil sector – are included in the transformation process. Indonesian smallholders are a heterogeneous group and are characterised by specific production economics and specific constraints that will be elaborated in more detail in the following paragraphs.

The oil palm plantation ownership structure is heterogeneous, but private estates and smallholders dominate the Indonesian palm oil sector. The sector is characterised by three different ownership models: (i) state-owned companies, (ii) private-owned companies and (iii) smallholders. Smallholders currently account for around 38 per cent of cultivation area

23 For a discussion of the prospects and limits of standards and certification schemes, see Chapter 3.

and 35 per cent of production output of the Indonesian palm oil sector.[24] Estimates of their numbers range between 1 and 1.5 million[25] (Sheil et al. 2009; World Bank 2010a, vi; USDA-FAS 2009). Thus, smallholders account for a considerable fraction of Indonesian palm oil production. This makes smallholders crucial for the success of policies and instruments targeting the sustainability of palm oil production. Moreover, this means smallholders as a group benefit greatly from rural employment and the development generated by the Indonesian palm oil sector.

Over the past decade, smallholder cultivation has increased faster than alternative ownership types. Between 1997 and 2007, smallholders achieved the highest average annual growth rates in area (12 per cent) and in production (16 per cent) (World Bank 2010a, 4). This is due to the comparatively high returns on land and labour of oil palm, making it an attractive agricultural crop for smallholders in comparison to alternative livelihood activities. Another reason is the decreasing availability of large contiguous areas of land for establishing large-scale plantations, especially on Sumatra, thus favouring independent smallholder expansion into smaller plots in areas of fragmented land-use patterns (World Bank 2010a, 32f.).

2.4.1 Types of smallholders

Smallholders are a heterogeneous group, differing – among others things – in income, land titles, land size, household size and social status. Hence, no single smallholder definition exists that includes all relevant characteristics. For certification purposes, RSPO defines smallholders as family-based enterprises cultivating oil palm on less than 50 ha of land. Yet, the average ha area size of smallholders is much smaller, averaging 5 ha, with the most common size being 2 ha. Despite their heterogeneity, it is useful to categorise smallholders into two broad and distinct

24 The area amounted to 3.07 million hectares in 2010, of which 0.76 million hectares were still immature (USDA-FAS 2009, 5). The production of smallholders amounted to 7.67 million tonnes of palm oil in 2010, corresponding to 35 per cent of the overall Indonesian palm oil production of 21.96 million tonnes that year (IPOC 2012).

25 Estimates that include the household members of smallholders total around six million people who depend on income from oil palm cultivation (Jelsma / Giller / Fairhurst 2009; Sheil et al. 2009, 37).

types: (i) supported or scheme smallholders and (ii) independent smallholders. Supported or scheme smallholder farmers are tied to a formal partnership – Nucleus Estate Smallholder (NES) scheme – with a palm oil company, receiving important technical assistance, knowledge and inputs. Independent smallholder farmers, on the other hand, operate independently through all phases of production (World Bank 2010a). They do not receive any assistance from palm oil companies[26].

The palm oil sector in Indonesia is shaped by the Nucleus Estate Smallholder schemes (NES). NES schemes, or *Perkebunan Inti Rakyat* (PIR), have been an integral part of the government's strategy since the 1970s to foster rural socio-economic development (Zen / Barlow / Gondowarsito 2006). The schemes were established predominantly to support smallholders and are designed as follows: rural communities transfer land to a private or state oil palm company for development of a core plantation (i.e. the nucleus). The remaining surrounding land is also planted by the respective palm oil company but retained and cultivated as individual smallholdings (i.e. plasma) by local farmers. On average, households give up 10 ha of their land to the nucleus estate in return for 2 ha of plasma land (Rist / Feintrenie / Levang 2010). Until 2003, a total of almost 900,000 ha of smallholder plasma has been established on nucleus estates, engaging 400,000 families (Zen / Barlow / Gondowarsito 2006). Smallholders benefit from the NES schemes by receiving crucial technical assistance and inputs (i.e. seed stock, fertiliser and pesticides) from oil palm companies.[27]

26 National data of Indonesia does not distinguish between the two different types of smallholder ownership. The lack of distinction drastically reduces the applicability of national data. In the end, the smallholder typology needs further tailored research, taking into account a broad range of socio-economic and resource characteristics.

27 Predominantly plasma smallholders are organised in cooperatives with smaller sub-units ("productive groups" or *"kelompok produktif"*). In such NES cases, cooperative characteristics exist in parallel to a contract farming arrangement, since these cooperatives are contractually bound to the nucleus plantation. For further information about the cooperative characteristics, see Box 9.

2.4.2 Economics of smallholder production

The immense expansion of oil palm cultivation during the last decade illustrates its economic profitability as well as its economic competitiveness as land use (Vermeulen / Goad 2006). Smallholders are one of the main drivers of palm oil expansion in Indonesia. The recent growth of smallholder areas is largely attributed to independent smallholders. However, productivity and efficiency of oil palm cultivation differs between the different types of ownership structures (i.e. smallholders and private companies).

Levels of productivity differ between types of ownership structure. The productivity of both supported and independent smallholders is significantly lower compared to plantations owned by private and state companies (Mahmud / Rehrig / Hills 2010; World Bank 2010a; Teoh 2010). The yields of smallholders in 2008 have been 35 per cent and 40 per cent lower than the yields of private and state estates respectively (Mahmud / Rehrig / Hills 2010). The reasons for lower yields are the lack of technical skills, knowledge and inputs (i.e. fertiliser, seeds and pesticides). These reasons, however, do not apply equally to independent and scheme smallholders. Nevertheless, raising productivity of smallholders in an effort to improve rural development remains a pressing issue on the agenda.

Furthermore, levels of productivity differ between supported and independent smallholders. Productivity of supported farmers is higher compared to independent farmers. While supported farmers grow 19 tonnes of fresh fruit bunches per hectare, independent farmers only grow 10 t/ha (Vermeulen / Goad 2006). In comparison, industrial estates achieve an output of 21 t/ha. Poor seed stock quality has been identified as the primary reason for the low-yielding plants of independent smallholder farmers. Independent smallholders endowed with high-yielding varieties achieve yields of 17 t/ha, thus drastically reducing the difference in yields between independent and scheme smallholders (Vermeulen / Goad 2006).[28]

28 Yield numbers are calculated by Vermeulen / Goad (2006) from data given in Ismail / Simeh / Noor (2003) and Zen / Barlow / Gondowarsito (2006).

Although supported and independent smallholders are less productive than industrial estates (speaking in terms of absolute yields per hectare), they are not necessarily less efficient, when defining efficiency as the ratio of inputs to output yields. Currently, an efficiency gap between smallholders and industrial estates still exists. However, the gap is steadily closing as smallholders increase their yields and continue to keep input costs to a minimum. Although scheme smallholders achieve higher yields (i.e. higher productivity), independent smallholders can in some instances achieve higher efficiency (Vermeulen / Goad 2006).

2.4.3 Main constraints for smallholders

Smallholders face several specific constraints impacting their production economics and livelihoods. The main constraints are the monopsonistic buyer-base for the FFBs of the oil palm, lack of capital and debt management, and the lack of capacities, all of which make smallholders especially susceptible to market risks. Even though supported and independent smallholders face slightly different risks, for both of them a decision to favour of oil palm cultivation means being tied to a long-term crop. This implies being exposed to financial risks due to possible harvest failures (climate, pests and diseases), CPO price fluctuations and indebtedness (Sheil et al. 2009, 42).

First, smallholders in Indonesia are usually confronted with a monopsonistic buyer-base, resulting from the need to process FFBs within 48 hours after harvesting them[29] and the geographical distribution of mills. Mills occupy a crucial position in the supply chain and are often tied to large-scale private or state plantations and are located far away from each other. Therefore, local geographies of palm oil production are often monopsonistic, meaning that only one buyer – the local mill – faces many potential sellers (World Bank 2010a, 33). In 2006, only 57 of a total of 477 mills operating in Indonesia were independent (World Bank 2010a, 8). This is especially relevant for independent smallholders, who, in theory, could seek

29 This is necessary because of the rapid deterioration of the FFBs. To achieve optimal oil extraction rates in the milling process, FFBs should ideally be milled within 24 hours after harvesting them (Sheil et al. 2009).

the highest market price for FFBs because they are not tied contractually to a mill, but in reality have to deal with very limited options regarding buyers for their FFBs. Scheme smallholders, on the other hand, are contractually bound to a private or state mill, and thus also face a situation where only one buyer determines FFB prices. Even though FFB prices are officially determined by a government formula,[30] mills can still decide from whom to buy and how much, thus often favouring their own supported producers over independents in times of low demand or high supply (World Bank 2010a, 35).

Second, smallholders often face constraints concerning capital and problems with debt management. In order to establish a plot of oil palm, considerable upfront investment[31] is necessary. Additionally, smallholders have to bridge the gap between planting and the first harvest, which occurs after three to four years.[32] During this gap, no income is generated either from the oil palms or from the former land use of the plot. Due to this, it is important for smallholders to have access to credit (especially long-term credit) with fair conditions (Mahmud / Rehrig / Hills 2010, 14, 16; Vermeulen / Goad 2006, 5, 14ff.). Yet, smallholders often do not meet the requirements for normal bank financing (lack of collateral and/or below minimum loan size). This makes it necessary to provide intra-supply-chain credit options or micro-finance institutions, thereby facilitating access to credit. In this context, the contracts between smallholders and companies (or estates / mills) play a pivotal role in determining modalities of borrow-

30 For an explanation of the formula and discussion of its plantation-favouring bias, see Gillespie 2011, 34 ff.

31 Oil palm establishment costs comprise the costs of land clearance, the costs of the planting materials, the costs of planting the seedlings if not done by the individual smallholder himself, and the costs of recurrent inputs use (agrochemicals). These costs are considered to be "upfront" because in the first three to four years after planting, oil palms generate no fruit and thus no income.

32 The life cycle of oil palm is a major determinant for cultivation profitability. During the first three to four years (depending on seedling quality) after planting, the oil palms produce no fruit. The first harvest years increase in yield until the oil palms reach their full maturity and most productive phase aged 9 to 15 years. After 25 to 30 years, the trees become too tall for productive harvesting and are usually replaced (Sheil et al. 2009; MVO 2010; Rist / Feintrenie / Levang 2010, 1016).

ing and debt repayment.[33] Because there is no regulation standardising them, they vary considerably in their impacts on smallholder livelihoods (World Bank 2010a, 32).

Third, their lack of knowledge and capacities constrains smallholders in their agronomic practices, in exercising their rights, in gaining bargaining power and even in deciding upon their economic actions. Even if rural smallholders have access to education, the majority only attend primary school, and illiteracy rates in rural frontier areas of Indonesia can be very high. Additionally, it is very difficult for smallholders to access adequate and up-to-date information about technologies, policies, regulations and market developments, because either the needed information is not available at all (availability and accessibility problems) or they do not know where to acquire it (Vermeulen / Goad 2006, 5). This often leads smallholders to use poor agronomic practices, such as incorrect and inefficient fertiliser application or inexistent integrated pest and disease management.[34] This lowers their yields and their input-output efficiency and generates negative environmental impacts. Furthermore, since smallholders are frequently not instructed regarding the adequate handling of agrochemicals, they often use fertilisers and pesticides in an unsafe way, endangering their health. Another constraint results from smallholders not knowing relevant policies and laws – especially concerning the relation between national law and *adat,* i.e. the set of traditional cultural norms, values, customs and practices some of them are following (Gillespie 2011, 17ff., 24ff.). Due to this, they are not informed about their entitled rights and are prone to misunder-

33 The year of amortisation of the incurred costs depends on the debt modalities agreed upon with the plantation / company establishing the oil palm plot and the FFB price deduction rates at the mill covering for these costs. This can take between 10 to 15 years. The mills will pay the smallholders 100 per cent of the FFB price only if the whole debt has been repaid.

34 Integrated pest and disease management is a management system that, in the context of the associated environment and the population dynamics of the pest / pathogen species, utilises all suitable techniques and methods in a manner as compatible as possible towards the environment and maintains the pest / pathogen population at levels below those causing economic injury. The goals of this approach are to minimise the necessary pesticide input, to increase its efficacy and efficiency by selective application, to use biological control methods alongside chemical control methods, and to continually monitor the condition of plant and pest populations.

standing the contractual modalities in contracts between plantations and scheme smallholders for land transactions.[35] Lastly, knowledge and education affect the agency perspective of smallholders, for example, by prioritising immediate needs over long-term economic interests (Vermeulen / Goad 2006, 22). Other constraining factors are the organisational problems of smallholder groups, the unclear and often contested ownership status of land (see Section 2.2) and the need of smallholders to balance different activities in their overall livelihood strategies.[36]

3 Sustainability standards and certification

The standard-setting initiative RSPO is an example of a newly emerging form of transnational regulation that aims at filling the void created by the failure of governments and international institutions to effectively regulate certain sectors. In the context of so-called private or non-state market-driven governance initiatives (Auld et al. 2009), there has been a significant increase in regulatory initiatives in the past few years to develop social and ecological standards, which the literature refers to as the rise of civil regulation (Vogel 2008) or the "certification revolution" (Conroy 2007). Many of these private forms of regulation, like the RSPO, have been initiated by collaborative arrangements of businesses and NGOs[37] – many of them seek to change markets through the introduction of a sustainability agenda that transcends sovereign territories (Glasbergen 2011). These private regulations have complicated global governance due to considerable multiplicity and fragmentation (Biermann et al. 2009) by giving rise to several types of public and private governance arrangement for the same issue in parallel, thereby causing a severe "orchestration deficit"

35 An illustrative example of this is the absence or the public inaccessibility of written "land transaction contracts" that provide proof of promises made by plantation companies and agreed-upon modalities in the negotiation process prior to the establishment of a plantation. For further detail, see Gillespie (2011).

36 For example, households must balance activities that provide food security, like subsistence farming, with activities generating a monetary income like palm oil monoculture.

37 For a literature review and a discussion of the legitimacy of such forms of regulation on the context of the RSPO, see for example, Schouten and Glasbergen (2011).

(Abbot / Snidal 2009). Yet, although private regulations lack the sanctioning power of formal governmental policies, many nevertheless have become sources of best practices in global governance (Glasbergen 2011).

Sustainability standards and their certification can be promising instruments to remedy the negative environmental and social effects of palm oil production. This chapter outlines the potential of private and public standards (Section 3.1). It also introduces the most important standards in the sector, namely the newly developed ISPO as well as RSPO and ISCC (Section 3.2), and compares the latter two (Section 3.3). Last but not least, the chapter discusses a number of challenges posed by existing certification systems that need to be addressed in the future in order to increase the effectiveness of standards (Section 3.4).

3.1 The potential of private and public standards

Mounting concerns about sustainability and rising public pressure on companies and governments have led to the emergence of governmental and private standards as well as certification schemes in the palm oil sector.[38] NGOs and consumers are increasingly pressuring companies and governments to mitigate the negative effects of palm oil production. Activist campaigns, for instance, have led big producers like Unilever and Nestlé to cancel multi-million dollar contracts, and major institutional lenders have stopped financing the sector (Paoli et al. 2010, 439). In response to these developments, a number of standard initiatives, both public and private, have emerged at the national and transnational levels, wherein "private standards" comprise both standards that are developed by companies as well as multi-stakeholder standards (Tallontire 2007). For the private sector, third-party certification and increased corporate social responsibility (CSR) activities not only present a means to avoid bad publicity, but also a chance to serve the growing market for responsible products.

38 For a discussion of voluntary standards and certification systems as a promising means for addressing sustainability concerns, see Steering Committee of the State-of-Knowledge Assessment of Standards and Certification (2012).

Through certification, palm oil producers can verify the sustainability of the production process and are thus able to access environmentally and socially responsible market segments and to realise price premiums. Like other markets, the palm oil market is characterised by information asymmetries. While producers know the production processes, palm oil buyers and end-consumers have only incomplete information about these processes and their respective environmental and social impacts. Given that neither buyers nor consumers are able to verify the authenticity of a producer's sustainability claims in this scenario, they would not be willing to pay a higher price for sustainable palm oil. Accordingly, market failure would occur and a market for sustainable palm oil would not emerge. Through introducing product standards and corresponding certification and labelling schemes, information asymmetry can be overcome: growers are assessed and certified against defined standards and certified supply chains preserve the sustainability claim to the end product. Credible product labelling reduces information costs for the consumer, who can make an informed purchasing decision based on his preferences for environmental and social characteristics.[39] At the same time, producers can serve the growing market segment for sustainable palm oil and realise price premiums (Blasch / Schubert 2010, 3 f.).[40]

Box 3: Norms in the palm oil sector – three theoretical perspectives

Why norms are created and why actors (such as companies and smallholders) comply with them is a matter of ongoing scientific debate. Three basic approaches can be differentiated: the rationalist approach, the social constructivist approach and the radical constructivist approach.[41]

According to rationalist logic, actors choose to set and to comply with norms only when this fits their cost-benefit ratio (Hasenclever / Mayer / Rittberger 1997, 23ff.). Norms are created if it is cheaper to solve a common problem (such as the conflicts over land rights) collectively than to address it individually.

39 In practice, an inflation of product labels in recent years has led to confusion as well as increased scepticism regarding the credibility of certain labels among consumers.

40 In practice, an inflation of product labels in recent years has led to confusion as well as increased scepticism regarding the credibility of certain labels among consumers.

41 We use the terms "standards" and "norms" synonymously, though in political science, the term "norms" is more commonly used.

Moreover, the creation of a common norm increases transparency and reduces transaction costs for all participating actors. For example, if every actor in the palm oil sector developed its own sustainability standard, it would be extremely difficult to gain an overview of all existing regulations. Accordingly, the transaction costs of compiling information about the social and ecological practices of all relevant companies would rise. Like the creation of a norm, compliance with a norm depends on a positive cost-benefit ratio: a smallholder will only adhere to a norm in terms of a voluntary standard if this means a net benefit for his production, for example, through special revenues or access to new markets.

According to social constructivist logic, those reasons for norm creation and compliance remain valid – but are seen from a wider perspective (March / Olsen 1989). Regarding the creation of norms, it addresses the question of why actors perceive a situation as a problem that needs to be overcome by common norm-setting. For example, the perception that river pollution or climate change are serious problems that need to be addressed only began to win broader recognition during the 1980s. In this point, the social constructivist logic differs from the rationalist approach, which takes the positions and interests of actors as given – and not as socially constructed and therefore changeable. Regarding norm adherence, a positive cost-benefit ratio is not seen as the only reason to comply with a norm. Actors may also choose to comply because the adherence to specific norms is seen as a prerequisite for membership in an in-group with a positive image (such as RSPO) that distinguishes itself from an out-group with a negative image (Risse / Jetschke / Schmitz 2002, 17). For example, a company allowing child labour will neither perceive itself, nor be perceived, as member of the group of socially responsible companies. Thus, non-compliance with a certain norm can lead to social pressure and stigmatisation (for example by NGOs and consumers) or even social exclusion (for example by other RSPO members or group smallholders) (Hafner-Burton 2008, 691f.). Since such a loss of reputation can be seen as costs for an actor that influence its cost-benefit analysis (Nestlé did lose money because of the boycott initiated by Greenpeace!),[42] it can be considered in a social constructivist as well as in a widened rationalist approach. However, the social constructivist logic goes further, claiming that actors do comply with norms without even making a cost-benefit analysis: it assumes that actors internalise certain norms of which they are morally convinced in a process of social learning. Those norms become part of an actor's identity (Finnemore / Sikkink 1998, 904). As a result, an actor will adhere to such a norm by default, not even considering breaking it.

42 For further elaborations of this concept, see Akerlof (1980) and Bernheim (1994).

The radical constructivist logic builds on the insights of the social constructivist logic, but criticises it for neglecting the actor's individual perspectives (Wiener 2004). Regarding the question of whether a norm is created or not, the radical constructivist approach largely coincides with the social constructivist logic. However, it elaborates further how the process of norm-setting takes place: concerning the negotiations leading to the creation of a norm, the composition of actors and their individual perspectives and interests are crucial. For example, different members of RSPO probably have very different perspectives on the relative importance of social, ecological, and economic factors in an ideal palm oil production process. There might even be members at the negotiation table whose interests are not to develop norms overcoming certain problems, but to block such negotiations or to water down the commonly approved rules. By comparing the different norms existing in the palm oil sector, it becomes clear that an important decision has to be taken during a norm-setting process: Is it more desirable to create a norm that is rather strong (i.e. includes a verification body and sanctioning mechanisms), thereby making it difficult for most actors to adhere to it – such as ISCC in Indonesia? Or is it more desirable to set a rather weak norm (i.e. leaving much room for interpretation), thereby making compliance feasible for most actors – such as ISPO, which will soon be binding for all Indonesian palm oil producers? Concerning the compliance with a norm, scholars favouring radical constructivist approaches claim that actors will always interpret norms differently, because the understanding of a norm is shaped by individual backgrounds and experiences (Wiener 2009, 179): an Indonesian smallholder and a "Eurocrat" in Brussels will have very different understandings of ISCC's rules.[43] It is therefore important to create a forum within norm-setting bodies (such as RSPO annual meetings), in which diverging interpretations can be discussed. Because norms are subject to individual interpretations, the existence of a norm will not lead to the same behaviour in all affected actors: norms (almost) never determine a concrete decision, but rather limit or enlarge a spectrum of possible actions, among which an actor is free to make an individual choice. For that reason, the question of whether a norm has been broken often cannot be answered with "yes" or "no", but is a matter of different interpretations. It remains to be seen if and how such situations of contested non-compliance will be addressed under the different regulations in the palm oil sector.

43 Another typical interpretation problem in the Indonesian palm oil sector concerns the acquisition of land: traditional communities often assume the "sale" of their land to be a temporarily limited transaction (so-called *derasah*), i.e. that the land falls back to the property of the community after a life cycle of the plantation – while (Western) companies assume those "sales" to be final (Gillespie 2011, 6).

However, consumers' willingness to pay a price premium for sustainable palm oil (and other types of biomass) restricts the scope of private certification initiatives and makes a case for government standards. Private certification is voluntary and costly and thus depends on sufficient demand and willingness to pay for sustainable products. Therefore, it remains to be seen if voluntary schemes in the palm oil sector are able to gain a significant market share and to induce large-scale shifts in production in the near future. Insufficient willingness to pay for sustainable biofuels exists for two main reasons (Blasch / Schubert 2010, 3f.). On the one hand, while this product helps to protect public goods (e.g. the climate or the biodiversity), there is little direct private benefit from the labelled good's characteristics. This distinguishes certified biofuels – and certified palm oil – e.g. from organic food, which has become a successful market segment. Consumers also associate a private benefit with their purchase of organic food, as they consider it healthier compared to non-organic food. On the other hand, voluntary contribution to the provision of public goods depends both on preferences for environmental quality and wealth. Thus, private certification initiatives in the palm oil sector can have a positive impact but may also be limited in scope due to circumscribed demand. Accordingly, there are good reasons to complement voluntary initiatives with mandatory government certification schemes in the palm oil sector. These can either exist in the form of mandatory production standards in the producing country itself or in the form of import standards that restrict access to export markets for unsustainable producers.

3.2 Standard-setting and certification initiatives in the palm oil sector

Different standard-setting initiatives have evolved in the palm oil sector over the last years. While the Roundtable on Sustainable Palm Oil is the most prominent private standard-setting body so far, there are also various corporate and governmental initiatives. To be more precise, two major regulatory initiatives will shape the practices in the Indonesian palm oil sector in the coming years. In 2011, the Indonesian government introduced the mandatory Indonesian Sustainable Palm Oil certification scheme for all producers in Indonesia. In 2009, the EU passed the Renewable Energy Directive, which makes access to the EU biofuel market contingent on sustainable feedstock production, including palm oil for biodiesel.

Indonesian Sustainable Palm Oil

In Indonesia, the new mandatory certification scheme ISPO strengthens existing laws and regulations in the Indonesian palm oil sector. The Indonesian Sustainable Palm Oil certification scheme was introduced in 2011 with the plan to have all growers certified by 2014. ISPO defines sustainability in terms of compliance with Indonesian laws and regulations. Critics see ISPO as direct competition to RSPO and as a way to avoid the need for stricter RSPO certification. Others view ISPO as a means to increase production yields and the quality of Indonesian palm oil and strengthen existing rules. Moreover, ISPO can also be regarded as a promising stepping-stone to reach RSPO standards over time. Insofar as the Indonesian government aims at certifying all growers, the special needs of smallholders have to be taken into account. Whether smallholders can achieve ISPO certification more easily than RSPO certification remains an open question.

Little information on the certification scheme ISPO is currently available to the public. Furthermore, the certification process has not advanced on a broad scale since the standard's introduction. For these reasons, research has not scrutinised ISPO so far. Therefore, our study also intends to generate information on ISPO – its objectives, implementation and relevance for smallholders. Our interviews show that a broad interest exists within academia, as well as international and German cooperation institutions, NGOs and private stakeholders in gaining further insights regarding ISPO.

The ISPO standard was initiated by the Indonesian government in late 2009, when several consumer-product companies cancelled contracts for CPO due to deforestation concerns. Unlike RSPO, ISPO is an obligatory standard that was established with the objective to cover all palm oil growers in Indonesia by 2014 – an ambitious target. In March 2011, the government commenced a pilot phase with 20 private and state plantations (Suharto 2010). As a first step of the nationwide certification process, ISPO classifies plantations according to five categories defined by the Decree of the Minister of Agriculture No. 7/2009. Plantations in categories I (very good), II (good) and III (moderate) are admitted to the certification process, while those in categories IV (poor) or V (very poor) have to be re-evaluated. Plantations that practise the "slash and burn" method for land clearance are

disqualified from the certification process. A grace period of three years is granted to those plantations that need to make adjustments in their production methods in order to comply with ISPO. Those plantations that need support to meet requirements can receive assistance for a time period of six months up to two years (Suharto 2010).

The requirements of sustainable palm oil under ISPO consist of the following principles:

Figure 6: ISPO principles	
PRINCIPLE 1:	Compliance with the legal licensing regulation
PRINCIPLE 2:	Responsibility to implement palm oil plantation management
PRINCIPLE 3:	Implementation of best practices in oil palm plantations and mills
PRINCIPLE 4:	Responsibility to implement regulations on environmental and conservation of natural resources
PRINCIPLE 5:	Responsibility towards employees
PRINCIPLE 6:	Responsibility to the individuals affected by oil palm plantations and mills
PRINCIPLE 7:	Long-term commitment to improve the economy
Source: Suharto (2010)	

Plantations have to comply with all regulations set out by the Ministry of Agriculture, the Ministry of Environment and the National Land Agency (Badan Pertanahan Nasional – BPN). According to the Indonesian Palm Oil Association, Gapki, palm oil growers can propose by which third-party auditor – local or international – they want to be certified by (Yulisman 2011). Interestingly, palm oil growers certified by other standards such as RSPO will receive easier treatment. They can be certified if they are classified in categories I, II or III. If this is the case, the ISPO team examines the latest audit results, e.g. from RSPO certification (Suharto 2010). The certification decision made by the ISPO Appraisal Commission is absolute and irrevocable. This would imply that – unlike RSPO and ISCC –

ISPO would not undertake annual monitoring audits, thus potentially weakening the effectiveness and credibility of ISPO. Complaints can be addressed to the ISPO secretariat with evidence attached (Suharto 2010). It is emphasised that Indonesia needs ISPO to comply with the country's GHG emission-reduction goals and to accelerate sustainable production systems for palm oil, also for reasons of international competitiveness (Suharto 2010).

Gapki left RSPO in 2011 when the ISPO alternative became evident (RSPO 2011), but its representatives emphasise at the same time that they consider ISPO to be complementary to RSPO. Gapki had criticised the RSPO process for implying prohibitive cost barriers of certification for small and medium-sized companies, not to mention smallholders (The Jakarta Post 2010a). ISPO does not plan to charge a membership fee given that it is an obligatory standard. Furthermore, it seeks to keep certification costs low (Suharto 2010). In comparison to RSPO, ISPO has stronger support from growers in the domestic palm oil industry and – unlike RSPO – it involves the relevant governmental stakeholders, namely the Ministry of Agriculture, the Ministry of Environment, the Ministry of Forestry and the BPN.[44]

Roundtable on Sustainable Palm Oil

RSPO, a multi-stakeholder voluntary initiative founded in 2004, brings together major actors from the palm oil supply chain with NGOs in order to promote the growth and use of sustainable palm oil through credible global standards. RSPO membership spans seven sectors of the palm oil industry: growers; processors and traders; consumer good manufacturers; retailers; banks and investors; environmental NGOs; and social NGOs. With respective membership shares of 37 per cent and 32.8 per cent, the group of processors and traders and the group of consumer good manufacturers dominate RSPO. Yet, within the influential Executive Board, all member groups are equiproportionally represented. Through multi-stakeholder consultations, the Roundtable has developed a set of principles and criteria for sustainable palm oil production and has been implementing independent certification of growers according to these P&C since 2008. Up to now, 34 growers, 154 palm oil mills and a production area of roughly 1.3 million hectares have been certified under RSPO

44 For more details on ISPO, see also Gillespie / Harjanthi (2012).

in palm oil-producing countries[45] (RSPO 2012c). In May 2012 the production capacity reached 6.4 million tonnes of RSPO certified palm oil annually, with a clearupward trend.

RSPO standards cover a broad range of sustainability aspects and can have a decisive impact on the environmental and social effects of palm oil production. According to the RSPO definition, *"sustainable palm oil production is comprised of legal, economically viable, environmentally appropriate and socially beneficial management and operations"* (RSPO 2012c). Its certification criteria require the following aspects: compliance with laws and regulations; transparency; economic long-term planning; good agricultural practices; social responsibility for employees and the rights of communities; environmental responsibility; and the protection of high conservation value areas (RSPO 2007b). Beyond improving practices of certified member companies, these standards can serve as orientation for the whole sector and might inspire further rethinking of the status quo. Accordingly, the impact of RSPO might be stronger than the current certification figures suggest.

Box 4: Corporate initiatives: Nestlé and The Forest Trust (TFT) fund

In 2010, the RSPO member Nestlé launched a joint initiative with the TFT to implement its no-deforestation commitment and to achieve its goal of purchasing 100 per cent of its palm oil from sustainable sources by 2015. The initiative is embedded within Nestlé's broader corporate social responsibility programme "Creating shared value", which focusses on water, nutrition and rural development.

Together with TFT, Nestlé has developed Responsible Sourcing Guidelines (RSGs) for palm oil, particularly focussing on the protec¬tion of peatlands and high carbon stock forests. At the same time, the initiative works on making supply chains transparent and tra¬ce¬able. Suppliers are assessed against the Responsible Sourcing Guidelines and Nestlé offers technical assistance to committed suppliers who are currently not meeting the standards (Sachet / Tamandl 2011).

45 RSPO moreover engages in supply chain certification (RSPO 2009). The sustainability claim is thus preserved within the supply chain and end-products containing sustainable palm oil can be labelled accordingly.

Figure 7: RSPO sustainability principles	
PRINCIPLE 1:	Commitment to transparency
PRINCIPLE 2:	Compliance with applicable laws and regulations
PRINCIPLE 3:	Commitment to long-term economic and financial viability
PRINCIPLE 4:	Use of appropriate best practices by growers and millers
PRINCIPLE 5:	Environmental responsibility and conversation of natural resources and biodiversity
PRINCIPLE 6:	Responsible consideration of employees and of individuals and communities affected by growers and mills
PRINCIPLE 7:	Responsible development of new plantings
PRINCIPLE 8:	Commitment to continuous improvement in key areas of activity
Source: own compilation	

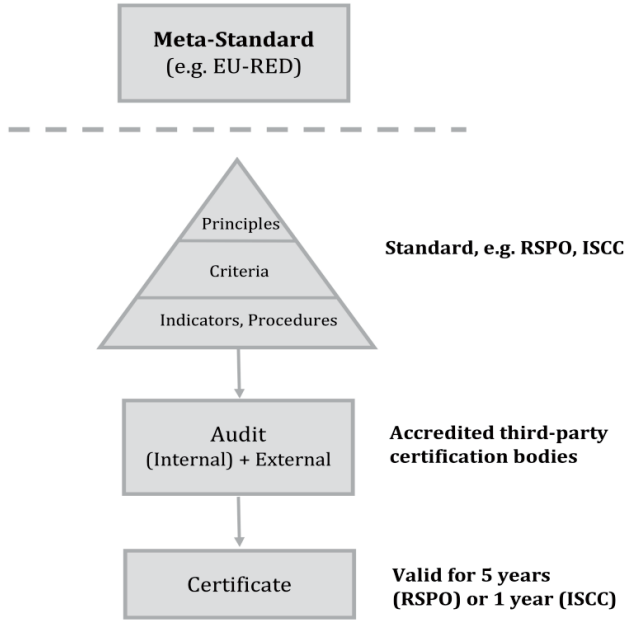
International Sustainability and Carbon Certification

The EU Renewable Energy Directive requires sustainable practices from producers of biofuel feedstock, including palm oil for biodiesel, in order to serve the expanding EU biofuel market. With Directive 2009/28/EC, the EU has embraced the ambitious target to increase the share of renewables within its energy consumption to 20 per cent by 2020. To ensure the environmental effectiveness of increased biofuel use, the Directive has defined mandatory sustainability criteria that biofuels need to fulfil in order to be counted towards the target. A special focus has thereby been put on greenhouse gas savings – relative to the use of fossil fuel – and on land-use requirements. With respect to land use, the Directive states that raw materials for biofuels shall not come from land with high biodiversity value, land with high carbon stock or from peatlands. While the Directive accounts for emissions caused by land-use change and excludes certain land use for feedstock as unsustainable, it does not consider indirect land-use changes due to higher demand for biofuels. Thus, producers could shift palm oil production for the EU market to sustainable areas, while other production is

reallocated to forested areas.[46] With rising demand for biofuels, the EU Directive still represents an essential standard for the palm oil sector.

EU-RED constitutes a meta-standard that defines sustainable biofuels through a set of criteria, but builds on existing standards for achieving compliance. Existing standards are benchmarked against the meta-standard and have to sufficiently guarantee that the EU sustainability criteria are complied with. To furthermore ensure compliance in practice, the existing standards must have auditing and verification procedures in place. If a standard fulfils all these requirements, the EU will recognise the standard as a qualifying standard. Compliance with EU-RED can then be achieved through certification against this standard.[47]

Figure 8: The certification system



Source: own compilation

46 The information on EU-RED in this paragraph is based on Lendle / Schaus (2010).

47 Information on the workings of EU-RED as meta-standard is taken from Lin (2010).

In late 2012, the European Commission has approved RSPO to qualify for certification under EU-RED, potentially further increasing demand for palm oil in the European marketplace – a decision that has been condemned by many environmental groups in light of the negative ecological impacts this is likely to generate. Apart from RSPO, among the already recognised certification systems under EU-RED, ISCC is relevant for the Indonesian palm oil sector and has already certified Indonesian growers.

ISCC is an international certification system for sustainable biomass and bioenergy that was recognised by the German Federal Agency for Agriculture and Food (BLE) in January 2010 and by the European Commission in July 2011. ISCC was developed within an open stakeholder process together with associations, corporations, research institutions and NGOs. Its established procedure aims to ensure the protection of natural habitats and to guarantee environmental and social sustainability in agricultural production. Furthermore, minimum savings of GHG emissions are covered. So far, more than 1,100 companies in 52 countries are registered with ISCC and either already hold a certificate or aspire for certification under ISCC (ISCC 2011b).

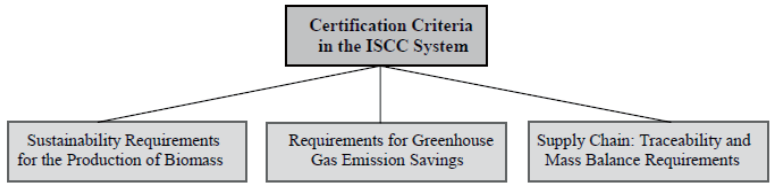
Figure 9: ISCC principles for the production of biomass

PRINCIPLE 1:	Biomass shall not be produced on land with high biodiversity value or high Carbon stock. HCV areas should be protected
PRINCIPLE 2:	Biomass shall be produced in an environmentally responsible way. This includes the protection of soil, water and air and the application of good agriculture practices
PRINCIPLE 3:	Safe working conditions through training and education, use of protective clothing and proper and timely assistance in the event od accidents
PRINCIPLE 4:	Biomass production shall not violate human rights, labour rights or land rights. It shall promote responsible conditions and worker's health, safety and welfare and shall be based on responsible community relations

PRINCIPLE 5:	Biomass production shall take place in compliance with all applicable regional and national laws and shall follow relevant international treaties
PRINCIPLE 6:	Good management practices shall be implemented

Source: own compilation

Figure 10: ISCC criteria system



Source: own compilation

3.3 Comparing sustainability standards

Comparing existing sustainability standards and certification schemes is crucial in order to be able to assess their growing relevance from a sustainable development point of view. Yet, such a comparison has not been conducted so far. One important question in that regard is how much emphasis is put on the ecological and social dimensions of sustainability and whether and to what extent there may be trade-offs between the objective of smallholder inclusion and the objective of ecologically and socially sustainable palm oil production, i.e. between socio-economic and "green" dimensions of development. A systematic comparison of the three relevant standards and certification systems mentioned above – ISPO, RSPO and ISCC – is not possible because some of the systems are only in the early stages of development. A comparison with a view to smallholder certification is even more difficult due to the lack of smallholder interpretations under both ISCC and ISPO, and the non-existence – or very limited number – of cases of certified smallholders under the three systems. However,

we have conducted a detailed desk review of the main differences between RSPO and ISCC (see Annex).

Figure 11: Comparing RSPO and ISCC

Standard	External transparency	Environmental criteria	Social criteria	Strictness
RSPO	P&C, indicators as well as guidance and audit reports are published	- No GHG-related targets - Loophole w.r.t. peatland	FPIC - Participation of (indigenous) communities	32 out of 39 criteria must include > 1 compulsory indicator, 45% of all indicators are compulsory
ISCC	Only criteria are published (Copyright reasons)	- GHG emission-reduction target - Strict criteria for new plantations	Focus less on participation	Fulfilment of all "major musts" (57 out of 107 criteria) and 60% of all "minor musts"

Source: own compilation

On the basis of this desk review, some of the key differences between RSPO and ISCC can be summarised as follows:

- *Ecological sustainability:* ISCC contains more and stricter requirements regarding important environmental issues, above all GHGs.
- *Social sustainability:* RSPO contains more and stricter requirements for social issues.
- *Transparency:* RSPO is more transparent than ISCC in terms of providing access to indicators and other types of relevant information.
- *Environmental and financial viability:* RSPO has established criteria that potentially improve the growers' management capacities.
- *Smallholder interpretations:* The general RSPO Principles & Criteria have been modified for scheme smallholders and a modification for independent smallholders is in the making, whereas ISCC has not yet provided modified rule sets for smallholders.

- *Strictness of smallholder interpretations:* The RSPO P&C and indicators for Indonesian scheme smallholders are substantially less strict than the National Interpretation (NI) of the RSPO P&C and indicators for Indonesia, which in turn are substantially less strict than the general RSPO P&C and indicators.

This comparison provides a basis for additional comparative assessments of the three above-mentioned standards and certification systems – especially with a view to the ISPO requirements, which have just been released, and with a view to upcoming smallholder interpretations of ISPO – and possibly ISCC – in comparison to RSPO.

3.4 Challenges in implementing current standard and certification initiatives

There will be legitimacy challenges in implement existing standards in the palm oil sector, even though they are important and promising instruments. In the following, the focus will be on major constraints in implementing RSPO, as it is the most established standard in the sector. Yet, most findings – such as weak market demand or limited effectiveness on the ground – are also relevant challenges for the emerging ISPO standard or certification under EU-RED and need to be seen in a broader perspective. This section focusses on the potentially limited strictness of the requirements of sustainability standards; implementation and control challenges on the ground; challenges that are linked to the institutional framework conditions for standards; weak demand for certified palm oil; and competitiveness concerns. The particular challenges for all standards in the Indonesian palm oil sector regarding smallholder inclusion will be discussed in Chapter 4.

As indicated above, in Indonesia, three different types of standards are relevant: first, ISPO is an obligatory and national *public* standard that is being developed by the Indonesian government. Second, RSPO is a *private* standard that was created and is being promoted by a multi-stakeholder initiative that includes the private sector as well as non-governmental organisations. Third, ISCC is a *private* standard in the context of the Renewable Energy Directive of the European Union, which in turn is a *public* meta-standard concerning biomass production for the European market.

Although public standards can be an effective instrument to promote a sustainability-oriented transformation of production processes, they are sometimes criticised as technical barriers to trade. For example, in the case of the EU-RED meta-standard, critics point to potential restrictions of access to markets with standard requirements (in this case the European market) with which non-complying producers are confronted. Sometimes critics even suspect the purposeful instrumentalisation of such standards by political agents in order to protect domestic markets.

Private standards are welcomed as effective tools of "governance beyond the state" but remain debated. Governments often have neither the right to interfere with the practices of private companies nor the capacity to control such practices. In such cases, private standards can serve as a substitute for lacking governmental regulation, or as a temporary stepping-stone upon which future governmental regulations can be built. The same is true at the international level: in view of lacking binding global agreements, especially in the field of environmental sustainability, global private standards can serve as a (temporary) tool to bridge this gap. Yet, especially the (temporary) replacement of governmental regulations with private standards is sometimes criticised, insofar as they might serve as an argument for the government to refrain from regulating a specific problem itself. Private standards therefore continue to be controversial among both scientists and practitioners.

3.4.1 Limited strictness

While RSPO is important as a platform and standard-setter, it can be regarded as being challenged by the limited strictness of its requirements in the context of its rules. A number of RSPO criteria are weak and imprecise. This is at least in part due to the fact that they result from a multi-stakeholder consultation and negotiation process (Nikoloyuk / Burns / Man 2010). Whereas RSPO has been relatively successful with respect to some of its standards (e.g. with respect to transparency, economic long-term planning and good agricultural practices), social and certain environmental criteria and those related to new plantations have proved to be more challenging (Nikoloyuk / Burns / Man 2010, 67). For example, so far, certified plan-

tations have been established ones with no need to develop new land. In contrast, for companies that have concessions to develop forested land, the benefits from potential RSPO certification could not outweigh short-term profits from exploiting these concessions (Nikoloyuk / Burns / Man 2010, 67).

The current RSPO criteria leave numerous loopholes, which leave room for continuing deforestation. RSPO P&C prohibit the development of any new plantation after November 2005 by replacing natural forest or areas required to maintain or enhance high conservation value (HCV). But all plantations established before this "cut-off date" can become certified, even if they have been grown on previous forest lands. And new plantations are allowed to remove forest as long as the land is not deemed an HCV forest, despite the fact that such forests have regeneration potential or that communities might claim customary rights over them. Moreover, while the HCV concept protects very rare species or habitats, exceptional concentrations of wildlife or large landscape-level areas of forest, much biodiversity persists below the HCV thresholds, yielding the spectre of unsustainable conversion of forest to certified plantation crops under a green label (Edwards / Laurance 2012).

It is also important to note that, under RSPO, it is currently not obligatory or necessary for a company to certify all its plantations or subsidiaries. From ecological and stringency perspectives, RSPO should make sure to change its statutes in such a way that companies certified under RSPO have to certify all of their own and their subsidiaries' plantations. It should not be allowed for a company to post a "best practice example" of a certified plantation on their website while cutting down rainforest for a new plantation in a different location. Furthermore, RSPO does not address the issue of indirect land-use change: demand for "sustainable" palm oil might lead to the expansion of other palm oil plantations onto forested land. RSPO has also failed to come up with appropriate standards for GHG emissions associated with plantation development and management. Discussions are underway but RSPO members have not been able to come to an agreement. Another controversial issue is the use of paraquat, a highly toxic herbicide. Current RSPO P&C require that producers work to reduce or eliminate paraquat, but use of the chemical has still not been banned.

3.4.2 Implementation and control challenges

More generally, RSPO can be regarded as being challenged by its limited effectiveness on the ground, which is largely due to implementation and control problems. For example, managers and staff on the plantation level are often deficiently motivated and capacitated to fully implement the criteria on the ground. Thus, sustainability criteria have to be further incentivised, and necessary human capacity has to be built and retained to improve effectiveness (Paoli et al. 2010, 444). Moreover, although several certified members apparently disobey RSPO standards, the Roundtable lacks both sufficient monitoring capacity and effective sanctioning mechanisms to better enforce its standards (Laurance et al. 2010, 378). There is no permanent monitoring body. Following submission of a written complaint, a grievance panel is established to conduct investigative research and provide recommendations for action by the RSPO. Given its limited impact on practices on the ground, the legitimacy of RSPO is often questioned by critics. In particular, NGOs continue with campaigns against leading certified companies and weaken therewith also the internal support within RSPO.

3.4.3 Institutional challenges

Institutional challenges can undermine the implementation of sustainability standards. The institutional framework for oil palm cultivation is a complex web of regulations and laws, implemented by various authorities with different scopes of power. This complex framework in Indonesia challenges sustainable practices for oil palm development due to several reasons. Firstly, the current regulatory environment undercuts the effective protection of conservation areas. Secondly, the existing regulations and procedures – under certain conditions – allow the conversion of critical areas such as peatland and forested land into palm oil plantations. Thirdly, decentralisation has led to overlapping competences and conflictive policies, creating a responsibility vacuum with respect to sustainability. Fourthly, weak institutional capacities pose difficulties in monitoring compliance with regulations, and insufficient law enforcement reduces the expected costs of non-compliance. The two-year moratorium on new concessions in primary natural forests and peatlands, which was released with a Presidential Instruction in May 2011, might provide time for the Indonesian government to address these policy challenges. However, its effectiveness is questioned due to several weaknesses.

Difficulties in protecting conservation areas

In the Indonesian context, effective implementation of RSPO standards, such as the protection of HCV areas, is constrained by an unsupportive regulatory environment. As the government carries decision power over issues and concessions concerning land rights, neither RSPO nor individual companies can guarantee the long-term state of preserved land (Nikoloyuk / Burns / Man 2010, 67). Indeed, local government officials have the right to terminate permits and to reallocate the land to third parties if a company is not adequately developing it. Companies cultivating oil palm in Indonesia have been confronted with threats by the government to impose fines or re-appropriate lands set aside for HCV areas, since the government does not officially recognise the HCV process and has, from its perspective, given a licence for this land to be developed (Levin et al. 2012, 17). While RSPO standards require member companies to carefully investigate and identify HCV areas, this process often considerably delays land acquisition, preparation and development. Companies thus risk losing their permits when complying with these standards. Other companies deliberately relinquish identified HCV areas to the government in order to avoid taxation, to reduce the areas they are obliged to develop as smallholdings and to make com-pliance with RSPO standards on HCV management easier. Also, lands identified by companies as being under community ownership are not secured by law and can be reallocated. In sum, both the precarious land-rights situation and disincentives on the side of government officials undermine the effective protection of conservation areas in Indonesia.[48]

Box 5: Obtaining permits

The process for obtaining plantation permits differs, depending on whether the prospective plantation land is non-forest estate, including mineral lands and peatlands, or production forest land, including convertible production forest and limited production forest. For all these types of land, the investor has to apply for a land-use permit, also called business-use permit, (Hak Guna Usaha – HGU) at the Head of the National Land Agency through the regional head of the associated land agency branch. Furthermore, they have to obtain a plantation business permit (Ijin

48 The information on HCV protection and the regulatory environment in Indonesia has been taken from a study carried out by Colchester et al. (2009).

Usaha Perkebunan – IUP). A prerequisite for obtaining the IUP is an approved Environmental Impact Assessment. In the case of forest land, the applicant needs to take two additional steps. First, the applicant has to obtain the approval for conversion by the Ministry of Forestry (the "Principal Agreement"). Second, the applicant has to obtain a land-clearing permit (Izin Pemanfaatan Kayu – IPK) or a forest-use permit (Izin Usaha Pemanfaatan Hasil Hutan Kayu – IUPHHK) at the provincial or district governments and – for timber production – at the Ministry of Forestry (Caroko et al. 2011; Colchester et al. 2011; UNDP 2011; Winrock International 2009).

Together with TFT, Nestlé has developed Responsible Sourcing Guidelines (RSGs) for palm oil, particularly focussing on the protection of peatlands and high carbon stock forests. At the same time, the initiative works on making supply chains transparent and traceable. Suppliers are assessed against the Responsible Sourcing Guidelines and Nestlé offers technical assistance to committed suppliers who are currently not meeting the standards (Sachet / Tamandl 2011).

Possibilities to convert forests into plantations

The policy framework allows investors to create plantations not only on mineral land but under certain conditions also on the environmentally critical areas of peatland and forested land. With respect to forested land, investors can only obtain permits for production forests, namely conversion forest and limited production forest. Protection and conservation forests are not designated for plantation development (UNDP 2011, 3). The legal procedure for plantation permits consists of several steps. Investors have to apply for different types of permits at local agencies and the central Ministry of Forestry, depending on the type of land (see Box 6). Contrary to peatland and mineral land permits, forest land permits require the investor to apply for prior approval at the central Ministry of Forestry. However, a considerable number of cases have been reported in which permits were granted without prior approval, making the permits illegal (UNDP 2011).

However, according to Indonesian legislation (Law 41/1999 and Government Regulation No. 10/2010), forests can be reclassified for non-forestry purposes, including plantations – a legal provision that contributes to deforestation in the name of palm oil. forests can be reclassified as production forestland if they no longer fulfil the required biophysi-

Box 6: Forest land classifications

Government-controlled forests are divided into three categories: Conservation Forests, Protection Forests and Production Forests (Reg. 34/2002) (Barr et al. 2006; Winrock International 2009).

1. **Conservation Forest** is designated for the protection of plant and animal diversity.
2. **Protection Forest** is to preserve environmental functions, e.g. by protecting watersheds avoiding soil erosion.
3. **Production Forest** can be logged at a rate in which re-growth sustains operations
   - 3.1. Limited Production Forest is for low-intensity timber production.
   - 3.2. Convertible Production Forest can be cleared under a land-clearing permit (IPK) and converted to another form of land-use (e.g. timber or oil palm). If converted to agricultural use, this land is reclassified in future spatial maps.

cal criteria. Similarly, production forestland can become convertible production forest in those provinces that maintain a forest cover of at least 30 per cent of the land area. This policy implies that investors and authorities will continue to convert forests into plantations as long as profits can be earned from both timber sales and subsequent oil palm development on the cleared land (Caroko et al. 2011).

Decentralisation and power struggles in forest administration

Furthermore, disputes over power between central and local authorities affect the plantation permit procedure and forest administration in general. Between 1998 and 2004, Indonesia passed several decentralisation laws, transferring more responsibilities regarding lands, forests, budgets and spatial planning from the central government to local governments (Caroko et al. 2011, 12). Along with this process, forestry laws were supposed to be modified in order to be in line with the regional autonomy law. However, this never happened. As a consequence, central and district gov-

ernments interpreted the laws in favour of their own mandate.[49] At the same time, the Ministry of Forestry has been recentralising the authority over forest administration (Barr et al. 2006, 2) and demonstrated its authority by issuing forest conversion licences for plantation development (Barr et al. 2006, 14). In practice, however, the Ministry does not always have the *de facto* authority, given that many local authorities keep granting licences (Human Rights Watch 2009). Especially the district government authorities are interested in promoting plantation business, given that their districts benefit from direct revenues from permits; from plantation investment in infrastructure such as roads, schools, hospitals; and from provision of employment (UNDP 2011).

Weak institutional capacities and law enforcement

Factors such as conflicting responsibilities, spatial planning and data issues, as well as ambiguous terminology, additionally weaken Indonesia's institutional capacities of monitoring and law enforcement. While the Ministry of Forestry is the implementing agency for the Law on Conservation of Biodiversity and Eco-systems (1990) and responsible for jurisdiction and management of 68 per cent of the land area of Indonesia (Winrock International 2009), the Ministry of Environment has a less prominent role. At the same time, the BPN, which is subordinated to the Ministry of Agriculture, has strategic responsibility for land-use planning. Currently, there is a lack of cooperation and coordination between these three ministries. Additionally, to coordination problems, the ministries face several data constraints. Lacking spatial data on land rights and permits hampers land-use planning. Moreover, data on land cover is inconsistent, given that it is collected by several ministries using different time spans, different sources and different calculation methods.[50] Further inconsistency and

49 For instance, district governments have interpreted Law 22/1999 and Regulation 25/2000 to imply that they have primary authority for administering forest resources that lie within their district boundaries. At the same time, the Ministry of Forestry in Jakarta argued that Law 41/1999 provides the central government the legal mandate over forest administration, as long as the Minister does not explicitly delegate to the districts or provinces (Barr et al. 2006, 45).

50 For instance, the Ministry of Forestry reports the total forest area in Indonesia as 99 million ha, while the Ministry of Environment states that the area comprises 77 million ha (Luttrell et al. 2011, 23).

ambiguity issues exist with respect to terminology: land classifications differ in basic environmental laws and in the use of different ministries, leaving unclear, for instance, how exactly "degraded land" – a crucial term in sustainability debates – is defined in Indonesia (see Section 2.3).

The ambiguity of forest laws and terminology opens space for their interpretation and is therefore one of the reasons why enforcement agencies fail to bring cases of forest crime to court (Luttrell et al. 2011, 37). Another reason is insufficient data exchange and coordination among the enforcement agencies. Moreover, judges are often not experienced in implementing new laws. When a case of forest crime is brought to court, defendants are released or receive only small sentences, given that illegal deforestation is considered an administrative rather than a criminal offence.[51]

Implementation of the moratorium

The two-year moratorium on new concessions in primary natural forests and peatlands is controversial due to several exemptions. It fulfils one of the required actions that the governments of Indonesia and Norway agreed on in the context of their "cooperation on reducing greenhouse gas emissions from deforestation and forest degradation" (Wells / Paoli 2011). The current moratorium is only one feature of this bilateral agreement. It was further agreed to create a special unit to improve Indonesia's law enforcement in the area of forest protection and to establish land tenure conflict-resolution mechanisms (Luttrell et al. 2011, 20), as well as a database on degraded lands, starting in at least one province (Government of Indonesia / Government of Norway 2010). A controversial aspect of the moratorium is its failure to include secondary forests and logged-over forests, due to the introduction of the term "primary natural forest" instead of "natural forest" (Murdiyarso et al. 2011). Furthermore, the moratorium allows exceptions for existing concession licences and concessions that already hold a principal approval from the Ministry of Forestry. Also exempted are those sectors that are crucial to national development such as

51 The majority of cases of illegal deforestation are dealt with on the basis of Law No. 41/1999. The enforcers focus on administrative factors, such as whether permits exist, although permits might have been issued due to corruption (Luttrell et al. 2011, 37).

geothermal; oil and gas; electricity; rice paddy; and sugar (Slette / Wiyono 2011). While environmentalists criticise that the moratorium does not cover much additional forest area compared to the conservation and protection areas already existing in Indonesia, Butler (2011) and Murdiyarso et al. (2011) view it as a "stepping stone" towards improved forest governance.

3.4.4 Weak demand for certified palm oil

Weak demand for certified palm oil can be seen as eroding the internal legitimacy of RSPO while reducing its attractiveness to new members and undermining the emergence of an attractive price premium for certified palm oil. Demand for RSPO-certified palm oil has increased over time, yet market absorptive capacity is still lagging behind production, and low price premiums send counterproductive signals to growers (Paoli et al. 2010, 442f.). The amount of certified Indonesian palm oil is constantly growing but currently only 9 per cent is RSPO-certified. The problem might be partly caused by RSPO's failure to effectively market its product in environmentally sensitive markets (Nikoloyuk / Burns / Man 2010, 67). Yet, the bigger challenge is the limited demand from the world's largest consumers of palm oil – India and China – although there are signs that demand for sustainable palm oil is emerging in these countries (World Bank 2010a, 10).[52] Low premiums – combined with continued activist campaigns against certified companies that point to the limitations of RSPO – make the payoff of RSPO certification questionable for member companies (Nikoloyuk / Burns / Man 2010, 69). The currently limited benefits from certification might also constitute a disincentive for non-member companies to join the Roundtable.

3.4.5 Competitiveness concerns

Competitiveness concerns may also pose challenges to sustainability standards and their certification. The increasing importance of different standards potentially affects – depending on the specific standard – the international competitiveness of the Indonesian palm oil sector. Although the

52 RSPO President Jan-Kees Vis recently suggested that China and India should cut back their import tariff on certified sustainable palm oil to foster demand for it and thereby boost more sustainable palm oil production (Kiat 2012).

Indonesian palm oil sector is expanding dynamically, there is a shift of the oil palm expansion frontier towards countries in sub-Saharan Africa (Pauron / Ballong 2012, Levitt 2011). To which degree this development is caused, or intensified, by standard implementation in Indonesia is hard to determine.

The impact of private voluntary standards, like RSPO, largely depends on which markets large Indonesian palm oil producers are mainly exporting to. Oil palm growers that are integrated in supply chains of large multinational corporations from the United States and the EU are pressured to adopt standards. Yet, such pressure is exerted indiscriminately towards all growers, from whom such large companies source their supply, thus applying to all oil palm-growing countries. The ability to comply with such standards is definitely a factor that is increasing the competitiveness concerning such markets.

The same is true for public meta-standards that make compliance to technical criteria a condition for import, like EU-RED or the impending decision of the US EPA (Environmental Protection Agency) concerning the eligibility of Indonesian palm oil for biofuel subsidies. Yet, in these cases, the market is structured differently, in that the leverage of the buyers is not as strong as in the case of multinational food-processing companies. The new development of national biofuel and energy security policies all around the world highlights the existence of many competing markets – of which many do not prescribe any standard compliance. Especially the geographical vicinity to major markets like India and China keeps the Indonesian palm oil sector very competitive in this regard.

Lastly, the obligatory standard ISPO will have an impact on the international competitiveness of the Indonesian sector. It could contribute to producers and growers seeking other countries (with no national standards and less regulation) to further expand their oil palm cultivation if their main export markets are those without standard requirements. On the other hand, by forcing producers to improve their practices, the successful implementation of ISPO can make many Indonesian palm oil producers more competitive when it comes to exporting to markets with standard requirements. It is hard to derive clear conclusions regarding this complex issue, especially because there are so many other factors that influence growers' and producers' decisions on where to expand: the cost-benefit calculation of shift-

ing expansion to other countries, depending *inter alia* on "availability" and cost of land (especially large contiguous areas); national land-rights system and law; infrastructure; proximity to destination markets; labour force; wage policy; the existence / strictness of regulations concerning oil palm cultivation; as well as the easiness / difficulty to negotiate favourable terms for long-term contracts with governments (for land or taxation).

With respect to the newly introduced mandatory ISPO standard, it remains to be seen if civil society and the market will accept ISPO as being sufficiently strict. As a mandatory standard for all growers in Indonesia, ISPO is indeed challenged to make the standard achievable and realistic while at the same time keeping the standard credible. Furthermore, sufficient support – especially to smallholders – as well as monitoring capacities and effective sanctioning mechanisms will be needed to successfully implement ISPO on the ground.

A potential race-to-the-bottom among qualifying standards and certification schemes challenges EU-RED as a meta-standard. Critics argue that the EU Directive has failed to establish sufficient minimum requirements with respect to qualifying standards and certification systems. Fierce competition among recognised certification systems might thus lead to a harmful race-to-the-bottom, undermining both the effectiveness and credibility of the EU regulatory initiative. ISCC, for example, is sometimes criticised for lacking transparency and implementation of its standards is thus seen sceptically.

In sum, while sustainability standards and their certification can represent a tool to remedy the negative environmental and social effects of palm oil production, the above-mentioned challenges remain important. The increasing number of certified growers and mills underline a positive development in favour of a more sustainable Indonesian palm oil sector. Moreover, the relevance of certified palm oil is growing steadily, as demonstrated by an increasing number of certifications under RSPO. This upward trend is accompanied by the intention of the Indonesian government to certify the first plantations under ISPO in 2012. At the same time, current challenges of sustainability initiatives such as RSPO – including weak demand for certified palm oil, limited effectiveness on the ground and a complex Indonesian regulatory environment – highlight the prob-

lems of standard-setting efforts in the palm oil sector. The inclusion of smallholders into existing certification schemes is a further aspect that needs to be tackled.

4 Sustainability standards and smallholder inclusion

While standards and certification schemes are a promising instrument to address ecological and social problems of palm oil production, the inclusion of smallholders in that context is crucial and can offer essential benefits. Private and public standards are increasingly being implemented in global supply chains and production networks. ISPO, RSPO and ISCC are examples of this development. But for these standards to be able to offer their positive effects to the fullest, it is necessary to include all relevant actors of the Indonesian palm oil sector in the standard implementation process. Above all, this includes the very important and growing group of smallholders. Accounting for 38 per cent of cultivation area and 35 per cent of production output, the more than one million smallholders are an essential element of the Indonesian palm oil sector. They are of central relevance for processes of sector change and vice versa. A social and sustainability-oriented transformation of the palm oil sector can only be realised on the basis of their cooperation and inclusion in sustainability standards and certification schemes.

As will be elaborated in this chapter, standards have to include the important group of smallholders for ecological, economic and social reasons (Section 4.1): first, in order to make palm oil production more ecologically sustainable; second, in order to help smallholders to improve their yields and the quality of their production and avoid potential exclusion from standard-sensitive markets; and, last but not least, in order to help them to generate social benefits. Thus, successful smallholder inclusion in standard certification could thus lead to a "triple win" for standards organisations, smallholders and the environment.

While there are ongoing efforts to include smallholders in certification schemes (Section 4.2), there are a number of challenges to acquiring smallholder certification (Section 4.3). According to the literature, the main issues are the lack of capacities for standard compliance, the lack of organisation, the lack of incentives for smallholders to join certification

schemes and the costs of certification. These challenges are some of the central issues addressed in the empirical findings of this study (see Chapter 7 and Chapter 8) and need to be addressed in order to improve the sustainability of the Indonesian palm oil sector.

4.1 Why is smallholder certification important?

4.1.1 Ecological reasons for smallholder inclusion

Including smallholders in certification systems for environmental standards offers an instrument to achieve more sustainability in oil palm development. The large-scale environmental impacts from oil palm cultivation stated above – GHG emissions through land-use conversion, loss of biodiversity and deforestation – occur through the expansion of large plantations and through smallholder palm oil expansion and production alike. Yet, enforcing extensive compliance of smallholders with environmental laws and regulations is more difficult than doing so for large plantations, which are more prone to fall under the scrutiny of NGOs and state agencies. Thus, certification can be regarded as a potentially promising complementary instrument to the enforcement of environmental laws and regulations in establishing more sustainable oil palm cultivation.

Certification leads smallholders to improve their often poor agronomic practices, thereby reducing small-scale negative environmental impacts. Smallholders often use poor agronomic practices[53] because they lack the relevant knowledge, for example about the correct application of agrochemicals. Even if they do know alternative practices, they might not be able to use them because they lack the necessary financial capital (Sheil et al. 2009, 42). Furthermore, even if smallholders have the relevant knowledge and the necessary capital, they might not have enough

53 This applies not only to agricultural practices in the cultivation of oil palm itself – like missing integrated pest management, false application of agrochemicals or lacking soil management via intercropping. It also applies to the modalities of land conversion (use of fire to clear forest) and illegal hunting of protected animal species, of which there have been increasing reports over the past several years.

incentives to change their practices, because they perceive no evident (or not enough) livelihood advantages and income increases. Knowledge and capacity-building as well as rising environmental awareness in the process of preparing for the certification of sustainability standards can generate "spill-over" effects and help in other fields of environmental action in rural regions. Smallholders using better agronomic practices offer the potential to realise yield increases on already existing cultivation areas. In this way, overall palm oil production can be increased in a sustainable way without converting primary forests. The extent to which sustainability standards like RSPO are indeed able to contribute towards combating the ecological challenges in the certification projects under study will be discussed in Section 6.2 and in Chapter 9.

4.1.2 Economic reasons for smallholder inclusion

The current literature suggests that smallholder certification generates a number of important economic benefits for smallholders. More specifically, according to the literature, certification can lead to increases in yields, better quality of fruit, price premiums and better smallholder organisation (World Bank 2010a; Rist / Feintrenie / Levang 2010). The improvement of capacities in the process of gaining certification leads to spill-over effects for other activities. The training smallholders receive for better agronomic management, organisational and economic planning is expected to strongly improve the efficiency of their agricultural and economic activities. Moreover, the potential premium for certified sustainable palm oil paid on international markets or the direct sale of certificates like GreenPalm can potentially generate additional income for smallholders and contribute to improving their livelihoods. From a national perspective, the certification of smallholders offers economic development opportunities, especially for rural regions. As already noted in Section 2.2, smallholder development and its social multiplier effects are a main driver for rural development, thus making it essential that smallholders realise the above-stated market access and benefits via certification. Additionally, the certification process can incorporate stronger supply chain cooperation, thus lowering production costs, raising pro-

ductivity to a better quality level and stabilising supply through risk diversification.[54]

According to the literature, certification also offers smallholders access to – and avoids exclusion from – markets that require compliance with sustainability standards. The literature suggests that access to international markets and the threat of market exclusion in case of non-compliance with certification standards are highly relevant for smallholders (World Bank 2010a). Depending on the business model and the target market of mills (especially considering the often monopsonistic buyer-base for FFBs in Indonesia), mills might choose to only process certified commodities in order to work in accordance with the standard "segregation" approach, a supply chain system, in which certified palm oil is kept apart from conventional palm oil throughout the supply chain.[55] In local markets orientating themselves towards standard-sensitive export markets, this could leave uncertified smallholders with a lack of buyers or diminish their bargaining powers,[56] thus reducing the received FFB prices. In other words, certification systems could lead to the exclusion of smallholders from international trade. This is a substantive fear among policy makers and development practitioners. The extent to which sustainability standards like RSPO do indeed generate economic benefits and prevent market exclusion in the certification projects under study will be discussed in Section 6.1.

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54 In this case between smallholders and mills, for example by mills selling fertiliser to smallholders for the same price they bought it on the market (which would in general be lower than for smallholders due to large quantities and market integration) and extend ing support services to them, in this way ensuring steady high rates of supply of high-quality.

55 For example, palm oil or palm oil derivatives certified by RSPO can be purchased through three supply chain systems: "Segregated" (certified palm oil is kept apart throughout the supply chain), "Mass Balance" (certified palm oil is mixed in with conventional palm oil but monitored administratively) and "Book and Claim" (certified palm oil is not kept apart; suppliers sell certificates to users; claimed volumes are matched).

56 Meaning that buyers / mills might try to argue for lower FFB prices for uncertified FFBs, because they could supposedly only be used in "low-grade" uses and markets where certification is not necessary.

4.1.3 Social reasons for smallholder inclusion

There are a number of potential social benefits for smallholders stemming from certification. Social benefits can include improved working conditions and a corresponding reduction of negative health and safety impacts; increased participation in decision-making processes; and availability of – and access to – social infrastructure and respective services (e.g. school, hospital). Improved working conditions (e.g. wage; principle 6), a health and safety plan (criterion 4.7) and effective participation in the decision-making processes (e.g. principle 1, criterion 2.3) are part of the RSPO P&C (Principles and Criteria)for an independent smallholder framework. In contrast, the provision of social infrastructure is not part of the RSPO P&C, yet it is often expected to be an indirect benefit of RSPO. Moreover, because standards like RSPO include social criteria extending to land acquisition, contract negotiations and benefit-sharing, they deal with some of the main causes of conflicts between communities and palm oil companies. In this way, smallholder inclusion can provide retroactive conflict management and preventive conflict avoidance. When conflicts are already existent, standards define rules and offer mechanisms for their resolution. In the case of not yet established oil palm development, compliance with standard criteria like the need for free, prior and informed consent in the negotiation process between companies and communities lowers the risk of later conflict. The extent to which our findings indicate that sustainability standards like RSPO are likely to bring about social benefits for smallholders will be discussed in Section 6.3.

4.2 Efforts to certify smallholders

The first (scheme) smallholders have recently been certified under both RSPO and ISCC regulations. In 2010, the first scheme smallholders were certified under RSPO (see Box 7). While no independent smallholders have been certified in Indonesia so far, in 2012, the first independent smallholders were certified in Thailand. Under ISCC, which does not differentiate between supported and independent smallholders, smallholders with small plots have successfully been certified in India, and a number of certification processes in Indonesia have recently been finished

or are in progress.[57] The novel ISPO standards still need to be applied to smallholders and potentially adapted to their special needs – especially because it is planned to certify all Indonesian smallholders (supported as well as independent) by 2014.

The number of certified smallholders will continue to rise. According to RSPO rules, certified palm oil growers with an NES scheme have to certify their scheme smallholders within three years after the certification of the nucleus (RSPO 2007a, 13). The number of certified scheme smallholders will thus increase in the coming years, at least among RSPO members. Overall, by 2015, 20 per cent of Indonesian palm oil production is expected to be certified under RSPO (Jakarta Post 2012).

4.2.1 Adapting standards for smallholders

RSPO established a Task Force on Smallholders (TFS) in 2005, whose assignment was to adapt the existing RSPO standards to different groups of smallholders. The work of the TFS was funded by the voluntary support of various donors, ranging from RSPO members and NGOs to the Dutch government (RSPO TFS 2011, 3). In a perennial process of open deliberations with stakeholders and experts, three key documents were drafted and adopted after revisions by the TFS Steering Group and the RSPO Executive Board.[58] Taken together, they constitute a system of rules for the process of smallholder certification, which differentiates between the needs of scheme smallholders and independent smallholders (RSPO TFS 2011, 9).[59] Since the situation of smallholders differs significantly

57 The information about the ISCC's system of smallholder certification was gained during an interview with Mr Henke of Meo Consult / ISCC System GmbH in Düsseldorf, Germany, on 20 January 2012.

58 Since there are no membership rules (everybody participating in the TFS meetings is considered a member of the group), a Steering Group was established in 2009. It is led by representatives of three NGOs (Sawit Watch, Forest Peoples Programme, and Oxfam International) and a bank (HSBC) and further includes representatives of four important palm oil producing countries, among them Indonesia (RSPO TFS 2011, 6).

59 The "Generic Guidance" for smallholders comprises an adapted version of RSPO regulations for scheme smallholders and independent smallholders, respectively. The second document is a standard for group managers, who shall establish a control system for a number of smallholders, and the third document lists requirements for certification bodies, which assess the compliance of a group with RSPO regulations.

between various countries, "National Interpretations" of these key documents are being developed (RSPO TFS 2011, 9).[60]

Box 7: PT Hindoli in South Sumatra – the first smallholder scheme certified under RSPO

Smallholders on PT Hindoli, a plantation owned by the international food company Cargill and located in the Musi Banyuasin district in South Sumatra were certified in 2010. They were the first smallholders to receive palm oil certification under the principles of RSPO (Cargill 2010). They were also the first smallholders to receive palm oil certification under ISCC in 2012.

The Hindoli smallholders were originally part of a nucleus-plasma scheme and can today be classified as scheme smallholders (see Section 2.4.1). The land was cleared for the original transmigration project. The majority of palms were planted in the 1990s, such that palms are mature today (Ross 2010). BSI Group Singapore Pte. Ltd., a third-party certifier, undertook the assessment and RSPO certification according to the National Interpretation for scheme smallholders in Indonesia. The 8,797 smallholders are organised in 14 cooperatives (KUD – *kooperasi unit desa*) of very different sizes and cultivate 17,594 hectares of oil palm plantation (Ross 2010). Certification is organised under a group certification scheme where the cooperative manager (group manager) is responsible for ensuring that all smallholder members comply with RSPO criteria. They also have to coordinate harvesting, management of contractors for the collection and transport of FFB, as well as contracts for the maintenance of the roads. The FFB are processed at two mills in the same district; the palm oil is then the product to be certified. Hindoli has six full-time Farmer Development Assistants who provide extension services to the smallholders. Standard Operational Procedures for growing, preparing, planting and upkeep (including storage and disposal of pesticides), harvesting as well as equipment and safety measures are used as training material (Ross 2010). Smallholders received their first premiums (US$ 100,000 in combined premiums) for certified palm oil in 2011 (Cargill 2011). However, more awareness on good agricultural practices and on national laws is still needed among Hindoli smallholders according to the certification audit (Ross 2010).

60 Indonesia has prepared its National Interpretations of the key documents and its proposals are being reviewed by the RSPO secretariat (RSPO TFS 2011, 11).

The results of this adaptation processes (from general regulations to regulations for smallholders, and from global regulations to national regulations) can be seen from different perspectives: on the one hand, those adaptations render smallholder certification more feasible – thereby helping to broaden the range of producers complying with the new criteria. On the other hand, the adapted standards are considerably weaker than the original rules – thereby posing the question about whether the desired impact of social and ecological sustainability can in fact be reached.

4.2.2 The process of smallholder certification

The TFS decided to create a system of group certification that allows independent smallholders especially to share the costs of the certification process and to be certified under a single certificate. Such group certifications are commonly used in the certification of natural resources, as it is impossible for planters to bear the efforts and costs of being certified individually (RSPO TFS 2010c, 7). The groups vary significantly in size, sometimes including several thousand smallholders. Groups of independent smallholders are led by a group manager, who can be a natural person (e.g. the owner of a mill or of an NES scheme) or an institution (for example, a governmental agency). Scheme smallholders are led by scheme managers, who can name additional group managers as supporting staff. The performance of the group manager and the compliance of the whole group with RSPO standards are assessed by certification bodies, which are authorised to assign and to withdraw certificates (RSPO TFS 2010c, 10). Once a group has been certified, the certification remains valid for a maximum of five years (RSPO TFS 2010b, 15).

It is the group manager's responsibility to ensure that all smallholders have the capacity to fulfil RSPO standards. Thus, RSPO places the major burden of the smallholder certification process on the group manager, respectively the scheme manager. It might be problematic to find suitable persons willing to take on this challenge (Jiwan 2011, 5). To begin with, the group manager has to set up an internal control system (ICS) and documentation system for the group. Then, he has to organise workshops, in which the group members learn about the content of the standards, as well as about ways to implement them. The workshops, which can be held by an external contractor, have to be adapted to the level of knowledge and edu-

cation of the respective group of smallholders, some of which might even be illiterate. And finally, the group manager has to assess the group members' performance.

Apart from the group manager, the palm oil mill is a crucial driving factor for the certification of (independent) smallholders, depending on the mill structure.[61] Under RSPO, the main product to be certified is the palm oil produced at the mill – not the single fresh fruit bunch harvested by a smallholder (although there are ongoing discussions about FFB certifications) (Vermeulen / Goad 2006, 37). Therefore, for his oil to be certified, the owner of the mill has to make sure that all supplying smallholders comply with RSPO standards. Currently, mills can already get certified when they present a reasonable implementation plan envisioning full compliance of all affected smallholders within a period of three years (Verburg 2009, 2).

In order to gain and keep a certificate, a group of smallholders has to comply with a comprehensive set of principles and indicators that were adapted from RSPO standards. The TFS has debated whether RSPO indicators for mills and large estates should be adapted for smallholders or whether unique new indicators for smallholders should be developed. Although the TFS now operates with merely adapted indicators, it is envisioned to reconsider the development of new indicators after the current indicators have been tested on the ground for a couple of years (RSPO TFS 2011, 4). The current indicators cover a wide array of aspects ranging from the disposal of hazardous chemicals to transparent pricing systems within the group, and from the prohibition of fire-clearance to the avoidance of child labour. A multitude of workshops – organised by the group manager – will be required to teach smallholders the corresponding knowledge.

Although ISCC did not develop an adapted version of its standards and indicators for smallholders, the procedure of smallholder certification is similar to the RSPO system. Since there are no adapted standards and indicators, smallholders have to fulfil the same obligations as large plantations. This can be seen as a high burden for smallholder inclusion – but also

61 Because of this shared interest, it is expected that mill owners will often become managers of a smallholder group, though the two tasks can also be fulfilled by different persons.

as signal that the original standards will not be weakened. Similar to RSPO, ISCC proposes a system of group certifications, but does not differentiate between groups of supported and groups of independent smallholders. As under RSPO, the head of the group is responsible for ensuring compliance with the standards of all group members. Under ISCC, the head of the group also bears the costs of the certification process.[62] In contrast to the RSPO system, however, the smallholders have to complete a self-assessment regarding their compliance with ISCC standards first. Those self-assessment forms are then double-checked by the head of the group. There is a strong incentive for the head of the group to fulfil his task of controlling the compliance of group members in a meticulous manner: if an auditor finds evidence of non-compliance while analysing a sample, a new audit with an even larger sample has to be held and paid for. As under the RSPO system, palm oil mills can have a significant influence on the willingness of smallholders to become certified under ISCC, as certain mills will no longer process FFBs from uncertified plots.

Practical tests still need to be given for the smallholder certification system. Though the TFS tried the implementation of some indicators on the ground during the drafting period of its key documents, only the practical experience within the next years can show whether the system envisaged by the TFS, and especially the adapted indicators, will work in practice (RSPO TFS 2011, 10). The insights gained through the process of testing on the ground may also serve as a starting point for the further development of a smallholder certification system under the ISPO standard.

4.3 Smallholder inclusion challenges

The current literature suggests that there are a number of challenges that constrain the broad inclusion of smallholders in certification schemes. The primary problems that are mentioned in the literature are the lack of capacities for standard compliance, the lack of organisation, the lack of incentives for smallholders to join certification schemes and the costs of

62 These costs consist of a registration fee of up to EUR 5,000, the costs for an initial audit and for periodical audits, as well as the costs for the certificate itself, which may vary according to the amount of CPO produced.

certification. Those issues are not only relevant for existing efforts undertaken by RSPO and ISCC to certify smallholders but will potentially also be important for the adaptation of the novel ISPO standard for smallholders. The way in which these challenges are of relevance on the ground for the smallholder certification projects that are the focus of this study will be discussed in Chapter 7.

4.3.1 Lack of capacity and knowledge for standard compliance

The literature underlines that smallholders often lack the capacity and the knowledge to cope with the complexities of certification schemes (Lee et al. 2011). Compliance with administrative and reporting standards for third-party verification necessitates a high level of organisational capacity and knowledge. It requires elaborate documentation and record-keeping systems as well as strict adherence to standard accounting practices. In a similar manner, adopting – as part of a verification scheme – environmental sustainable farming practices requires a high level of agricultural knowledge and farm management skills (Lee et al. 2011). In that context, the hypothesis for our field research was that the smallholders in the certification projects under study do not possess the needed capacities to comply with the different social and environmental sustainability criteria of RSPO. However, differences between smallholders were expected to exist, insofar as scheme smallholders are likely to often cope better with the complexities of certification schemes as they receive knowledge transfer and technical and organisational assistance from an affiliated company.

4.3.2 Lack of organisation

The literature stresses that organising smallholders into groups is a prerequisite for the inclusion of smallholders in certification schemes – but that such groups hardly exist. Certification of single smallholder farmers proves to be impossible from an organisational and scale outlook. Thus, pooling together smallholder farmers is important for their inclusion in certification schemes. Furthermore, smallholder organisations (e.g. cooperatives) play a pivotal role in ensuring and monitoring the compliance of individual smallholders with respect to the standards of the certification. They provide assistance for the standards' implementation and compliance.

Nevertheless, establishing efficient, transparent and democratic smallholder organisations requires considerable investment, time, training and capacities. For example, it can take between five to ten years to form an effective smallholder organisation (Lee et al. 2011; Vermeulen / Goad 2006; Verburg 2009). As a result, effective organisation of smallholders is extremely difficult (Jelsma / Giller / Fairhurst 2009). The hypothesis for our field research was that there is a lack of smallholder organisation in the context of certification projects under study.

4.3.3 Lack of incentives

The literature also suggests that incentives for smallholder certification are limited. The hypothesis for our field research was therefore that there is a lack of incentives for smallholders to become certified. Smallholders – especially independent smallholders – are confronted with a set of market failures, including lack of access to markets, inputs and finance (see also Section 2.4.3). Addressing these market failures is crucial for establishing a credible incentive for smallholders to join certification schemes (Lee et al. 2011). In order to help smallholders address these problems, the Roundtable decided to establish a "Task Force on Smallholders 2" (TFS 2). While it was the task of the original TFS to prevent the exclusion of smallholders from RSPO standards, the assignment of the TFS 2 is to create incentives to join RSPO – for example through supported productivity increases or through the promotion of fair business models (RSPO TFS 2011, 13). In the future, the interests of smallholders shall be built into the RSPO organisation more structurally; the posts of two smallholder coordinators have been approved already (RSPO TFS 2011, 13). If and how ISPO will address those broader challenges remains to be seen.

4.3.4 Certification costs

According to the literature, one of the primary constraints to smallholder inclusion is the cost of certification (Lee et al. 2011; Vermeulen / Goad 2006; Verburg 2009). Although the costs of certification can be shared within a group, *"RSPO has recognised that the costs of both initial audits and periodic assessments are likely to be beyond the means of many smallholder groups"* (RSPO TFS 2011, 10). Therefore, a "Smallholder

Finance Working Group" was established – but only in 2010. The working group explores options of creating a smallholder fund that could be financed by RSPO members or by a levy of tradable certificates (RSPO TFS 2011, 11). In contrast, ISPO as a governmental standard will probably develop a (partly) state-funded system of smallholder certification, though the financing model still has to be discussed. Costs of certification schemes can be broadly divided into three categories: compliance costs, transaction costs and opportunity costs (Lee et al. 2011). Compliance costs refer to all costs associated with implementing standards. They include, among others, the training of smallholders, the implementation of record-keeping systems and the use of integrated farm management techniques.[63] Furthermore, the transaction costs refer to all costs associated with the certification process. They include fees for third-party inspection, administrative charges, time costs for smallholders carrying out administrative tasks (e.g. accounting, record keeping etc.) as well as search and information costs (Lee et al. 2011). Smallholders – in contrast to large-scale producers – tend not to have the financial means to meet all the different costs associated with certification schemes[64] (Lee et al. 2011; Vermeulen / Goad 2006; Verburg 2009). On that basis, the hypothesis for our study was that the costs of certification exceed the financial capital of smallholders. To the extent that this is in fact the case, the cost factor can severely hinder the inclusion of smallholders.

Since 2005, significant efforts have been made to overcome the problems of smallholder inclusion discussed in this section – but the actual benefits and challenges of smallholder certification on the ground remain unclear. For example, RSPO, which has addressed challenges such as the lack of organisation and the lack of capacity over the last years, is now focussing on the problems of financing smallholder certification as

63 Integrated farm management is a system ensuring efficient and profitable production while adhering to management practices that make the production process environmentally friendly and guard the farms natural assets in the long term.

64 While companies have more financial capacities, they also have to cover more costs connected to certification compared to smallholders, as in cases of ensuring product segregation, conducting HCV assessments, or taking over costs in engaging with smallholders. Of course, for smallholders as well as for companies, the costs ultimately depend on the specific case. A recent WWF report goes into more detail about certification cost ranges for companies (Levin et al. 2012, 13ff.).

well as on the (seeming) lack of incentives for independent smallholders to join RSPO. The coming years will show the results of RSPO's two new working groups (the Smallholder Finance Working Group and the TFS 2), the first smallholder certification under ISCC in Indonesia as well as the development of a smallholder certification system under ISPO. This study focusses on the question of which types of benefits and challenges RSPO smallholder certification actually brings about on the ground.

5 Empirical findings: case description

Building on the introduction to the Indonesian palm oil sector and the significance of smallholders in that context and introducing sustainability standards for the sector, the second part of this study will present the empirical findings on the research question of this study: *Which are the main challenges and gaps in the context of smallholder certification processes and which benefits can be gained?* The first part of this study (i.e. Sections 1–4) introduced the research focus and presented the research objective, research tools as well as case selection. In addition, the first part provided a literature review of the role of palm oil in Indonesia, its socio-economic and ecological impacts, the rise of sustainability standards as well as the special role of smallholders. The remainder of the study (i.e. Sections 5–10) discusses the empirical findings of the research and, on the basis of these findings, puts forwards policy recommendations for government and the non-governmental sector. The presentation of the empirical findings begins with an in-depth description of each research site in the four provinces under consideration, namely North Sumatra, Jambi, Riau and South Sumatra (for the relevance of these provinces for Indonesian palm oil production generally and smallholder palm oil production, see Figure 12 and Figure 13).

Figure 12: Palm oil production in 2010, by province

	North Sumatra	Riau	Jambi	South Sumatra
Population 2010	12,982,204	5,543,031	3,088,618	7,446,401
Oil palm cultivation area 2010 (hectares)	1,141,788	1,628,426	578,340	812,151
Palm oil production 2010 (tonnes)	3,981,649	5,462,482	1,530,821	2,380,544
% of national palm oil production 2010	18	25	7	11

Source: BPS-Statistics Indonesia and Directorate General of Estate

5.1 Independent smallholders – North Sumatra

The province: North Sumatra

North Sumatra comprises one of the main production regions for palm oil in Indonesia and possesses an oleochemical industrial cluster. The province spans the island from the Indian Ocean to the Straight of Malacca and with its almost 13 million inhabitants it is the most populous Indonesian province outside of Java. The main urban agglomerations and industrial centres of the province are located towards the eastern coast. Because the Dutch developed the region in terms of plantation establishment during their occupation, nowadays North Sumatra comprises one of the main production regions for plantation crops in Indonesia.[65] In 2010, it contributed 18 per cent of the national palm oil production (Badan Pusat Statistik Indonesia (BPS) / Directorate General of Estate Crops 2010) and one of the few designated oleochemical industrial clusters is situated in Simalungun regency.[66] Agriculture is a central sector for the province in terms of employment as well as in terms of its contribution to Gross Regional Domestic Product (GRDP), but it is steadily declining in relative impor-

65 Besides palm oil, other relevant plantations crops are rubber, coffee, tea, cocoa and tobacco. In addition to plantations, various food crops are cultivated – especially wet rice paddy, soybean and horticulture.

66 This is the Sei Mangkei - Integrated Sustainable Palm Oil Cluster (SM-ISPOIC).

tance. Other main pillars of the provincial economy are the manufacturing sector and the growing services sector – especially tourism, insofar as the province is Sumatra's main tourist destination.

Location and certification status

In North Sumatra, the research team visited independent smallholders that are currently preparing for RSPO certification as part of an RSPO pilot project for independent smallholder certification. Data collection was conducted in six villages (Bandar Masilam, Bandar Rejo, Buntu Pane, Lestari, Marihat Butar, Partimbalan and Urung Pane) that are located in the districts Simalungun and Asahan. Besides these two neighbouring districts, the pilot project for North Sumatra also includes independent smallholders in the regency Labuhan Batu Selatan, where smallholders – in contrast to Asahan and Simalungun – are already well organised in smallholder groups. All together, this pilot project aims at eventually certifying about 3,000 independent smallholders, covering an oil palm cultivation area of about 10,000 hectares. Project preparations started in 2011 (RSPO/RILO 2012).

Supporters and project approach

The main supporter of this pilot project in North Sumatra is PT Perkebunan Nusantara III (PTPN III), one of the largest Indonesian state-owned palm oil plantation companies (RSPO/RILO 2012). The company is involved in the cultivation of oil palm and rubber, as well as the production, sale and export of oil palm and rubber products. PTPN III plans to certify all its nucleus plantations, scheme smallholders, as well as the independent smallholders of its oil palm supply base in North Sumatra under RSPO. For PTPN III, the prospects of independent smallholder certification include closer ties with independent smallholders of their supply base, improved yield and quality of smallholders' FFBs, access to CSPO markets and reputational benefits.[67]

Besides providing part of the project funding, PTPN III will be strongly active in the practical preparation of independent smallholders for certification. The certification project takes place in the context of a Memo-

67 Interview with member of PTPN III in Medan, March 2012.

randum of Understanding between PTPN III, the Sustainable Trade Initiative (Initiatief Duurzame Handel, IDH), a Netherlands-based organisation funded by the Dutch government and RSPO. IDH will provide a "match funding" for the project in the form of a grant in an amount that will not exceed the initial investment of PTPN III and/or RSPO (RSPO 2012a). In order to provide the above-mentioned practical support, PTPN III is currently establishing a team that teaches smallholders good agricultural practices and demonstrates these agricultural practices on the nucleus plantation; it is not clear, however, what the role of PTPN III will be in the establishment of smallholder groups in Asahan and Simalungun.[68]

In the two districts we visited, a main collector of FFBs, who is an unofficial leader in the region, is supposed to – and prepared to – take the position of group manager. Large economic assets as well as the position as an FFB trader and money lender make the collector a respected authority within the community. RSPO / RILO and PTPN III decided to incorporate the main collector as the group manager in the project implementation since he has the ability to mobilise the respective independent smallholders (e.g. information distribution, attending meetings etc.). For the role of the group manager in the certification process, see 8.2.1. The main collector supports the efforts of certification because he expects to obtain higher prices for FFBs.[69]

Role of smallholders within the selling structure

Independent smallholders in the visited districts in North Sumatra can choose freely between various mills in their vicinity to sell their FFB to. Nevertheless, due to scale-efficiency reasons and lack of availability of trucks, the vast majority (97 per cent) of independent smallholders that were interviewed in North Sumatra (n=109) sell their FFBs to a middleman who then sells either to a collectors' group or directly to the mill. Only 6 per

68 Interview with several staff members of PTPN III and other persons involved in oil palm cultivation in the context of the RSPO smallholder certification project in North Sumatra, March 2012.

69 Interview with several persons, including middlemen, involved in oil palm cultivation in the context of the RSPO smallholder certification project in North Sumatra, March 2012.

cent[70] of these smallholders sell directly to the mill or to a group. These mills include, among others, the PTPN III mill in Sei Mangkei, the mills of Pt Multi, Pt Mas and of PT Wilmar Int. Ltd.[71] Given that these mills are competing for the supply base of independent smallholders, collector groups or middlemen sometimes have a bargaining power regarding the FFB price. The mills to which the FFBs of most of the smallholders in our sample are sold to do not grade and pay for the FFBs according to quality in terms of oil content. However, there is a sorting process in which certain FFBs, e.g. unripe and damaged fruit, are rejected.

Sample description of smallholders and socio-economic situation

According to our survey data, the average (median) size of oil palm cultivation area of the independent smallholders we interviewed in North Sumatra amounts to 2 hectares.[72] This corresponds to the typical 2 ha plot size allocated to scheme smallholders or to the size of land that was also typically given by the government to transmigrants as plantation area.[73] However, only 7 per cent of the smallholders we interviewed in North Sumatra said that they or their families had been part of a transmigration programme.

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70 Multiple answers were possible, such that the sum does not add up to 100 per cent.

71 Interviews with staff members of PTPN III, collector group staff, middlemen and smallholders; March 2012.

72 We interviewed 111 independent smallholders in North Sumatra – 109 answered this question about oil palm cultivation area. The mean plantation area is 3.6 hectares, given that there are two outliers that indicated a plantation area of 35 and 45 hectares, while 90 per cent of interviewed smallholders in North Sumatra had only 6 hectares or less.

73 Many of the now independent smallholders told us that they had formerly been scheme smallholders tied to PTPN IV, PTPN VI or another company. Normally, the company did the first planting of oil palms for the smallholders. The smallholders then had to sell their produce to the company until their debt for planting procedures and planting materials, as well as in some cases the costs for the land (if bought from the company), had been repaid. From that point on, smallholders could decide to whom to sell their produce and thus became "independent".

The mean gross income earned from oil palm cultivation per month that the smallholders indicated is 3.4 million IDR (US$ 366); 50 per cent of them indicated an income of 2.1 million IDR (US$ 226) or less. This compares to a provincial minimum wage of 1.2 million IDR (US$ 130) in 2012 (Gajimu 2012). For 70 per cent of the interviewed smallholders, the income from palm oil represents the only, or the main, income source. Other income sources of the interviewed smallholders were mainly commercial or trade activities, low-skilled labour or other types of agriculture and contract work on palm oil plantations. The mean household size was four persons. Half of these independent smallholders have graduated from secondary school, 30 per cent graduated from primary school and only 13 per cent did not completed primary education; 5 per cent even pursued studies after secondary school. Only 23 per cent of our sample in North Sumatra were members of a smallholder group, which is mostly due to the lack of active smallholder groups. Thus, smallholders often do not even have the choice to become a member of such a group or not.

5.2 Independent smallholders – Jambi

The province: Jambi

Oil palm cultivation was introduced in Jambi in the mid 1980s and followed the existing main infrastructure. In a recent study, Feintrenie et al. (2010) describe the close link between topography, infrastructural accessibility and the progress (and quality) of oil palm development – starting from more accessible areas along waterways and around cities, spreading out into the hinterlands with road construction and lastly reaching remote piedmont areas (Feintrenie et al. 2010: 381, 383). In Jambi, oil palm is cultivated on an estimated 578,340 hectares (2010); in 2010, 664,416 tonnes of palm oil were produced, constituting 7 per cent of national palm oil production (Badan Pusat Statistik Indonesia (BPS) / Directorate General of Estate Crops 2010). Smallholders play a particularly important role, contributing 51 per cent of the provinces' total production of palm oil (see Figure 13). Even though agriculture is still the most dominant sector of Jambi's economy,[74] its mineral

74 In 2000, agriculture contributed 31.5 per cent to GRDP, with rubber, cinnamon and coconut being other important plantation crops besides palm oil and forestry activities like logging, wood, pulp and paper production.

deposits (coal, gold, marble, granite etc.) constitute a major future development potential.

Location and certification status

In Jambi, we visited three villages[75] in Merangin regency, where independent smallholders are preparing for certification under RSPO, in the context of another RSPO pilot project. The scope of certification in this Jambi case is significantly smaller than in North Sumatra. According to RSPO / RILO, the plan is to certify about 300 smallholders with a cultivation area of approximately 400 hectares.[76]

Supporters and project approach

The local NGO Setara has been supporting the independent smallholders who are now part of the RSPO pilot project, focussing particularly on the organisation of smallholder groups. Setara, located in Jambi City, offers support to independent palm oil smallholders. The long-term objective of the smallholder project is to significantly improve socio-economic living conditions of independent smallholder farmers. RSPO certification merely functions as a tool to reach this objective. Setara receives financial support for its smallholder project from the Dutch organisation the Humanist Institute for Cooperation (Setara 2012). Setara supports smallholder farmers to build groups and provides training on how to form smallholder groups, good agricultural practices and business practices for groups (e.g. about selling FFBs, establishing savings plans etc.).

Role of smallholders within the selling structure

The independent smallholders in the three villages are located close to a plantation company with scheme smallholders and several mills, between which they can freely choose when selling their FFBs. They can sell their FFBs to the mills PT Sal, PT AIP (Agrindo Indah Persada) or PT Bebeko, which is located further away. Only 3 per cent of smallholders sell

75 The villages are Bungo Tanjung, Rawa Jaya and Gading Jaya.

76 See also Brandi et al. (2012a).

their FFBs directly to the mill, and these smallholders function as middlemen, transporting other farmers' FFBs as well. There are 78 per cent who sell their FFBs to middlemen who mostly sell directly to the mill. The presence of collector groups is not as strong in Jambi as in North Sumatra. Given the higher level of organisation in smallholder groups compared to North Sumatra, 39 per cent of smallholders sell their FFBs via smallholder groups.

This pilot site is characterised by the very particular situation that one company, PT Astra, and its mill PT Sal depend strongly on the supply base of independent smallholders. PT Sal is a subsidiary of PT Astra Agro Lestari Tbk, an Indonesia-based company that operates as a palm oil producer (Wright Investors' Service 2012). PT Sal strongly depends on the supply base of independent smallholders for three reasons. First, the mill is currently operating at only 80 per cent production capacity. Second, plasma and independent smallholder farmers contribute a huge share of 80 per cent (24,000 tonnes) of the total yearly CPO production of PT Sal (30,000 tonnes), while the nucleus contributes only 20 per cent (6,000 tonnes).[77] Third, plasma smallholders of PT Sal are close to replanting, which entails a halt in production for three to five years.

Therefore, PT Sal is actively seeking to establish close links with independent smallholders in the region – without, however, relying on RSPO. PT Sal aims at developing closer ties with independent smallholders in order to secure and even scale up its supply by these farmers. In this context, PT Sal engages in providing training to heads of smallholder groups who are endorsed by village and subdistrict authorities. However, PT Sal currently does not intend to become certified under RSPO, which is why Setara and RSPO / RILO are considering introducing the selling of sustainability certificates for CSPO produced by independent smallholders via the internet-based platform GreenPalm. That way, smallholders would, e.g. sell their certified FFBs to the uncertified mill for the same price as uncertified FFBs and then obtain a price premium via GreenPalm.

77 Source: PT Sal; the share of the PT Sal nucleus in palm oil production is much lower than the share of the smallholder (scheme and independent), because when the plantation was established, regional governmental regulation required a strong focus on smallholders.

Sample description of smallholders and socio-economic situation

According to our survey data, the average (median) size of oil palm cultivation area of the independent smallholders we interviewed in Jambi amounts to 3 hectares.[78] Interestingly, this is higher than in North Sumatra, where 50 per cent of smallholders have a plantation area of 2 hectares or less. Given that the mean is about 3.5 hectares in both cases, one can conclude that the distribution of plantation area is more even in Jambi than in North Sumatra. This finding is accompanied by the result that a much larger share of smallholders (69 per cent) are transmigrants or descendants of transmigrants, implying that more people received land from the government.

The mean gross income earned from oil palm cultivation per month that the smallholders indicated is 4.4 million IDR (US$ 473); 50 per cent of them indicated an income of 3.2 million IDR (US$ 344) or less. This represents a higher mean (median) income than that of our sample in North Sumatra; the differences amount to 29 per cent (52 per cent). This income is also considerably higher than the 2012 provincial minimum wage, which is 1.1 million IDR (US$ 123) (Gajimu 2012). As in North Sumatra, for about 70 per cent of them, this income from palm oil represents the only, or the main, income source. Other than in North Sumatra, the most frequently named other income source was an own rubber plantation (40 per cent of those that had other income sources mentioned rubber). Other income sources of the interviewed smallholders were low-skilled labour, contract work on palm oil plantations and commercial or trade activities. The mean household size was four persons. Regarding education, 42 per cent of these independent smallholders graduated from secondary school, 36 per cent graduated from primary school and 18 per cent have not completed primary education; 4 per cent even pursued studies aftersecondary school.

78 We interviewed 85 independent smallholders in Jambi. The mean plantation area of these smallholders is 3.5 hectares, given that there are two outliers that indicated a plantation area of 35 and 45 hectares, whereas 90 per cent of interviewed smallholders in North Sumatra had only 6 hectares or less.

Figure 13: Smallholder palm oil production in 2010, by province

	North Sumatra	Riau	Jambi	South Sumatra
Total oil palm cultivation area (ha)	1,141,788	1,628,426	578,340	812,151
Smallholder oil palm cultivation area (ha)*	394,258	893,996	322,103	287,796
Smallholder oil palm cultivation area share (%)*	**35**	**55**	**56**	**35**
Total palm oil production (t)	3,981,649	5,462,482	1,530,821	2,380,544
Smallholder palm oil production (t)*	1,141,880	2,711,204	783,260	857,478
Smallholder palm oil production share (%)*	**29**	**50**	**51**	**36**

*In the Indonesian statistics, smallholders are defined as small-scale growers with a maximum of 40 ha; no statistics are available that distinguish independent and scheme smallholders

Source: BPS-Statistics Indonesia and Directorate General of Estate

In Jambi, 70 per cent of smallholders in our sample were members of a smallholder group. It should be kept in mind that this is not representative of the villages' population, but is rather due to our non-random sample selection, which was intended to include a large share of group members. According to Setara, in Gading Jaya 130 of a total of 800 smallholder farmers are organised in four groups. In Rawajaya, 60 of a total of 430 smallholder farmers are organised, and in Bungo Tanjung 300 out of a total of 900 smallholder farmers are part of the *gapoktan* that is comprised of seven groups.

5.3 Independent smallholders – Riau

The province: Riau

Among all Indonesian provinces, Riau is the most important producer of palm oil in terms of palm oil production – with a share of 25 per cent[79] of total Indonesian production in 2010 (Badan Pusat Statistik Indonesia (BPS) / Directorate General of Estate Crops 2010). As in North Sumatra, it is mainly because of early Dutch plantation development that Riau became the main hub for palm oil production. Oil palms are cultivated on around 1.6 million hectares (Badan Pusat Statistik Indonesia (BPS) / Directorate General of Estate Crops 2010). Smallholders play an important role in provincial palm oil production, cultivating almost half of this overall production area[80] (Burgers / Susantu 2011, 23). Riau is confronted with the huge environmental threat of development of large-scale plantations on its vast expanses of peatland, which would generate disastrous consequences for the global climate. Another problem are the smallholders who are currently the main agents of indirect land-use change and who advance deforestation of the remaining forests of Riau. Growing immigration from Java and other Sumatran provinces increases pressure on land, leading to problems like illegal land conversion.[81] All in all, agriculture still plays a central role in Riau's economy in terms of employment, absorbing 49.3 per cent of Riau's labour force. Yet, according to the Central Bureau of Statistics (Badan Pusat Statistik or BPS) of the Province of Riau and the Indonesian Chamber of Commerce and Industry (Kamar Dagang dan Industri or KADIN), in 2009, agriculture contributed merely 9.8 per cent to GRDP. In order to intensify vertical and horizontal value chain integration

79 Oil Palm related activities are estimated to have contributed approximately 18 per cent of GRDP and the export of CPO and its derivates alone already generated 8.4 billion US dollars in 2009 (Burgers / Susantu 2011, 23).

80 Oil palm activities generate employment for an estimated 690,000 persons in Riau. The BPS Riau estimates that 380,000 families run smallholdings and occupy approximately 996,300 ha (Burgers / Susantu 2011, 23; BPS Riau).

81 A highly discussed and controversial example is Tesso Nilo National Park, where an estimated 28,000 hectares have been converted illegally to oil palm cultivation and acacia cultivation for local pulp and paper mills (of Asia Pulp and Paper) – by smallholders, but also by influential actors and companies (Burgers / Susantu 2011, 23; Harahap 2010; WWF 2001).

and improve value-adding industrial downstream-activities related to palm oil, two industrial clusters are being established in Kuala Enok and Dumai (The Jakarta Post 2010b). Furthermore, Riau is Indonesia's main gas and oil producer with vast reserves. According to BPS Riau, in 2009, the oil and gas mining sector and related manufacturing contributed 50 per cent to GRDP. Following decentralisation, the region has gained more fiscal autonomy and access to a substantial allocation of shared taxes and revenues from the central government (mainly from oil and gas), making it less susceptible to the revenue hunger that can be observed from other provincial governments (McCarthy / Gillespie / Zen 2011, 8).

Location and certification status

The Riau case is located in Siak regency, close to the deforestation frontier, and focusses on independent smallholders who are preparing for RSPO certification with support from a local NGO. The NGO, named Elang, started working in one village in 2006 and then slowly broadened the project scope to seven villages with around 1,100 farmers and 3,500 hectares. A particularly interesting characteristic of this project site is its location close to a protected forest, which is threatened by encroachment of palm oil smallholders. The certification audit has not taken place yet but two of the villages might be able to achieve certification this year.

Supporters and project approach

The main supporter of the independent smallholders in this certification project is Elang, an Indonesian NGO that focusses on capacity-building and strengthening smallholder groups *(kelompoks)*. Apart from palm oil farmers, Elang supports other farmers and fishermen in Riau with a focus on capacity-building and campaigning for their rights at the local and national levels. Its approach for this certification project was to first (starting in 2009) strengthen the organisation of smallholders in *kelompoks* and cooperatives (*kooperasi unit desa* – KUDs), which had been established by the local government a couple of years earlier, and to teach good agricultural practices (GAPs) in a second step, followed by trainings on RSPO. Seven cooperatives exist, consisting of around 10 *kelompoks* each. The implementation of the good agricultural practices they were taught started

in 2011. Since then, a demonstration plot shows smallholders that good agricultural practices can improve their yields substantially.[82]

In contrast to the rest of our cases, the supporters of this certification project have made the combating of deforestation a central element of their project design. As in the other cases, the objectives of this project include general support of smallholders in cultivating sustainable palm oil, as well as their preparation for RSPO certification. Additionally, Elang tries to actively prevent smallholders from expanding into protected areas via a contractual commitment. Furthermore, the potential for biofuel certification under BioCert is being assessed.

Role of smallholders within the selling structure

The independent smallholders are not tied to specific mills; the selling of their FFBs is organised by the cooperatives, which can choose what mill to sell to. Three mills are located close to the smallholders: PT IKPP, PT PN5 and PT SPS. The cooperatives transport the FFBs of their members to a big ramp. In contrast to the Jambi and North Sumatra cases, it is the mill staff that is responsible for the transport from the ramp to the mill.

Socio-economic situation of smallholders

According to the NGO Elang, the palm oil farmers of this certification project were poor fishermen and rubber farmers before a local government programme for oil palm development was launched in 2004. Due to time constraints, we did not conduct any surveys in Riau. Therefore, all information on the socio-economic situation of farmers is based on statements by NGO staff. According to them, palm oil farmers used to be poor fishermen and rubber farmers, mainly local people, not transmigrants. Only in 2004 did a local government programme push oil palm cultivation in the area. A plantation company, PTPN 5, prepared the palm oil plots and managed them in the beginning. This happened in the context of a tripartite system between smallholders, a local company and local government. The local government provided a loan, the company established the plots and in

82 Interviews with several farmers and members of the NGO Elang in Riau, March 2012.

2009 the plantation management was handed over to the smallholders. According to NGO data, farmers in the project own ca. 3 ha of palm oil each, which means that they might be slightly better off than the farmers in North Sumatra.

5.4 Scheme smallholders – South Sumatra

The province: South Sumatra

After Riau and North Sumatra, South Sumatra is the third-largest palm oil producing province in Indonesia, with half of the production stemming from smallholders. In 2010, South Sumatra produced 1.4 million tonnes of palm oil, contributing 11 per cent of total national palm oil production. Smallholders contribute 50 per cent of the provinces' production (Badan Pusat Statistik Indonesia (BPS) / Directorate General of Estate Crops 2010). The province is dominated by the Barisan Mountain Range piedmont to the west, which gives way to the eastern alluvial plain and swamp lands further towards the coast. The majority of the population of 7.45 million people are concentrated in central and south-central Southern Sumatra and around the three major cities of Palembang, Lubuklinggau and Baturaja. Especially the coastal swamp lands have a low population density. According to KADIN, mining is by far the most important sector for the province's economy, with a contribution of 33 per cent to GRDP in 2002, followed by the manufacturing sector with 19 per cent and the agriculture and services sector with both almost 16 per cent. Although agriculture may not comprise a central part of the GRDP, it is still one of the main sources of employment generation in South Sumatra.

Location and certification status

In Banyuasin regency in South Sumatra, we visited the plantation of a private company where scheme smallholders were certified under RSPO in 2010 and under ISCC in 2012. The company and the two respective mills had already received RSPO certification in 2008. The scheme smallholders on this plantation were the first smallholders in Indonesia to be certified under RSPO Smallholder Principles & Criteria and are currently being trained in order to become certified under ISCC soon. Smallholders received their first premiums (US$ 100,000 in combined premiums) for certified palm oil in 2011.

Supporters and project approach

The smallholders in our South Sumatra case are supported / scheme smallholders, contractually tied to the plantation company, which strongly supports them in form of training and extension services provided by company staff. The plantation has six full-time Farmer Development Assistants who provide extension services to the smallholders. Standard Operational Procedures for growing, preparation, planting and upkeep (including storage and disposal of pesticides), harvesting, equipment and safety measures are used as training material (Ross 2010).

The visited site was rather straightforward to certify under RSPO, given that the forest was cleared long before the RSPO cut-off dates and because smallholders' practices were already good before certification. The land was cleared for the original transmigration project. The majority of palms were thus planted in the 1990s (Ross 2010). Due to the strong support by the company, the agricultural practices of smallholders were already good before the certification process began. The cultivation area is not located in a critical area, given that the forest was cleared decades ago. Thus, the step to certification was not as big as in independent smallholder cases.

KUDs at the plantation are strong and play an important role in the smallholders' palm oil activities and in the certification process. The 8,797 smallholders are organised in 14 cooperatives of very different sizes and cultivate 17,594 hectares of oil palm plantation (Ross 2010). Certification is organised under a group certification scheme where the cooperative manager is responsible for ensuring that all smallholder members comply with RSPO criteria.[83] They also have to coordinate harvesting, management of contractors for the collection and transport of FFBs, as

83 RSPO certification of smallholders is regulated under the principles and criteria for scheme and for independent smallholders. For both, the RSPO standard on group certification applies, which defines a "group manager" to be responsible for the certification group. The group manager can be a person or an organisation and is responsible for the preparation of the smallholders for certification, as well as for the control of their standard compliance. In the case of the visited plantation, the smallholder cooperatives are functioning as such, with support from the smallholder extension service of the nucleus plantation.

well as ensure the maintenance of the roads.[84] Furthermore, collective documentation, e.g. of yield development, is done by the cooperatives, and some cooperatives have a specialised labour division and carry out certain activities for the farmers, as for instance in the case of specialised cooperative units that are responsible for pesticide application on all member plots.

Role of smallholders within the selling structure

Scheme smallholders are tied to the company and thus have to sell their FFBs to the company's mills via the cooperatives. The nucleus plantation comprises around 10,000 hectares. After an ongoing expansion, the plasma will comprise about 10,000 smallholders on roughly 20,000 hectares. The KUD managers are the ones responsible for the transport of FFBs to the two mills of the nucleus plantation. At the mill, the FFBs are sorted according to the categories of ripe, overripe, unripe and long-stop. The last two can be rejected; for the rest, the same price is paid. However, a quality incentive does exist: a Memorandum of Understanding between smallholders and the nucleus plantation determines an incentive payment of 4 per cent of the FFB price, which is granted if the oil extraction rate (OER) reaches or exceeds 21.25 per cent.[85]

Socio-economic situation of smallholders

Given that we did not conduct our survey on a large scale in South Sumatra, we can only refer to indications of those smallholders that we did talk to. Out of these, only 20 smallholders answered the question about income, indicating a mean income of 9 million IDR (US$ 971) per month from oil palm cultivation. This is roughly twice as much as independent smallholders in the two RSPO pilot project areas and more than seven times the provincial minimum wage in 2012 (1.2 million IDR) (Gajimu 2012), not taking into account other potential income sources.

84 Source: interviews with members and staff members of several cooperatives, as well as staff of the farmer extension service of the plantation. March 2012.

85 Source: interviews with staff of the plantation company, staff of the mill as well as cooperative staff. March 2012.

5.5 Limitations of data collection

The research team was confronted with a number of constraints. It should be emphasised here that we did not intend to take a sample that is representative of all Indonesian smallholders or smallholders of the four provinces we visited, given that we focussed on pilot projects.

The Indonesian palm oil sector is, politically, an extremely sensitive field of research, since international campaigns were launched in 2007 on a large scale to address the negative social and environmental impacts of the sector. The threat of a US "boycott" of Indonesian palm oil that arose during our research stay added to this difficult research situation.[86]

In the scheme smallholder case, independent research was particularly difficult to obtain and aggravated by logistical constraints that affected the quality of our data and our choice to base our findings mainly on the data collected at the RSPO pilot project sites. The research team depended upon the logistical infrastructure of the plantation company. The company provided housing, transport and site information. As a result, it was impossible to conduct random sampling and to triangulate key statements by smallholders, KUD staff and company officials. Consequently, the collected data and information has a significant selection bias. Moreover, the research team had only one translator at its disposal, resulting in a lack of statistical representation of the population due to a small sample size. As a result of these constraints, the scale and quality of the data collected at the site of scheme smallholders are rather poor, and we decided not to attribute a large weight in our analysis and findings to them.

86 Under the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007, the United States Environmental Protection Agency (EPA) is required to set the standards for renewable fuels under the Renewable Fuel Standard Program (RFS). Under the RFS, biomass imported into the United States for biofuel production or biofuels imported must adhere to certain GHG reduction thresholds – being 20 per cent reduction in life-cycle assessment compared to fossil fuels. An initial finding published by the EPA stated that palm oil fell short of this 20 per cent reduction target and would thus not be qualified for the inclusion in new biofuel blends. The modalities of emission balancing and the calculation of effects arising from indirect land-use changes have sparked a heated debate among many stakeholders. At the time of compilation of this report, the decision of the EPA was still expected to be forthcoming (USEPA 2011; Foster 2012; Plumer 2012).

Furthermore, it proved to be very difficult to further intensify the study of certified scheme smallholders in Sumatra, as palm oil companies refused to give permission to conduct research on their respective plantations. This was despite official support by the Indonesian Ministry of Agriculture.

Our sampling was affected by time and logistical constraints. It turned out to be very difficult to obtain comprehensive project information in advance. The result was a lack of *ex ante* information about geographical data (e.g. maps), lists of smallholders who are *kelompok* members in each village, description and identification of the target group of the pilot projects, as well as lists of participants of RSPO trainings *(sosialisasi)*.

Furthermore, our sample of independent smallholders could be characterised by a selection bias towards older smallholders. Our sample is rather old, i.e. the average age is 48 and only 25 per cent are younger than 40 years. There could be several reasons for this: *inter alia* possibly because most interviews were undertaken during the day, when many young farmers were on the fields. Yet, because we do not know the age distribution of the local populations, we do not know if our sample depicts a real selection bias. However, regarding the implementation of good agricultural practices (GAPs), age does not seem to make a large difference, as younger people in our sample were not more likely to implement good agricultural practices (GAPs).

Our baseline data on independent smallholders was not gained by taking a random sample of smallholders in the villages. Instead, we decided to actively seek to speak with three groups of smallholders in each village, which can be overlapping: (1) those that have received RSPO training, (2) *kelompok* members and (3) random palm oil smallholders. We proceeded this way because we were conducting a baseline study for RSPO, and those who are being certified first might be the interviewees of a second wave of surveys in a few years, in order to again examine their socio-economic situations as well as agricultural practices. The same is true for farmers that are members of *kelompoks*. We made sure to speak to a considerable number of *kelompok* members – according to lists that we had received on arrival from partners in the field – for similar reasons: the NGO Setara supports particularly those smallholders that are organised, and they will be the most likely to receive

RSPO certification first. Their data is relevant for RSPO / RILO and Setara's planning of the next steps as well as for a baseline for a future second survey.

Where possible, a geographic distribution of the sample was intended by sending different teams to different sub-villages *(dusuns)*. Generally, one can state that those farmers that live in remote areas of the villages are more likely to be underrepresented in the sample than those that live in the village center. Moreover, due to the social hierarchies in the village and support from different sources, such as NGOs, collector groups and smallholder groups, we were not able to guarantee in all cases an interview situation in which only the interviewer, the translator and the interviewee were present. Sometimes, somebody who might have already known the interviewee was present, meaning that some answers might have been influenced, for instance when questions about price and payment mechanisms were asked in the presence of the middleman or collector staff. Those that supported us by providing lists of smallholder group members and participants of *sosialisasi* might have also influenced our choice of interview partners.

6 Empirical findings: certification benefits

Certification offers a set of benefits that can be broadly divided into economic, ecological and social benefits. In our study, 84 per cent of smallholders who answered the question expect benefits from RSPO certification. Only 16 per cent do not expect benefits from RSPO certification. Furthermore, independent smallholders expect many more benefits than challenges with regard to RSPO certification. But often the smallholders' expectations regarding benefits and challenges are based upon misconceptions. Most independent smallholders lack a clear perception of the challenges related to the certification process.

6.1 Economic benefits

While the literature suggests a number of economic benefits stemming from RSPO certification, the findings from our field research show that smallholders do not automatically profit from all of those potential benefits. Based on a review of existing literature (*inter alia* World Bank 2010a; Rist / Feintrenie / Levang 2010), we identified the following potential economic benefits of RSPO certification: higher productivity (i.e. increase in yields), better quality of fruit, price premiums, organisation and access to international markets (i.e. preventing market exclusion) (see also Section 4.2.1). However, the findings from our field research show that not all of these economic benefits are currently present in the context of the smallholder certification pilot projects we studied.

Our data shows that most independent smallholders expect an increase in yields and quality as a benefit of certification. Our field research led to the following results: 28 smallholders (n=37) expect better FFB quality to be a prime benefit of certification; 18 smallholders (n=37) expect an increase in yields to be a primary benefit of certification. None expect an increase in production efficiency to be a benefit of certification. Summing up, smallholders recognise at first sight the two main benefits resulting from the application from good agricultural practices (GAPs), namely yields and quality. They did not seem to be aware that the above-mentioned selling structure would impede the quality benefit. Furthermore, it is important to note that smallholders who answered this question often misperceived the benefits they will obtain: for example, smallholders had heterogeneous perceptions about what better FFB quality means. Many did not refer to the oil content of the fruit when mentioning an increase in quality as an expected benefit of certification. Thus, the data – with respect to quality as an expected economic benefit – needs to be interpreted with care.

Increase in yields

An increase in yields is one of the most significant – and currently the only rather easily achievable – substantive economic benefits of RSPO certification for smallholders. Independent smallholders can achieve a higher yield by applying good agricultural practices, which are an integral part of the RSPO P&C. In practice, most independent smallholders

receive a payment that depends on the weight of the FFB they produce. Thus, a higher yield, i.e. a higher amount and total weight of one FFB harvest, directly translates into a higher income. The same mechanism applies for scheme smallholders as well.[87]

Increase in quality

An increase in quality of oil palm fruits poses another significant economic benefit of RSPO certification, but the benefit cannot be realised, as smallholders are usually integrated in a selling structure that does not reward better quality.[88] A better quality of fruit can theoretically lead to an increase in income, as mills pay sellers according to quality. However, independent smallholders generally cannot realise the economic benefits stemming from better quality of oil palm fruits because they are usually integrated in a selling structure that only offers a limited individual quality incentive. Given that the vast majority of independent smallholders sell their FFBs to middlemen who do not pay according to an FFB quality grading system – independently of whether the mill does so or not – a better quality in terms of higher oil content does not have any positive income effects for the smallholders (see Box 8). A collective quality incentive only exists if independent smallholders sell their FFBs via a smallholder group *(kelompok)*. Additionally, this quality dilemma is aggravated in cases where mills do not differentiate their payments according to quality at all. In our case of scheme smallholders, a collective quality incentive was in place, given that a quality incentive of 4 per cent of FFB price was paid if a specific oil content target was achieved.

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87 Surprisingly, as a WWF study reported, companies themselves often do not rate higher yields of their scheme smallholders as one of the certification benefits most important to them. Rather, the benefits they perceive as most important are: the reduction of costs related to the reduction in social conflicts and better relations to communities; operational improvements through documentation and better management practices; improved staff morale and reduced labour turnover; as well as access to capital (Levin et al. 2012). These findings were confirmed by our interviews with company staff in the South Sumatra case.

88 A study of smallholders in bioenergy value chains for the Food and Agriculture Organization (FAO) comes to a similar conclusion for a case of oil palm smallholder certification in Thailand (Beall 2012, 29).

Box 8: Selling structure

At first sight, RSPO currently offers two main economic benefits to independent smallholders: independent smallholders can achieve 1) a higher yield and 2) a better quality of oil palm fruits by applying good agricultural practices, which are an integral part of RSPO. However, independent smallholders within our sample cannot realise the second economic benefit (i.e. better quality) because they are usually integrated in a selling structure that only offers a limited individual quality incentive. This matter can be explained by illustrating the selling structure with respect to a cooperative and a mill in the province of Jambi, Sumatra, while noting that selling structures can differ from case to case, thus offering different levels of quality incentives. The selling unit division of a cooperative in the village Bungo Tanjung sells the FFBs to the mill PT Agrindo Indah Persada (PT AIP), a subsidiary of Wilmar International Plantation. PT AIP categorises the FFBs according to A, B and C quality and pays the cooperative accordingly. In other words, the mill pays the seller corresponding to the quality of the delivered FFBs. Subsequently, the cooperative calculates an average price and pays every smallholder the same amount per kilogram, irrespective of quality level. By doing so, the cooperative effectively undermines the individual quality incentive for smallholders. Smallholders can only achieve a significant economic benefit from improved quality of oil palm fruits if all independent smallholders who sell via the selling unit of the cooperative implement GAP and increase the quality of their FFBs. Thus, there is only a collective quality incentive. Concluding, the selling structure has to be changed in order to enable smallholders to benefit from producing better quality oil palm fruits.

Price premiums

While price premiums are a potential economic benefit of certification, so far no substantial premiums for certified palm oil have been generated in international markets. The certificate trading programme GreenPalm, which supports sustainable palm oil production, is so far the only mechanism for creating a price premium for smallholders. On this online trading platform, smallholders who adhere to sustainability standards such as RSPO or ISCC can sell certificates in the amount of sustainably produced output (in tons). Retailers and manufacturers then can buy the certificates and claim to support the production of CSPO, without the necessity to trace the production output along the whole supply chain (GreenPalm 2012a). But the premium generated by GreenPalm is small, as one

sustainable palm oil certificate (1 tonne) is currently being traded at US$ 2.05.[89] Yet, during our field research 21 smallholders (out of 37 who answered the question) expected an increase in price to be a prime benefit of certification.

Benefits of organisation

Independent smallholders can realise economic benefits by organising themselves into groups – which could be regarded as an indirect benefit of smallholder certification. Smallholder groups carry out a number of activities that can offer economic benefits to independent smallholders. Important activities currently being carried out by groups are provision of training; collective bookkeeping; procurement of inputs (especially subsidised fertiliser); establishing and managing saving schemes; selling FFBs; and carrying out infrastructure maintenance. All of these activities can, in the end, lead to an economic benefit via an increase in income. However, so far, smallholder groups in our sample have carried out only few activities and therefore have generated limited economic benefits. The issue of organisation is explained in more detail in Section 8.2.

Preventing potential market exclusion

The literature frequently suggests that access to markets and the threat of market exclusion in case of non-compliance with certification standards is highly relevant for smallholders – yet, our findings indicate that such market exclusion is not a big issue for smallholders. The underlying fear is that smallholders who are not certified cannot gain access to markets that require compliance with sustainability standards and that non-certified smallholders are excluded from these markets (see also Section 4.1.2). However, our research has shown that independent smallholders have so far not been confronted with exclusion from markets in general. China and India, as well as the domestic Indonesian market, are still largely sourcing non-certified palm oil. Since the demand is strong enough to

89 So far, GreenPalm has redeemed a total number of 3,349,164 CSPO certificates. The total monetary contribution of Green Palm to the RSPO via its $1 per certificate donation is US$ 3,799,804 (GreenPalm 2012b).

absorb non-certified palm oil, independent smallholders are still able to sell their production output to non-certified mills. Only very few (five) independent smallholders mentioned explicitly that they saw a benefit in being able to contribute to satisfying international demand for sustainable palm oil with their production. Thus, as long as international demand for non-certified palm oil remains unchanged, or rises, and markets requiring compliance with sustainability standards remain small, non-certified smallholders are not confronted with complete market exclusion. On the basis of three case studies, a recent study published by the FAO (Beall 2012) came to the same conclusion, namely that certification has not led to market exclusion for smallholders.

In conclusion, although smallholders currently expect in most cases non-realisable benefits such as a better price and better FFB quality, they can indeed gain a substantial economic benefit from an increase in yields. The three main economic benefits expected by independent smallholders in light of certification are better price, better FFB quality and an increase in yields. However, smallholders can only gain a higher income via an increase in yields. No price premium has been generated so far and most selling structures do not reward a better FFB quality (see Box 8: Selling structure).

6.2 Ecological benefits

While it is difficult for RSPO, as a private standard, to combat large-scale negative ecological impacts of palm oil production, small-scale effects can indeed be realised. RSPO aims at reducing negative ecological impacts, including deforestation and associated negative effects on ecosystems. On the ground it turns out a private standard like RSPO struggles to effectively combat large-scale problems within the existing institutional framework. Yet, it seems that a private standard can effectively contribute towards reducing negative environmental impacts on a rather small scale. Concerning the perception of smallholders, only seven (n=37) identified certification as being beneficial for the environment. However, ecological concerns with respect to oil palm cultivation were generally not well understood among smallholders, and their understanding of "environment" does not seem to be clear.

Small-scale ecological benefits

Potential small-scale ecological benefits include reduced chemical usage via the application of an integrated pest management system, soil quality improvements (e.g. higher soil fertility), erosion control, improved waste management and buffer zones near rivers. The RSPO P&C for independent smallholders comprises a set of environmental standards regarding, among other things, pesticide management, waste management and water pollution control. In combination with good agricultural practices, these RSPO P&C can lead to the above-described small-scale ecological benefits (see also Section 4.1.1). However, in order to realise the benefits, it is important to train smallholders and change habits with regard to agricultural practices.

The agricultural practices currently being applied by independent smallholders generate few small-scale ecological benefits. Nevertheless, our study identified huge potential to realise small-scale ecological benefits. There are significant gaps between current agricultural practices and practices that need to be in place in order to realise small-scale ecological benefits (see Chapter 7 for more detail). The absence of an IPM system serves as an example by highlighting pesticide application. Most independent smallholders (78 per cent) apply pesticides (n=193). More than half of all independents smallholders in our sample (57 per cent, n=146) practise total spraying, i.e. they are spraying the whole plot unselectively, including the circle around the palm tree (instead of doing manual circle weeding). Thus, the agricultural practices by independent smallholders with regard to pesticide application have not yet generated significant small-scale ecological benefits. However, the smallholders in our sample are still at an early stage of the certification process and the data regarding chemical usage clearly shows the potential to realise improvements, for example through a reduction in pesticide usage.

Large-scale ecological benefits

Potential large-scale ecological benefits of the RSPO certification scheme include the prevention of deforestation, a reduction of greenhouse gas emissions and the preservation of biodiversity. RSPO actively aims to combat deforestation, GHG emissions caused by land-use changes and the loss of biodiversity. Regarding the tackling of deforestation and the

closely connected loss of biodiversity, RSPO demands from independent smallholders *"that new plantings since November 2005 … have not replaced primary forest or any area containing one or more High Conservation Values (HCV)"* (RSPO TFS 2010a). However, according to RSPO, smallholders are supposed to rely on regional government agencies for information on HCV areas on or near their palm oil plots (RSPO TFS 2010a). But such an information system currently does not seem to be in place. Furthermore, RSPO does not demand that independent smallholders develop and implement plans to reduce pollution, including greenhouse gas emissions.

Productivity gains related to RSPO certification potentially lead to increased expansion into forest areas. Training associated with RSPO certification can increase the smallholders' productivity and thus his income from palm oil. This leads to (i) increased economic attractiveness of oil palm cultivation and (ii) increased financial capacity of the smallholder to buy land for expanding his palm oil plantation area. If expansion takes place in forested areas, it constitutes a contradiction to a key aim of RSPO. Thirty-nine per cent of smallholders who answered the question would expand into an area that is covered by a forest (n=66). Thus, RSPO certification might lead to a perverse incentive scheme concerning expansion into forest areas. Nevertheless, the decision of the smallholder to expand depends on a variety of factors, such as personal motivation, world market prices of palm oil and other financial needs. This problem of a possible perverse incentive scheme for independent smallholders has to be taken into account in all certification processes.

The national and international political, economic and civil environment is currently impeding the realisation of large-scale ecological benefits stemming from RSPO certification in Indonesia. A set of conditions need to be in place in order to generate the benefits (see also Section 3.4.3). These can be categorised into governance, economic and civil society conditions. Needed governance conditions include, among other things, a coherent set of laws and regulations; a correspondingly efficient and stringent law enforcement system; proper land planning; a significant reduction in corruption; as well as an effective capacity division between centralised and decentralised state authorities. Economic conditions include an increase in global demand for CSPO; the emergence of a price premium; and a comprehensive certification of all plots and plantations of

one producer under RSPO. Currently, companies and smallholders can receive RSPO certification for one plantation and one plot while the standards at other plantations and plots are disregarded. In addition, important conditions concerning civil society are an increase in environmental awareness as well as a continuous media campaign to further increase consumer awareness.

6.3 Social benefits

The existing literature suggests that there are a number of potential social benefits stemming from smallholder certification. Improved working conditions (e.g. wage; principle 6), a health and safety plan (criterion 4.7) and effective participation in the decision-making processes (e.g. principle 1, criterion 2.3) are part of the RSPO P&C for an independent smallholder framework, and the provision of social infrastructure is often expected to be an indirect benefit of RSPO (see also Section 4.1.3). Our research findings show that only very few independent smallholders expect social benefits. In other words, few smallholders make a connection between RSPO and social benefits. Smallholders who do expect social benefits have severe problems with clearly defining and framing their social benefits, thus expectations remain broad and unclear. Social benefits are not the prime benefits of certification identified by independent smallholders and they rank behind economic and ecological benefits.

On the ground, smallholders can profit from social benefits such as improved health and safety and better working conditions, but it is almost impossible to attribute the provision of new social and physical infrastructure directly to certification. Certification can generate direct social benefits for smallholders insofar as it leads to compliance with the above-mentioned P&C. At the same time, one can argue that an improvement of income for oil palm farmers in a certain location can indirectly lead to an improvement of social infrastructure via different channels. An example for one channel could be an increase in donations for the renovation of existing mosques or for the construction of new ones. An example for another channel could be the construction of a new school building via financial contributions from cooperatives and/or the companies that buy the produce of local smallholders – both of which could have economic

benefits of certification in the form of increased revenues.[90] Yet, these channels for improvement are only connected indirectly to certification because the provision of such infrastructure is not an obligatory element of the certification process, as already mentioned above.

7 Empirical findings: challenges and existing gaps for standard compliance

During our study of the RSPO pilot projects, we identified a number of gaps between the standard requirements and current practices on the ground. These gaps can be broadly distinguished in two groups: first, there are specific requirements that will be difficult to achieve in view of current practices. Second, there are more fundamental, underlying gaps that make standard compliance a potential challenge. While the pilot projects are still at a very early stage, overcoming both types of gaps might prove challenging when preparing the independent smallholders for certification.

7.1 Gaps between requirements and practices

Though there are surely more gaps existing on the ground, our study has identified five gaps between specific standard requirements and current practices. These "practice gaps" concern land titles, seedlings, pesticide usage, fertilising and documentation. While these are central aspects, we have not looked at all standard requirements, and current practices and more gaps can surely be found on the ground.

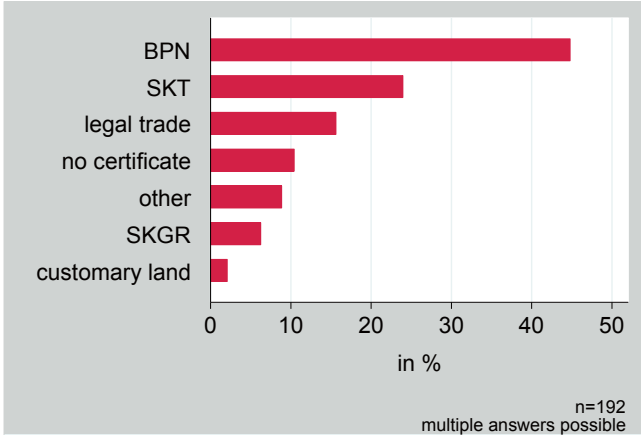
Land titles

While the majority of smallholders in our sample possess adequate land titles, for those who do not, this "major must" of RSPO constitutes to be a main stumbling stone for achieving certification. As a "major must" for achieving certification, independent small-holders have to be able

90 We encountered such an example in the South Sumatra case, where cooperatives invested part of the increased revenues due to yield increases into the construction of a school building, together with a large contribution out of the company's CSR programme funds.

to demonstrate legal ownership of their land or their land-use rights. Within our sample, 75 per cent (n=194) possess an adequate land title that is accepted by RSPO, which are either BPN, Surat Keterangan Camat – SKT or SKGR certificates.[91] Yet, certification will be challenging for those without an adequate land title. They will need to apply for a land certificate, and the processing of land certificates is both lengthy and costly in Indonesia, as smallholders confirmed. Moreover, the ex post issuing of land certificates can also be seen as critical, as it potentially legitimises former illegal logging or illegal acquisition of land.

Figure 14: Land titles of smallholders in the survey



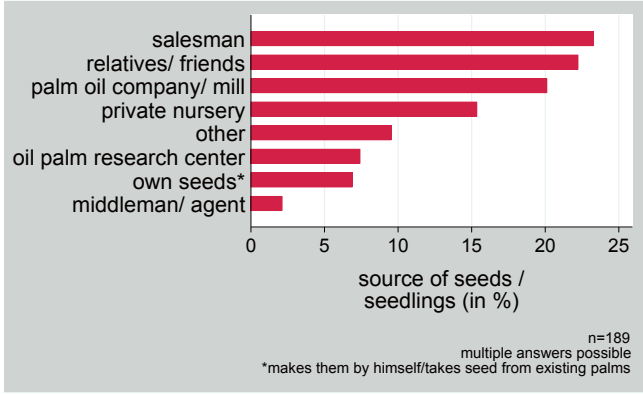
Source: Date from the DIE questionnaire (s. Annex 3)

91 In Indonesia, official land titles are issued by the National Land Agency (BPN). Yet, for independent smallholders, RSPO also accepts other legal titles from authorised bodies, as long as there is no conflict over the land and no overlapping with protected areas. This includes land titles issued by the head of sub-district (Official Statement of Land Ownership Letter; surat keterangan camat – SKT) and by the head of village (Statement Letter of Compensation Settlement; surat keterangan ganti rugi – SKGR). Trade documents proving that the land was legally bought are, however, not sufficient.

Seedlings

The use of low-quality seedlings is a major problem for independent smallholders whose seedling choice is constrained by lack of money, lack of knowledge and lack of access to good quality seedlings. Using inferior planting materials is in conflict with the government regulation on seeds and reduces productivity considerable. Yet, most smallholders in our sample rely on questionable seedling sources or even raise the seedlings themselves (see Figure 15). When buying from salesmen, neighbours and friends or private nurseries, the primary origin of seeds and their respective quality is unknown and the likelihood of buying bad seeds is very high. Reasons for still relying on dubious sources are manifold. On the one hand, convenience, the cheap price and/or the (flawed) belief that they are buying good quality often dominated the smallholders' choice. On the other hand, however, smallholders also lacked the knowledge of how to access good quality seedlings or they felt that they were not able to access good quality seedlings. Accordingly, some of our respondents claimed that they had no choice or that they did not know of a different source for seedlings. In rural areas it is indeed difficult to have access to good quality seedlings and fraud is widespread. Most likely only those small-holders who received their seedlings from a palm oil company or bought them at a palm oil research centre have good seedlings, but even those few smallholders did not have a seedling record. While RSPO gives independent smallholders a grace period until replanting time with respect to its good seedling requirement, this does not solve the seedling problem. Therefore, access to high-quality seedlings has to be improved until that date and smallholders need more knowledge about seedlings – including a better understanding of the importance of good seeds and how to access them. Moreover, also financial support in terms of loans might be needed, as smallholders might not be able to afford the initial outlays for more expensive seedlings.

Figure 15: Source of seedlings



Source: Date from the DIE questionnaire (s. Annex 3)

Pesticide usage

Smallholder practices with respect to pesticide storage / application and empty container disposal do not sufficiently consider the health and environmental risks associated with hazardous chemicals. According to RSPO, agrochemicals shall not be used in a way that endangers health or the environment. Yet, current independent smallholder practices are far from fulfilling this criterion – 20 per cent of respondents that use chemicals (n=146) store these chemicals in the house without having a separate storage room. In addition, almost two-thirds of the smallholders that use chemicals apply pesticides without wearing appropriate protection such as gloves and masks. Moreover, after emptying the containers, it is common practice to simply dump containers on the plot. Others wash and resell the containers, while a few respondents even threw the empty containers into the river. RSPO instead requires – according to current Indonesian regulation – that farmers shall give back their pesticide containers to the pesticide trader, who should then adequately handle the containers in accordance with national regulations. However, the traders we talked to refused to take back empty containers. Furthermore, another critical finding is that the amount of pesticides used is quite high. Unselective spraying of the whole plot is practised by more than half of our respondents that use chemicals (57 per cent of n=146). To save costs and time, many smallholders also spray

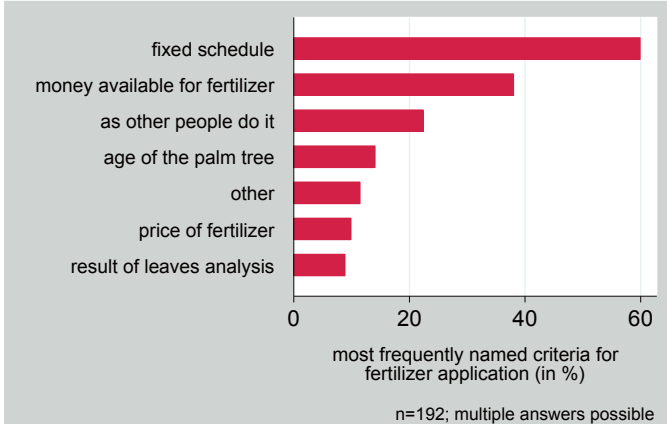
the circle around the palm tree instead of doing manual circle weeding, thereby potentially damaging the palm's roots. In order to improve pesticide practices, intensive training and awareness-raising will be needed. But even after such trainings, it could be challenging to change bad habits, such as total spraying.

Fertilising

Farmers often have insufficient knowledge about fertiliser application. Fertilising activities in most cases depend on partly inadequate schedules, money available for fertiliser and/or practices of neighbours. While RSPO requires practices that maintain or improve the soil fertility and ensure optimal and sustained yields, the standard does not make concrete prescriptions about fertiliser application. Instead, RSPO suggests that the information on appropriate fertilising may come from government extension services, big companies that buy the smallholders' FFBs or from smallholder groups. From what we found on the ground, however, this information transfer is currently not taking place. Equally, we found that independent smallholders currently lack the knowledge, the financial means and sometimes also sufficient access to fertiliser in order to fertilise in an adequate fashion.[92] When asked about the criteria that they base their fertilising decision on, the most frequent answer from smallholders was that they follow a certain (fixed) schedule. This schedule, however, was sometimes just copied from neighbours or, in the case of former scheme smallholders, dated back to their time as part of the plasma. Schedules might thus not always be appropriate for the respective palm and soil conditions. Moreover, smallholders sometimes could not follow the schedule because they lacked the money to buy fertiliser. Limited financial resources available are indeed a factor that often counteracts optimal fertiliser use. Furthermore, some smallholders claimed that it is difficult for them to access certain fertilisers. All these three problems – lack of knowledge, money and access – have to be tackled simultaneously to improve fertiliser practices from independent smallholders.

92 Those who had actually received training or information on fertiliser had mainly participated in training from the NGO Setara or training from a company for which they had been former plantation workers or plasma smallholders.

Figure 16: Criteria for fertiliser application



Source: Date from the DIE questionnaire (s. Annex 3)

Documentation

In contrast to RSPO requirements, smallholders neither document their farming activities, nor do they see the need for it. RSPO requires smallholders to document certain activities related to their palm oil plot, such as fertiliser application, pesticide use and yield. Currently, 87 per cent of smallholders in our sample (n=191) do not keep any records at all and often also do not see the need for it. Indeed, most smallholders do not understand the advantages of recording and monitoring farming activities and finances. Thus, mandatory record-keeping might indeed help to strengthen the business orientation and management capacity of the individual farmer. At the same time, however, farmers will need the will as well as sufficient instructions in order to document properly.

7.2 Underlying gaps

In the following, more fundamental gaps will be discussed. In addition to being relevant for certification, these general gaps or constraints that independent smallholders often face are among the underlying reasons for the existing practice gaps discussed in the previous paragraphs. We refer to

those underlying gaps as capacity gap, information gap, motivation gap and financing gap.

Capacity gap

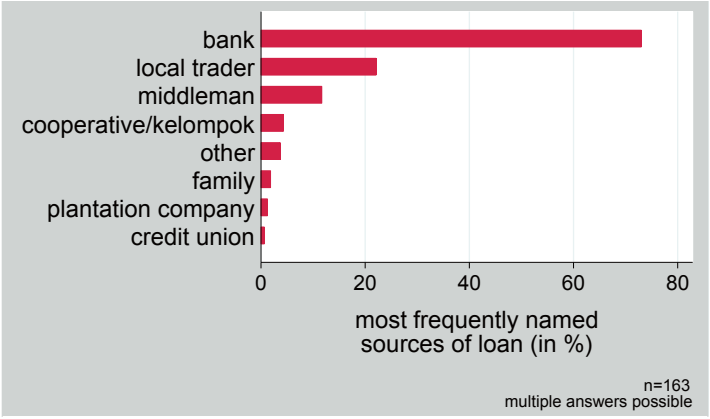
Farmers lack both the knowledge and the financial capacity to apply good agricultural practices and to act environmentally responsibly – this two-sided capacity gap represents a key underlying challenge for certification. Our empirical findings thus confirm the hypothesis that smallholders lack the capacities that are needed for certification (see also Section 4.3.1).[93] As already indicated in the paragraphs above, the independent smallholders in our sample often had only limited agronomic knowledge. Indeed, many farmers copy or imitate practices of their neighbours or nearby plantations without understanding the reasoning behind the respective practice, which often leads to errors and inefficiencies. Moreover, smallholders sometimes follow bad practices without knowing that they are harming their palm trees. This apparent knowledge gap is partly attributable to the severe lack of training in the past. Indeed, 57 per cent of our sample smallholders (n=194) have never received any training or extension services. Those who received training often received it only once, or very irregularly. While improving agronomic knowledge through trainings and other ways of knowledge transfer is important, environmental awareness among smallholders also has to be strengthened for standard compliance. As interviewed experts have confirmed, smallholders also lack the necessary environmental awareness and understanding for the negative environmental impacts of oil palm cultivation. The impression that most smallholders have no or limited environmental awareness has been confirmed in the field.[94] This makes the understanding of – and the compliance with – environmental criteria of the RSPO standard a particular challenge. But even with sufficient training and knowledge, smallholders still need the financial capacity to implement good practices and the training content a financial capacity they do not have, according to many interviewed experts.

93 The scheme smallholders we interviewed were able to better cope with certification challenges as they received knowledge transfer and technical and organisational assistance from the affiliated company.

94 Environment plays a minor role in the reasons for certification motivation given by smallholders who received RSPO training (i.e. only 4, n=49, named a reduction of the negative environmental impact as a reason).

Though money is often claimed to be a major constraint, we found that the majority of smallholders within our sample actually have access to loans. Finances might be a major constraint to adhere to the RSPO P&C, as the example of burning for land clearance shows. As some smallholders have confirmed, burning is the preferred mode of land clearance, mainly because it is fast and cheap. Thus, even knowing about the environmental consequences of land-burning might not stop smallholders from doing it. Whether, however, lack of funds is the main problem – or even the reluctance to use their money for good practices – is an open question. Indeed, 95 per cent of sample smallholders (n=194) stated that they had accessed, or could access loans. The most frequent source of loans were banks (see Figure 17). Bank loans were, among other reasons, taken to buy land, to finance replanting but also for the consumption of goods and daily necessities. For accessing bank loans, smallholders need adequate collateral in the form of land titles or their house certificate. When in need of smaller amounts of money, smallholders can otherwise also receive small loans from middlemen that can sometimes even be free of interest. While there appears to be access to finance in the regions we visited, this does not necessarily contradict financial constraints because, for example, bank loans are limited in size and require collateral. Yet, short-sighted consumptive behaviour and individual financing priorities might also affect the financial situation of smallholders.

Figure 17: Sources of loan



Source: Date from the DIE questionnaire (s. Annex 3)

Information gap

Awareness and knowledge of standards is still very low among smallholders. More active and transparent information dissemination is needed to overcome this information gap. Our empirical findings confirm the hypothesis that the smallholders under study currently lack the information that is needed to become certified (see also Section 4.3.1).Within our sample, 74 per cent of the respondents (n=191) have never heard of RSPO. Thus, information needs to be more actively spread through outside actors in order to increase awareness among smallholders. Indeed, most respondents who had heard of RSPO said they heard through targeted *sosialisasi*. Of course, one should keep in mind that the pilot projects were still in their initial phase when we visited them. Yet, even then knowledge of the standard and its requirements – of those that had been part of such a *sosialisasi* – was limited and mostly superficial. This underlines the complexity of the topic for smallholders, as well as the need for repeated trainings. Also, these smallholders had a very unbalanced picture of certification. While most were expecting benefits from certification, they did not associate any additional work or costs with certification. This might, however, be partly due to a deliberately intransparent information policy on the side of the project partners. According to the NGO supporting the pilot project in Jambi, they decided not to give the smallholders too much information on RSPO, in order to not scare them away. Though this might be a balancing act, smallholders should get a realistic picture of certification, with both its potential challenges and benefits.

Motivation and incentive gap

Smallholders do not have an intrinsic motivation or self-evident incentive to get certified, and economic benefits from certification should thus serve as the initial motivation for smallholders at the beginning of the certification process. The hypothesis that there is a lack of incentives for smallholders to become certified (see Section 4.3.3) has been confirmed by the results of our baseline study. Our findings from the field indicate that smallholders are not strongly motivation to get certified in order to generate ecological benefits. They lack the necessary understanding about environmental causalities, and, in contrast to big companies, they are not affected by reputational risks. At the same time, smallholder motivation is crucial for successfully overcoming old habits and for the acceptance of

additional work and costs due to certification. In the absence of intrinsic ecological motivation, economic incentives might be able to close that gap. When independent smallholders were asked if they knew about RSPO and if and why they were motivated to get certified under RSPO, the majority cited economic motivation, such as a higher yield. Still, smallholders should not be lured with false promises and should get a realistic picture of the certification process with both its benefits and costs.

Financing gap

To close the gaps described above, intensive preparations for certification are necessary – but smallholders lack the financial means to shoulder these costs without financial support. Preparation and compliance costs largely depend on the current level of practices. We have seen that considerable gaps still exist between what is required by a standard and what is practised on the ground. To overcome the various knowledge gaps, training will be needed and will constitute a key cost factor – that depends both on the quality and frequency of training. Improving agronomic practices and complying with other certification requirements will equally imply additional costs and work for the smallholders. For example, smallholders might need more expensive inputs (such as high-quality seedlings) or additional equipment (such as clearing machines) that needs to be bought or rented. Since it is indeed the case that the costs of certification exceed the financial capital of smallholders (see also Section 4.3.1), the cost factor can severely hinder the inclusion of smallholders. Even if certification costs can be regarded as investments that may later pay out due to higher yields, the initial financing needs still have to be covered and financial support, e.g. through loans, will be needed.

8 Training, organisation and support as potential solutions

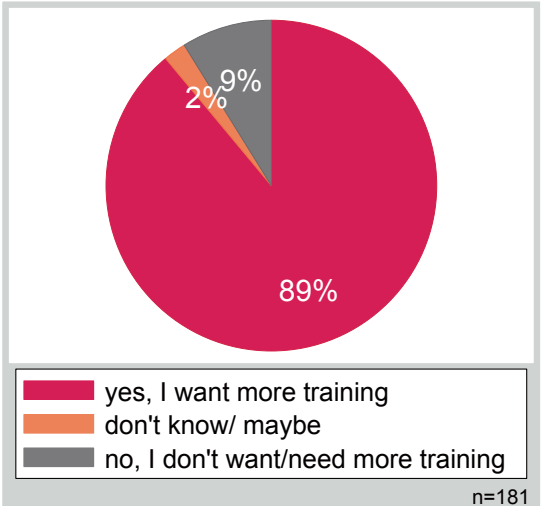
In order to tackle the gaps discussed in the previous chapter, a three-dimensional approach should be followed, comprising the following elements: 1. training, 2. organisation and 3. support. This chapter presents our analysis of the prospects and challenges of these three elements as potential solutions to addressing the above-mentioned gaps and discusses

important practical points that should be kept in mind in that context. Chapter 10 will present a summary of the main recommendations for training, organisation and the support of smallholder certification projects.[95]

8.1 Training

To close the existing certification gaps, effective training is needed. Training is crucial: 57 per cent of farmers in our sample (n=194) have never received any training whatsoever. The lack of training in the past is one reason for the existing knowledge gaps – at the same time, it offers potential for considerable improvements. In short, effective training is a promising tool to overcome the gaps and challenges outlined above – especially those related to the lack of knowledge-capacity and information about standards and certification processes.

Figure 18: Training demand

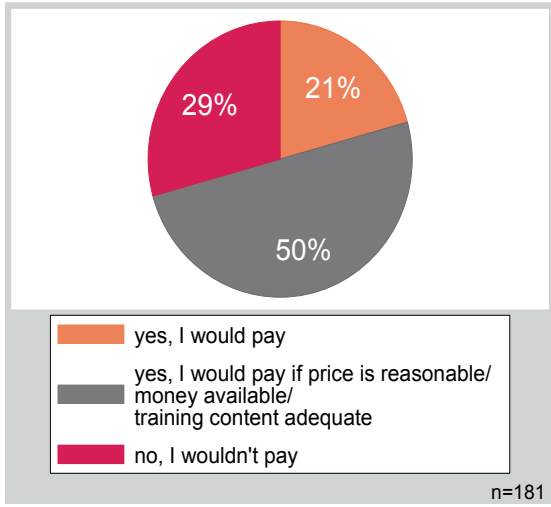


Source: Date from the DIE questionnaire (s. Annex 3)

95 See also Brandi et al. (2012b).

Smallholders perceive trainings as very useful – and there is high motivation and demand for it on the side of smallholders. Of the smallholders who replied to our question, 89 per cent (n=181) want to receive (more) training (see Figure 18), and 71 per cent (n=116) are even willing to pay for the training as long as the price is reasonable or the training content is adequate in their view (see Figure 19). This strong demand provides a solid basis for successful trainings. But in order to achieve their purpose, trainings should be well-tailored (i) to the needs of the audience and (ii) in terms of content; they should also (iii) effectively focus on the right kind of audience and (iv) be complemented by a systematic transfer of knowledge derived from training sessions, in order to spread information beyond those who directly participate in trainings.

Figure 19: Willingness to pay for training



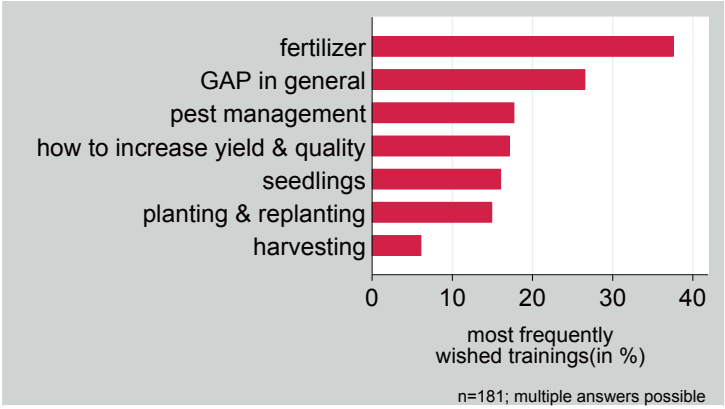
Source: Date from the DIE questionnaire (s. Annex 3)

(i) Well-tailored training: training sessions should be conducted in accordance with the needs of farmers. Most smallholders are not used to learning in formal settings – they finished school years ago and many have a low level of education. In our sample, as much as 49 per cent of the small-

holders (n=195) merely finished primary school or did not have any formal education. Against this background – and on the basis of comments and suggestions from the farmers we interviewed – the following recommendations should be taken into account: training sessions should (i) not last too long but offer sufficient time for questions; (ii) be held in groups of 20 persons maximum, so that everybody has the possibility to ask questions and the atmosphere is more informal; (iii) be practical, ideally carried out on a central demonstration plot, which should be established in every village; (iv) be held in the language the smallholders are familiar with, i.e. in the regional dialect and not in an academic manner; (v) be held by a professional trainer with good rhetorical skills, good knowledge about oil palm cultivation and RSPO.

(ii) Well-tailored content: the content of training sessions should outline the benefits of RSPO certification, be in line with the demands of the smallholders but emphasise the ecological dimensions of sustainability. In order to catch the attention of the audience, training sessions should start by highlighting the benefits of RSPO certification for smallholders. Since economic benefits are most relevant for smallholders, it should be underlined that trainings can improve agricultural practices, which can in turn lead to higher yields. The benefits of every single training session should be underscored for smallholders – both to keep farmers interested and to make them understand the importance of implementing the training content. Trainings should include information on standards and their requirements and the themes that smallholders are most interested in. Among the smallholders we asked (n=181) such themes were trainings about good agricultural practices (GAPs) in general, especially fertiliser and pest management (see Figure 20). The ecological dimension of sustainability and raising environmental awareness should be a central component of the training plan. To grab the attention of smallholders, ecological trainings should start with topics that affect smallholders directly, e.g. reduced pesticide usage, before they proceed to more abstract topics such as the value of forests, endangered species or climate change. Especially in the context of more abstract themes like ecological sustainability, the aim of the training should be to make farmers understand the reasoning behind the learning content and its relevance, rather than enabling them to repeat catch phrases they may not have understood – let alone internalised.

Figure 20: Training content demand



Source: Date from the DIE questionnaire (s. Annex 3)

(iii) Effective scope of audience: training sessions have to focus on plot owners but also encompass a broader audience, especially hired workers. According to the RSPO P&C, training has to go beyond the smallholders who own the respective plots (and their families) and also has to encompass the workers that these smallholders hire to work on their plots. This is necessary in order to make sure that they also use practices that are in conformity with RSPO, so as to increase the effectiveness of certification.[96] Including workers in trainings can pose a significant challenge. For example, 65 per cent of smallholders in our sample (n=194) hire workers.[97] Hired workers, but also family members like wives, widows and children, broaden

96 According to the P&C for Independent Smallholders, *"... workers on smallholder estates also need adequate training and skill that can be achieved through extension services as provided from growers or mills that purchase fruit from them, by smallholder organisation or collaboration with other institutions or organisations..."* (RSPO TFS 2010a, 47: Guidance for criterion 4.8.).

97 For example, around one-third (33.6 per cent) of those who have workers (n=128) replied that they hire them for pesticide application, which is an important task in the context of certification and ecological sustainability.

the audience that should receive training – which underlines the necessity to combine selective trainings with systematic knowledge transfer.[98]

(iv) Systematic knowledge transfer: effective training has to be complemented by a system that helps to spread the knowledge systematically. Insofar as it will probably not be possible to train every smallholder participating in a certification project individually on every possible training unit, let alone hired workers, it is essential to establish a system of knowledge transfer. Knowledge transfer, in turn, should be based on farmers' groups (see below). The group staff (i.e. those who hold official positions in the groups) need to learn how to transfer knowledge and they have to pass on the knowledge to the members of their group during group meetings. The need for systematic knowledge transfer thus points to the need for organising farmers into groups. Those who are meant to be multipliers of knowledge (e.g. *kelompok* heads) should be made aware of their incentives to systematically transfer knowledge by emphasising the individual benefits of such a transfer (e.g. if average yields or quality of FFBs in the group improve). Less formalised knowledge transfer beyond group meetings (e.g. face-to-face *sosialisasi* while picking up FFBs) can supplement knowledge transfer in groups but is not adequate in itself to safeguard systematic knowledge transfer. In short, group meetings are needed and well-tailored training should be combined with effective ways of organising farmers – the second of the three suggested approaches to tackle the above-mentioned certification gaps.

8.2 Organisation

The organisation of smallholders is the second crucial factor in order to overcome existing gaps and challenges concerning certification and in order to realise benefits for smallholders. Our empirical findings demonstrate the lack of smallholder organisation in the context of the cer-

98 During our research, for example, we encountered several cases in which widows had to manage the oil palm plot after their husbands' deaths. But because only the husbands had received trainings, they did not have the necessary knowledge, resulting in bad practices and consequently in lower yields. Including several family members in trainings or ensuring a systematic knowledge transfer can thus slightly reduce the vulnerability of the family's livelihood.

tification projects under study (see also Section 4.3.2). Yet, the process of organising smallholders into groups in itself presents challenges. The following paragraphs are structured as follows: first, we again put forward the importance of organisation for smallholders and their certification. Second, we outline the different levels on which smallholders could, and should, be organised and their relations towards each other. And third, we elaborate on trade-offs and potential challenges that process planners and supporters have to take into account when organising smallholders.

When looking at RSPO certification of independent smallholders, two kinds of groups have to be distinguished: first, the (certification) group manager, whose existence is a requirement stipulated by the RSPO standard for group certification. He is responsible for preparing the smallholders for certification and for ensuring their standard compliance via an internal control system. Second, smallholder organisations at smaller and larger group levels *(kelompok / gapoktan)* are not a formal requirement for RSPO certification but are nonetheless necessary for a successful certification.

The organisation of smallholders into groups is a necessity for a successful certification process. First, group certification makes certifying smallholders economically feasible; smallholder organisations complement the functions of the group manager, thus reducing the organisational and scale challenge of certification. Second, as already indicated above, groups serve as essential instruments for a systematic knowledge transfer. They are a platform in which the distribution of knowledge and information on standards and agronomic practices can be institutionalised and connected to the smallholders. This includes the acquisition of information and knowledge external to the group by the staff as well as the sharing of information, knowledge and experiences inside the group between its members. Main instruments to achieve that are the participation in – and the organisation of – trainings and technical support by staff and members.

In addition to their relevance for certification, smallholder organisations can offer their members a wide array of benefits. First, they can offer a better bargaining position towards mills and can help members to advocate their interests. Second, they can provide support and training. And third, they can offer beneficial activities such as marketing the members' FFBs (paying a higher price than middlemen), providing better access to inputs (also subsidised), maintaining infrastructure, organising savings plans for inputs and replanting, as well as potentially providing loans and insurance.

8.2.1 Smallholder groups, cooperatives / *gapoktans* and the certification group manager

Smallholder organisations must be created at two levels: (i) individual farmer groups and (ii) cooperatives / *gapoktans.* If farmers are organised, it is mostly in small groups of up to a maximum of 25 members called *"kelompok tani"*. These *kelompoks* can also be subunits of a bigger smallholder group (*"gabungan kelompok tani"* or *"gapoktan"* in short) or cooperative *("kooperasi")*. These bigger groups should normally provide more specialised and professionalised services or support to the individual *kelompoks.* Forty-four per cent of the smallholders in our sample (84 of N=193) are members of a *kelompok,* but so far a *gapoktan* exists in only one of the villages we visited. Yet, it is important to also establish cooperatives in order to ensure an efficient division of labour and activities. Although the *kelompoks* can provide some services and activities to their members, their lack of human and financial capacities limits the portfolio of activities they can pursue on a viable scale. Whereas cooperatives or *gapoktans* offer the opportunity to develop some economies of scope and scale, through establishing specialised units for the activities provided to all member *kelompoks.*

The two forms of smallholder organisation discussed – smallholder groups (kelompoks) and cooperatives / *gapoktans* – are not in themselves a formal requirement following the RSPO standard for group certification (RSPO TFS 2010c), yet they are crucial for certification. The National Interpretation of the P&C of RSPO for independent smallholders outlines the importance and responsibility of smallholder organisations for 21 major and minor indicators and activities (RSPO TFS 2010a). This emphasises the importance of having an adequate smallholder organisation for the certification process.

Thus, it is crucial to complement the establishment of a certification group under a group manager with the formations of *kelompok tanis* and cooperatives / *gapoktans.*[99] While the already mentioned forms of

99 A study of smallholders in bioenergy value chains for the FAO comes to a similar conclusion: Although smallholder organisation is identified as a key challenge, if achieved, it is also an important element of a successful inclusive business model (Beall 2012, vi, 94). Many of the conclusions and recommendations of the FAO study concerning the organisation of smallholders are in line with the findings of this study.

smallholder organisation are beneficial for smallholders and can contribute to successful certification, the RSPO group certification standard, in its current form, only requires the obligatory establishment of a group manager, which can be a person or an organisation (see also Section 4.2.2). This group manager will be responsible for the preparation of the certification process and the smallholders' compliance with the standard. The plan is for the group manager to provide training and support with a GAP unit; to manage licencing and marketing of the sustainably produced FFBs with a marketing unit; and to have an ICS in place, with a monitoring unit that controls standard compliance of all members. In light of these manifold responsibilities, managers of certification processes have to take into account that the absence of a smallholder organisation at the group and cooperative / *gapoktan* levels is likely to be a major pitfall for successful certification. Just establishing a certification group with a group manager will probably not create the capacities necessary to prepare unorganised smallholders for certification. Certification in the absence of a smallholder organisation is difficult to realise, for example, because of considerable challenges for the implementation of training units and the ICS, inter alia arising out of unstructured and fragmented communication, the lack of training and information multipliers, or the lack of peer pressure and peer support in small groups for ensuring compliance with the standard.

Box 9: Are big smallholder groups in the Indonesian palm oil sector real cooperatives?

Although they might be labelled cooperatives, this does not mean that all **seven basic principles** (ICA 2005; Ortmann / King 2007, 41f.) of cooperatives are fulfilled to full extent, because reality draws a more ambiguous and complex picture than a theoretical categorisation.

Voluntary membership applies concerning independent smallholders. Scheme smallholders are not always able to freely leave a cooperative, depending on the contracts. Even for independents this criterion applies to a limited extent: membership is voluntary and they can leave if they want, but free choice of cooperative or *kelompok* is constrained by group availability, geographic constraints and the capacities of groups.

Democratic member control applies to a limited extent, because sometimes there are no elections of group leadership, and if there are, competition for the post is limited due to many members not having the capacities or respecting a certain person with high social standing.

Member economic participation is the case, though it varies in degree depending upon the amount of activities offered by the group. Additionally, in most cases members did not need to contribute an initial investment, thus making them members but not real formalised owners of the cooperative.

Autonomy and independence applies to a limited extent, because often the selling structure does not allow for real economic independence and because national regulation tends to constrain political and legal independence (as, for example, with the KUD scheme that was strongly influenced by the Indonesian government).

Provision of training, education and information is being achieved by some of the groups, mainly scheme smallholder cooperatives supported by a nucleus plantation. Yet, as already mentioned, this principle might well be one of the most important ones in order to achieve smallholder certification and certainly lies within the achievable scope we elaborate on in the following paragraphs.

We encountered **cooperation among cooperatives** only in the case of the scheme smallholder cooperatives in South Sumatra. Although the exchange of information and sharing of experiences was not institutionalised formally, interviewed staff of different cooperatives affirmed that there were frequent informal meetings between staff and a strong competition among the cooperatives for prestige.

The existence of **concern for the community** is of course hard to measure and depends largely upon defining who the community is. Yet, we encountered examples of cooperatives giving donations to social projects, providing insurance as well as giving limited financial support to families (also of non-members) in the case of deaths of community members.

Overall, it can be concluded that the "cooperatives" we encountered fulfilled only select criteria to varying degrees. On the ground, the boundaries between cooperative and other producer group models are blurred, perhaps even more so because of the specific peculiarities of the commodity sector in Indonesia: (i) the primary product (FFB) is hardly something that can be marketed directly to the consumer because there are often too many processing steps between the primary producer and end-consumer; (ii) the necessity of fast processing of the FFBs as well as an often monopsonistic selling structure constrains cooperatives in their economic agency; (iii) expanding the supply chain downstream is out of the question for cooperatives due to the huge financial, technical and organisational entry barriers; (iv) cooperatives predominantly act as producer groups that concentrate on a limited set of activities.

Thus, in the following, we will still speak of "cooperatives", because many of the above-mentioned principles apply to a limited extent, but we will do so in con-

junction with the term *"gapoktans"* to point towards the actual differences in producer group models on the ground. What is important is the level on which these groups are organised: integrating several *kelompoks* and offering economies of scale and scope.

8.2.2 Relevant considerations of group structures and relations for certification project planners and supporters

Top-down or bottom-up approach in deciding on group structure

At the very beginning of every certification process, process planners must reflect on the relation, accountability and division of responsibilities between smallholder groups, cooperatives / *gapoktans* and the certification group (group manager). Process planners have to promote clear regulations and guidelines for the responsibilities and rights of every group and staff member as well as for the groups at the different levels themselves. At the certification group level, this is already partly determined by the RSPO standard for group certification, but a contract between the certification group's group manager and all cooperatives / *gapoktans* must still be signed. At the level of cooperatives, and especially *kelompoks,* the constitutions and contracts can be customised to a greater degree in order to fit the specific context.

There are two options for managing the step of creating the internal regulation of groups and cooperatives – either in a top-down or participatory manner. The first option is to draft a technical proposal for group structures and responsibilities that have to be implemented – either via existing groups adopting it or via creating new groups. But although such a drafted structure might seem adequate and efficient in formal or theoretical terms, its acceptance still largely depends on smallholders seeing its benefits, and thus committing to it. This, for example, was not the case in the context of the village cooperative unit scheme *(kooperasi unit desa)* of the government of Indonesia in the 1980s and 1990s, which led to many of these cooperatives being unsuccessful (Jelsma / Giller / Fairhurst 2009, 20ff.; Oktaviani 2004). The second option is to let smallholders participate in deciding about which structure their group should have. This does not mean that they should come up with a structure on their own, but rather that best practice options are offered and explained to them – with all related

advantages, requirements for success and implications for the farmers. Although this approach is likely to require more effort and time for guidance in the beginning, it is more participatory and generates commitment by letting smallholders participate in deciding upon rules and structures. This, in turn, is an essential asset for the sustainable functioning of these groups. In our sample, almost no *kelompok* had an official constitutional document or contracts with its members that would stipulate rights and responsibilities of member and group staff.[100]

Deciding on the degree of centralisation

Two things should be considered in the context of establishing a smallholder organisation: first, the degree of centralisation of activities in a cooperative / *gapoktan;* second, a system of collective incentives in a *kelompok.*

Centralisation of agricultural activities within cooperatives / *gapoktans* offers potential efficiency increases, but poses the danger of mismanagement and might decrease smallholder participation. On some best practice plantations (as, for example, our South Sumatra case), cooperatives provide most relevant agricultural activities as services to smallholders. Some cooperatives have centralised all those activities that have been prone to bad agricultural practices by the individual smallholders, as for example through a professionally trained spraying team for pesticide application or a special team for fertiliser application. On the one hand, in this way, compliance with standard criteria is easier to achieve, activities can be carried out with high efficiency and the workload for individual smallholders is lessened. But on the other hand, such centralisation of central agricultural activities bears the risk of smallholders losing knowledge, practice and experience concerning good agricultural practices and especially standards.

100 Answering a question regarding the existence of internal regulation, 54 per cent of the *kelompok* members' respondents said that their group had no formal internal regulation at all (30 of n=56), 37 per cent stated that their group had internal regulation (21 of n=56) – although they were just referring to informal rules in most cases – and 9 per cent (5 of n=56) did not know (which can be an indicator for lacking participation in the group, but also that there probably is no binding regulation – otherwise they would be affected in one or more ways). [n= only 56, because the question about internal regulation was added at a later point and not asked in all locations as well as because not all *kelompok* members responded to that question].

Furthermore, too much centralisation might set an incentive for farmers to become simple rent-seekers and to stop actively participating in the groups. This incentive for less participation in group activities, together with the strong concentration of activities at the cooperative level, offers a high potential for mismanagement and the misuse of power by cooperative staff (e.g. corruption). Only strong transparency and control mechanisms can act as safeguards against this danger.

A system of collective incentives has to be created that facilitates group participation and adherence to the rules of the group. Process planners of a smallholder organisation have to walk a tightrope when deciding on possible options concerning collective incentives. The advantage of establishing such collective incentives is the stronger inter-reliance of members, better peer support, collaboration and peer pressure to adhere to the groups' rules, and thus a higher level of participation in group activities. A best-case example is the NESP Ophir project, in which scheme smallholder groups with strong collective incentives were established. In those groups, the payment of all members was dependent on the collective average monthly yield, with an additional individual quality and quantity incentive, combined with support and control in order to avoid free-riding. This sets incentives for all members to ensure that they themselves and other members use good agricultural practices (GAPs) and adhere to the standard criteria (Jelsma / Giller / Fairhurst 2009, 20 ff.). But the downside of this approach is that it is easier to establish with new *kelompoks,* rather than changing existing ones, because farmers have to be actively involved in deciding in favour of such a system. Only then do they identify themselves with it and commit themselves to a more collective management. Furthermore, such an approach is hard to follow with independent smallholders, who will have different capacities at their disposal and be in different situations. Whereas in a scheme group, plots are of the same size and seedlings as well as palm age are the same, for independent smallholders these variables can differ considerably. In such a case, strong peer pressure can also be negative, if for example one farmer cannot change his low yields due to external constraints (bad seedling quality) but is confronted with pressure because he is reducing the average collective yield. More individual management of the *kelompok* and the members' plots is of course easier to implement, but it will become harder to enforce standard compliance and group participation if members do not see the benefits and if there are no special collective accountabilities concerning standard compliance. The problem of free-rid-

ing on group activities – e.g. when individuals who participate in training do not implement it on the plot – will persist in this structure. And it might be harder to generate continuous participation of all members.

Deciding on a group manager (for the certification group)

The selection of a group manager (be it an entity or a person) may depend on the specific case context, but it has a strong impact on the viability of the certification process. The decision depends on whether there already are smallholder groups existent, whether there are big collector groups of middlemen or if there are companies willing to play a part in supporting the certification process. In this context, planners have to carefully contemplate which institution is best suited to be the group manager responsible for the smallholder certification. Of course it would be possible to just create a new organisation (with specialised teams) to be the group manager that would be responsible for a larger amount of smallholders (even several cooperatives). But depending on how many smallholders this group manager would be responsible for, the manager would need a high level of human and financial capacities to cover all smallholders sufficiently. Thus, it is either necessary that additional actors support such a newly founded organisation as the group manager from the outside, until operations are running efficiently, or that a central actor with own capacities has to become the group manager.

If large cooperatives already exist, another option is to let one of them become the group manager. Yet, in terms of human and financial capacities, the requirements for providing sufficient support to the smallholders and running all the necessary tasks are very high. So if a cooperative / *gapoktan* is rather small – as in most cases encountered in the field – it would most likely not be able to generate enough internal revenues in order to have enough professionalised staff to carry out complex tasks, such as the ICS and documentation. And it is only realistic to expect the cooperative / *gapoktan* to provide the necessary activities only for its member *kelompoks,* but not for others located in different villages, thus limiting the size of the individual certification groups from the beginning.

Process planners should be especially cautious when deciding on whether collector groups of middlemen or a company can fulfil the role as group manager. In the former case, when a collector group itself is mar-

keting the FFBs of smallholders, and thus absorbing generated revenues, it is questionable whether such a group manager has the interest to establish truly functioning smallholder organisations that have an own revenue source in the form of own FFB marketing. In the latter case, when a company becomes the sole group manager, the same question has to be asked. Although companies might show strong interest to support smallholders in order to strengthen their own supply base, this interest might come with the goal of binding independent smallholders and gaining influence over them.

Every approach for selecting a group manager will have up- and downsides, and the contextual constraints will often limit available options. But whatever option is chosen, in our opinion, the selection of a group manager can only contribute to a successful certification process if: (i) it does not come at the cost of a smallholder organisation at the group and cooperative / *gapoktan* levels; and (ii) there are control and transparency mechanisms that work upward from *kelompok* member towards group manager, as well as downwards, complemented by the control by an external body.[101]

8.2.3 Further problems encountered on the ground

During our field phase, we encountered several problems concerning the establishment and functioning of smallholder organisations that have to be taken into account: first, the need for support and financing for group establishment; second, difficulties in recruiting qualified and motivated staff for groups; third, difficulties in recruiting members for groups; and fourth, difficulties in ensuring continuous participation.

Costs of establishing groups and need for support

The establishment and support of organisations on the aforementioned three levels (*kelompok,* cooperative / *gapoktan* and group manager) will undoubtedly be costly. Until these groups are able to generate enough rev-

101 These mechanisms go beyond the control of the group managers' ICS during the RSPO audit as outlined in the RSPO standard for group certification (RSPO TFS 2010c), but include, for example, the control of the bookkeeping of the certification group and of a sample of the cooperatives and kelompoks. Because the higher and the more removed the level of organisation is from the individual smallholder, the higher the potential is for mismanagement and corruption.

enue through administrative fees for certain activities (such as for FFB marketing or input procurement) to cover their own costs, external financial support must cover the high kick-off costs, such as for trainings or the payment of professional staff. Of course, in the long run, a smallholder organisation at any level has to be able to cover its own costs. That is the reason why it is so important that *kelompoks* or cooperatives / *gapoktans* try to establish activities that have potential to generate revenue, such as procuring inputs or marketing FFBs. The establishment of functioning groups will require a substantial amount of support, not only in terms of financing but also in terms of trainings, in order to build up the capacities of the different organisational units, which they will need to carry out their tasks in a satisfactory way.

Recruitment of staff and members and continuous group participation

There are three issues concerning participation that are important: (i) it is difficult to recruit staff for the groups; (ii) it is often difficult to recruit the first members of a *kelompok;* and (iii) it is difficult to ensure continuous participation of all members in the group activities. The underlying issue in this context is that farmers should realise that group participation can generate benefits.

First, *kelompoks* and *gapoktans* need an incentive structure that compensates staff for their work in order to motivate them. The more activities a group has, the greater the importance for it to have qualified and – more importantly – motivated staff, so as to be able to carry out the activities efficiently. Especially at the *kelompok* level, the workload can already be considerable, whereas the level of professionalisation tends to be lower compared to cooperatives (especially in terms of monetary compensation). Several interview partners told us that they had quit *kelompok* staff positions or did not even want to become part of the group staff – especially at the head position – because to create groups, recruit members and keep the groups running was too difficult and too much work. Thus, it is essential to provide incentives, e.g. at least a small salary – in the best case, a performance-based salary (performance of *kelompok* in terms of yields and standard compliance) – to compensate staff for their efforts and to motivate them. Furthermore, one should select persons as staff who have the potential to put the trainings, which they will need to receive for successful group management, to a good use.

Second, the initial recruiting of group members can be very hard – especially where farmers have already experienced group mismanagement in the past, often concerning former KUD schemes. Some interviewees – especially in the case of North Sumatra – said there had been mismanagement in KUDs in the past and that the KUDs finally became inactive. Especially among independent smallholders, such bad experiences make it hard for them to build trust in new groups. Many farmers do not perceive the long-term benefits a group can offer if managed correctly. It is therefore necessary to use immediate benefits like input procurement and initial GAP training as entry points. At the same time, longer-term benefits such as stringent FFB marketing, specialised support services and bargaining power have to be advertised from the beginning, embedded in an explanation of how to develop the group further over time in order to achieve these benefits. In addition, we found a number of cases in the field where oil palm farmers did not know of groups in their geographic vicinity. Thus, more aggressive and proactive advertising of and informing about groups is necessary. But even more importantly, groups first have to create value and realise benefits for farmers, otherwise no amount of advertising will suffice.

Closely connected to this is the fact that many potential members do not join a group, or at least do not sell their FFBs to their own *kelompok*, because they still owe debt to a middleman. There are many farmers who prefer to sell through middlemen, because in that way they can access attractive loans, sometime even free of interest. We also found that owing debt to the middlemen often makes farmers feel obliged to continue selling to them or to not even enter a group at all – even though they might want to. As *kelompoks* strongly depend on FFB trading as a central source of revenues, it is essential to consider strategies how to free farmers from debt obligations towards middlemen. Perhaps the individual groups could overtake the debt payment plus offer an additional compensation for the farmers they want as members and deduct necessary costs from the farmers FFB contributions.

Third, continuous participation of members in group activities has to be ensured through continuous explanation of every single benefit of the activities and through internal regulation. Initial recruitment was not the only problem of *kelompoks* encountered in the field. Ensuring the continuous participation of members in group meetings and activities can often

be a problem. In our survey, of 83 respondents that are *kelompok* members, only 59 per cent always participate in group meetings. The rest either just participates sometimes (28 per cent) or never (13 per cent). We encountered just one *kelompok* with an internal rule that made attending meetings obligatory. In order to facilitate better participation, *kelompoks* should establish incentive structures coupled with sanctions. For example, they could make attendance an obligatory rule, decide upon sanctions in cases of (multiple) non-compliance and set incentives for participation, for example, by making attendance a requirement for input ordering. Furthermore, the benefits of participation in meetings and every activity should be explained and advertised over and over again to the farmers. Again, groups first have to create value and realise benefits for farmers, ideally doing so through the participation of farmers, or in close connection with them.

Another important point is to scale up the frequency of group meetings. Just 39 per cent of the respondents (n=83) who were members in *kelompoks* said the frequency of meetings was once per month or more often; 20 per cent stated meetings just took place irregularly; and for 5 per cent there were no meetings at all. There is thus enough potential to better institutionalise group meetings as important communication platforms. This is also important for the next point: transparency.

Smallholders' understanding of the use of transparency and control

A lot of smallholders in the field lacked the motivation to access group documents and exercise control on group activities. Although it was stated by 83 per cent of the respondents that they could access the documents if they wished, only 42 per cent of them ever made use of that right.[102] Most said they did not see the benefit of doing so and did not understand the importance of monitoring group activities; others said they trusted the staff. Both responses indicate the need to make members understand that exercis-

102 Of 53 respondents who answered the question and were members of *kelompoks,* 44 (83 per cent) said that it was possible for them to access group documents, whereas 4 (7.5 per cent) said it was not possible for them and 5 (9.5 per cent) did not know. Of 50 respondents to the following question – if they ever had accessed documents of the group – 29 (58 per cent) answered with "no" and only 21 (42 per cent) with "yes."

ing their rights is good for the group and that this is no sign of mistrust towards the staff.

Box 10: General problems and challenges for agricultural smallholder cooperatives

There exists extensive literature regarding the manifold problems and challenges that confront agricultural cooperatives in developing countries (such as Ortmann / King 2007; McLoughlin 2011; Molenaar / Beekmans / Pelders 2012; and Trewin 2004). The aim of this report cannot be to discuss them in detail, but it can give a short overview in order to emphasise how many things have to be taken into account when organising smallholders.

On the one hand, a successful operation of cooperatives can be constrained through **external problems,** like a lack of independence (e.g. through governmental influence); lack of legal security and law enforcement; lack of physical and social infrastructure; lack of support and training services; and the lack of a labour market for professionalised staff and capable managers.

On the other hand, the potential **internal problems** leading to failure are manifold, such as the main five problems identified in economic literature (Cook 1995; Royer 1999): free-rider problem, horizon problem, portfolio problem, control problem and influence-cost problem. Since the cooperatives encountered on the ground finance themselves through service fees, did not levy an initial investment from members and had just a limited set of activities, the horizon and portfolio problems apply only to a smaller extent. Considering investment, this is also true for the free-rider problem, but when it comes to group certification, free-riding can constitute a major problem. What seems to definitely play an essential role is the control problem (principal-agent / moral hazard problem).

More important than most of these main potential deficiencies identified in economic literature, the failures of agricultural cooperatives in developing countries have often been connected to bad management (lack of knowledge, training and experience); inability of members to dismiss inefficient management; lack of capital resources; members' lack of identification with the cooperative and – closely connected to this – disloyalty due to ignorance or opportunistic behaviour; lack of member education and basic business skills; as well as the failure of the cooperative to compete with other businesses and provide services of good quality.

Many of those problems connect directly to our observations and recommendations and essential success factors for cooperatives have been mechanisms that deal with these internal problems.

8.3 Supporting and planning smallholder certification projects

Of course, the above-mentioned need for extensive training and organising smallholders in group structures makes support from external actors necessary. Support is thus the third key factor in overcoming existing gaps and challenges concerning smallholder certification.

There is currently a lack of incentives in the context of smallholder certification. The lack of an incentive for smallholders to become certified is largely due to the missing price premium and the costs and challenges of smallholder certification, as discussed in Chapter 7. As discussed above, in the absence of an intrinsic ecological motivation, economic incentives might be able to close the motivation and incentive gap (see Section 7.2). Yet, a number of the benefits that are supposed to be generated by certification – above all, good agricultural practices and the potential to increase yields on that basis – are already being provided to smallholders in the context of the preparation and training sessions prior to the actual certification. This underlines the need to stress the ecological benefits and the health and safety benefits of RSPO certification for smallholders in order to strengthen the basis for their intrinsic motivation to become and to stay certified.

Until now, smallholder certification has not been a fast-selling item initiated by smallholders themselves, but has always been initiated and substantially supported from outside. This does not come as a surprise, since the processes of establishing organisations and conducting trainings exceed the financial and organisational capacities of smallholders by far. Thus, smallholder certification is currently taking place in the form of isolated (pilot) projects: the three projects we studied had been initiated and supported either by plantation companies located close to the smallholders or by NGOs that were financially supported by external donors. How much financial support is needed and how long it will take to implement such certification projects largely depends on the situation on the ground, i.e. whether the smallholders are already organised in *kelompoks* and whether they have received GAP training in the past.

While considerable external support is needed to certify smallholders, it is crucial to choose dependable project partners as well as a sustainable scope at the beginning of the project. Already in the planning phase of the project, it is essential to keep in mind that the project has to be sus-

tainable, i.e. that it should be financially self-sufficient after the first audit and that smallholders should be able to continue with trainings and maintain their groups without support. While it might be faster, easier and cheaper to certify a rather small number of smallholders, it is questionable whether the revenues derived from a small-scale project, such as the price deducted from every kilogram of FFBs sold via the group, will be sufficient to finance ongoing certification activities after external support has been phased out. During the planning phase of the project, it is equally important to ensure that the supporting organisation identifies itself with the goals of RSPO. This was not necessarily the case in the projects we visited: in one project, at least some of the organisers saw certification primarily as a tool to strengthen ties with the independent smallholders and to ensure the supply base of a company's mill. In the other project, the socio-economic well-being of the smallholders was at the centre of activities, while the ecological dimensions of RSPO were almost completely neglected and certification itself was just seen as the "icing on the cake" of a smallholder organisation.

During the initial phase of the project, all partners have to agree upon a clear project schedule as well as on a draft budget. While this seems obvious, both pilot projects we studied showed an apparent lack of such planning: in one case, there was no realistic schedule for establishing (any kind of) smallholder groups. In both cases, when we studied the projects, neither a timetable for the necessary trainings, nor a strategy to set up a functioning system of knowledge transfer existed – even though trainings were already in the pipeline or even ongoing. Moreover, the financing of the last project stages (including the costly audit) was not secured in both cases. Against the backdrop of this experience, and since supporters on the ground usually have no experience with certification projects, such project partners might themselves need more assistance from outside.

During the implementation phase of the project, the establishment of smallholder organisations and the training of smallholders should be started at the same time. Simultaneous implementation of group formation and training will be challenging. However, it is ineffective to give trainings when a *kelompok* (and thus a system of knowledge transfer and sharing) is not yet in place. In that case, taught knowledge will soon be forgotten and the content of the training will not be passed on to other smallholders. Likewise, it is not viable to establish *kelompoks* without an immediate benefit for the smallholders (such as regular trainings or systematic

knowledge transfer) because the smallholders are likely to no longer attend *kelompok* meetings and the *kelompok* would thus become inactive.

Regarding the establishment of organisations, multi-level group structures should be built "bottom-up" starting with the lowest-level groups: in a first step, *kelompok* tanis should be set up as an essential component of the certification process. Only at this lowest level can smallholders be integrated into the project from an early stage on – thus developing ownership – and can be trained effectively. This single step may already take several years. In a second step, cooperatives or *gapoktans* can be built that include several *kelompoks.* The cooperatives / *gapoktans* can provide more complex services to their members, such as, for example, loans and saving schemes (for replanting). In a third and last step, but not long after the establishment of cooperatives / *gapoktans,* a group manager should be established – the manager will take the responsibility for a successful initial audit and oversee the certified group for the upcoming years and follow-up audits. Since it is the group manager's main responsibility to oversee the last steps before an audit can take place, as well as make sure that the certificate will be renewed every five years, he might be installed at a later point of time than the cooperatives / *gapoktans.* However, the group manager should not be installed too late to ensure that he knows the project well and develops a good relationship with the local cooperatives / *gapoktans* before the initial audit. It will be crucial to divide responsibilities between those three levels of organisation from the outset.

Regarding trainings, four different stages can be differentiated: first, an information session that is open to everybody and that offers an overview of RSPO and the project should be held. Here, as indicated above, it will be essential to catch the attention of the audience by highlighting the benefits of RSPO certification, without raising unrealistic expectations and without concealing the challenges of a certification process. A second set of trainings should be held for the staff of *kelompoks* exclusively, consisting of (a) trainings for the effective management of a group and (b) training of trainers, which is the basis for a systematic knowledge transfer. The third set of trainings is also directed towards the *kelompok* staff, but, in contrast to the second set of trainings, the content of those sessions has to be passed on to the members of the respective *kelompoks.* This third set of trainings should first deal with good agricultural practices (GAPs), as this seems to be the topic smallholders are most interested in. After that, more complex and

challenging issues – ranging from documentation to the basic aims of RSPO, and to trainings raising environmental awareness – can be introduced, until the knowledge that is necessary to pass an initial audit has been spread. The fourth set of trainings is meant to keep the level of information high, after the initial audit has been concluded successfully. At this stage, children, widows and workers of the "first generation" of certified smallholders have to be trained in order to ensure continued compliance with the RSPO P&C.

Apart from the establishment of groups and the training schedule, it remains an open question as to which stage of the process the smallholders themselves should decide whether they want to become certified or not. Because most smallholders do not know anything about sustainability standards, it would be unrealistic to ask for such a decision before a project is set up. Yet, if such a decision shall be taken at the beginning of the project, it will be difficult to strike a balance between informing smallholders about the typical challenges of a certification process, while at the same time not scaring them away. If the smallholders are asked to decide about certification at the final stage of the process, however, there is the potential risk that the smallholders will take along the benefits of the project (i.e. external support for training and organisation) without becoming certified in the end – and thus without committing to complying with the less attractive requirements of RSPO (for example, the no-burning policy or the establishment of buffer zones). The central decision on when to ask smallholders for their choice should be taken by all supporters of the project for each individual case.

9 Conclusion: standards as tools for sustainability?

Apart from our baseline data, the research team also recorded many views regarding the question of whether private sustainability standards in general – and smallholder certification in particular – are an effective tool to increase the sustainability of the Indonesian palm oil sector. Well-planned certification projects can bring substantial socio-economic benefits for smallholders: higher income due to higher yields, increased knowledge about palm oil production and better ways of organising into groups are advantages that make such certification projects very valu-

able. However, it remains an open question as to whether private sustainability standards are an adequate tool to reach the high aims they were created for, such as "to minimise the environmental footprint of the palm oil industry" and to reduce the negative ecological impacts of oil palm cultivation (RSPO 2012b). In this regard, three questions are essential (see also Section 3.4): how ambitious and strict the standard and its requirements are formulated (Section 9.1); whether the standard is implemented properly and whether its implementation is controlled adequately (Section 9.2); and whether the goals pursued with a sustainability standard can be reached within a politically and economically unfavourable environment (Section 9.3).[103]

9.1 Strictness of sustainability standards

Concerning the first question, the formulation of a standard's P&C implies difficult trade-offs – thus private sustainability standards cannot provide final solutions for all problems of the Indonesian palm oil sector. As we have seen in the introduction, sustainability standards are developed to help solve dilemmas – such as the dilemma between a booming industry producing revenues and jobs on the one hand, and its negative ecological and social impacts on the other hand. Yet, the development and implementation of such standards creates new dilemmas – two of which were constant issues of discussion during our field research: firstly, the question of how strict the requirement of a standard should be, and, secondly, where to strike a balance between socio-economic and ecological benefits of certification.

The first trade-off is between the strictness of a standard, and thus also its effectiveness, on the one hand, and the achievability of its criteria, and thus the possible inclusion of many producers, on the other hand. A typical example for this trade-off is the question of whether smallholders should be required to certify all of their palm oil plots, or whether they should be allowed to own certified and uncertified plots at the same time. The first option would clearly be preferable from an environmental point of view: it should not be possible to have an RSPO-certified plot in North Sumatra and at the same time to buy a new plot in a different location that is potentially a former HCV area or located on peatland, as was done by

103 For further details, see also Brandi et al. (2012c).

some smallholders in our sample. However, such a policy might exclude smallholders who otherwise would have been interested in certifying at least one of their plots. For example, many smallholders in Jambi deliberately chose to certify only one of their plots, so that they were able to sell the FFBs of their other plots to their usual middleman. In spite of these concerns, the research team would argue for a tendency towards more strictness.

Regarding the second trade-off in the context of formulating sustainability standards, ecological and socio-economic goals should be given the same priority – and possible contradictions between these two sets of goals should be managed, or at least be made transparent. The current specification of the RSPO P&C entails a potential contradiction between RSPO goals to foster socio-economic and environmental sustainability at the same time. As elaborated in Chapter 11, productivity gains related to RSPO certification can potentially lead to increased expansion into forest and/or protected areas. This perverse incentive scheme might contradict the aim of RSPO to combat deforestation. In order to avoid such contradictory outcomes, control and safeguard mechanisms should be implemented – especially in smallholder certification projects (see below).

9.2 Implementation and control of sustainability standards

In order to ensure that the standard is effectively implemented on the ground and has sufficient environmental impact, it is essential to choose reliable project partners and auditors and to explicitly consider environmental sustainability in the project designs. The project partners should pay equal attention to the socio-economic and to the environmental requirements of RSPO, as described above. Since this was not necessarily the case in the projects we studied, we do expect socio-economic benefits in the near future, but we could only find indications of small-scale ecological benefits, such as the proper disposal of pesticides or reduced chemical usage. However, we did not find any indications of large-scale ecological benefits, such as a reduction in deforestation or GHG emissions. One of the reasons for this finding is that the introduction of the RSPO standard simply came too late for the regions we visited, since there was almost no forest left. Another reason is, however, that the projects we studied clearly and one-sidedly focussed on the socio-economic situation of the smallholders. In order to establish a strong environmental component of certification projects from the beginning, we view the initiative undertaken by an NGO

to certify independent smallholders in Riau as a promising approach: here, all smallholders were asked in the very beginning of the project to sign a contract forbidding them to expand into forested areas. In this project, the certificate of the smallholder group as a whole is withdrawn if even one of its members breaks the contract. Thereby, considerable social pressure is created to help prevent the breaking of the contract. Likewise, the auditors should be reliable and should try to gain an independent overview of the situation on the ground. This might not be easy, since the project partners might try to influence them, for example by showing them only selected sub-villages *(dusuns)* or driving them to selected interview partners who have been trained for an audit. While a failed audit is a very frustrating experience for all project partners, a certificate awarded out of sympathy for independent smallholders may provoke accusations of "greenwashing."

9.3 Framework conditions of sustainability standards

In addition to the strictness, implementation and control of a sustainability standard, its effectiveness also crucially depends on external factors. The most important framework conditions in this regard are governance and global markets.

In order to be effective, standards need good governance – i.e. coherent laws, law enforcement, anti-corruption measures and coherent land-use planning. Good governance plays a key role in achieving goals concerning sustainability standards: laws and regulations affecting the effectiveness of such standards – for example concerning the protection of HCV areas or the land rights of indigenous peoples – must be coherent on a national level (i.e. harmonised between different ministries) as well as between national and regional levels. Evidently, those laws also need to be enforced – often against the odds of widespread corruption. At this point, the overhasty decentralisation of Indonesia can be seen as an obstacle, for example, because of the authorisation of regional governors to give out licences to clear forest – a frequently misused practice to finance election campaigns.[104] Since private standards alone cannot prevent the leakage problem connected to indirect land-use change, coherent land planning would also

104 This point was made by several interviewees, including in the Ministry of Forestry, consultancies and environmental NGOs.

be a prerequisite for the efficiency of private sustainability standards. Yet, until now, there has been no evidence of a strong political will to sort all those complex issues out.

Global markets influence the effectiveness of private sustainability standards through their demand for certified sustainable palm oil, which in turns determines the price premiums. A supportive political framework is not the only thing that has to be in place – world markets also play an important role in influencing the effectiveness of private standards. First of all, there needs to be a sufficient demand for certified palm oil. Increased demand might be achieved by employing continuous information campaigns about the negative impacts of palm oil production, not only in Europe, but also in the emerging Asian markets as well as in the domestic Indonesian market. Only if there is higher demand for sustainable palm oil will the payment of price premiums become a viable option. The current lack of price premiums is especially risky with regards to the certification of independent smallholders: if there are no price premiums to motivate smallholders to adhere to the RSPO P&C over the long term, they might just take along the benefits from the training and increased yields but then choose to not become, or stay, certified under RSPO – especially if local mills still accept uncertified palm oil. Thus, it is important to remember that smallholders need to be motivated to join RSPO more than once and not just in the beginning of a process; either pressure from outside (certified mills) or through incentives (price premiums) will be needed to keep their motivation to comply with RSPO requirements for many decades.

10 Recommendations

We recommend a set of practical steps to the government, standard-setting bodies and supporters of certification projects, including actors and institutions from German and international development cooperation, which can support the certification process and help to fully realise the potential benefits of certification. This section summarises our recommendations for improving training (10.1), organisation (10.2) and support (10.3) – the three most important factors in the context of certification projects. Additionally, we summarise our recommendations concerning the improvement of the effectiveness of sustainability standards.

10.1 Training

10.1.1 Recommendations for the government of Indonesia

- **Scale up government extension services –** in terms of amount, topical variety, quality and frequency.

10.1.2 Recommendations for the government of Indonesia

- **Provide high number and frequency of well-planned trainings:** training should be scaled up – both in terms of amount and frequency.
- **Conduct practical training sessions:** training sessions should be held in small groups and be practical. Ideally, the training should also be conducted on demonstration plots. For example, PowerPoint presentations that last several hours should not be the primary teaching technique.
- **Teach well-tailored content:** the content of training sessions has to cover a broad array of topics, including standards and their requirements, good agricultural practices (GAPs) and smallholder organisation. Training sessions should outline the benefits of RSPO certification and of training, be in line with the demands of the smallholders and emphasise the ecological dimension of sustainability.
- **Plan training schedules meticulously:** in order to be effective, individual training sessions should, firstly, convey content that is thematically focussed on one topic. Secondly, the frequency of training modules should be high so as to guarantee repetition. Thirdly, the different topical modules of the training programme must be coordinated. All this needs to be planned in detail in advance.
- **Target effective scope of audience:** training sessions have to focus on plot owners but should also encompass a broader audience, especially hired workers.
- **Establish systematic knowledge transfer:** effective training has to be complemented by a system that helps to transfer the knowledge systematically. Knowledge transfer should mainly be based on *kelompok* staff serving as knowledge multipliers. They need to learn how to transfer knowledge and have to pass on the knowledge to the members of their group during group meetings.

10.2 Organisation

10.2.1 Recommendations for supporters of certification projects

- **Organise smallholders at two levels: (i) *kelompok* and (ii) cooperative / *gapoktan:*** whereas *kelompoks* ensure active engagement with the individual smallholders, provide a platform for systematic knowledge transfer and facilitate participation on the grassroots level, it is also important to establish cooperatives / *gapoktans* in order to ensure an efficient division of labour and activities. Cooperatives / *gapoktans* offer the opportunity to develop some economies of scope and scale, through establishing specialised units for the activities provided to all member *kelompoks.*
- **Think carefully about who is to become the group manager, taking account of relevant incentive structures:** first, the different incentives and interests of potential group managers have to be considered, because of their impact on the future certification process. For example, heads of collector groups might not have any incentives to establish smallholder organisations because they would take over some tasks that the heads of collector groups usually profit from. Second, the capacities of the group manager also need to be dealt with realistically, since the group manager is responsible for the smallholders' preparation for – and their compliance with – the standard.
- **Disseminate information on groups proactively:** improve the information of smallholders concerning the existence of groups and advertise potential benefits of membership.
- **Establish smallholder groups in a participatory manner:** generating identification by and the commitment of smallholders is essential for the success and sustainable operation of smallholder groups. Thus, they should be involved in deciding on group structure and regulation, which does not mean that they should come up with a structure on their own, but rather that best practice options are offered and explained to them – with all the related advantages, requirements for success and implications for the farmers. This approach will require time and effort in order to provide guidance.

- **Establish formal regulations for organisations:** clear, formal, internal regulations should be established and signed – between all members in organisations as well as between different organisations. These formalise their relations, ensure efficient labour division and define responsibilities and accountability.
- **Implement control and transparency mechanisms:** control and transparency mechanisms should be installed within the specific organisations – smallholder groups, cooperatives / *gapoktans* and the group manager – as well as between them. This should be complemented by an external control of the most aggregate level of organisations, because these are difficult to control for *kelompok* staff and farmers.
- **Ensure the financial self-sustainability of groups:** to provide valuable services to its members in the future and to further increase their service portfolios, smallholder organisations need to become financially self-sustainable at a certain point in time. In order to achieve financial self-sustainability, smallholder organisations need to engage in revenue-gen erating activities, such as FFB trading or input procurement, in the context of which the group can levy a certain fee.
- **Pay *kelompok* staff:** in order to find adequate *kelompok* staff and to motivate these people to carry out their tasks successfully, *kelompok* staff should be paid. To set incentives right, this payment should be performance-based (e.g. based on the performance of the group as a whole) and tied to predefined indicators.
- **Develop incentives and/or sanction mechanisms to increase participation in groups:** as the data shows that regular participation in group meetings is a problem, establishing incentives or sanction mechanisms in order to motivate smallholders to participate in group meetings should be considered. Such mechanisms could include fines for non-participation or incentives like obligatory attendance in order to be able to order inputs.

- **Think about how to engage with middlemen:** middlemen can be a potential obstruction to the establishment of smallholder groups with selling units because farmers often prefer to sell to middlemen because they provide loans. Farmers sometimes also cannot join new groups because of debt obligations towards middlemen. Either way, groups must be attractive enough to draw members and they should provide measures to take over farmers' debt payments towards middlemen, in order to free them if they want to become members.
- **Provide for a selling structure that rewards good quality:** the selling structure needs to be changed in a manner that allows independent small holders to realise the economic benefits stemming from producing better quality fruit. This implies redefining the roles of middlemen, smallholder groups and mills in the process of selling FFBs. Especially when FFBs are traded via a smallholder group, the payment of the individual farmer should not only depend on the delivered quantity but also quality.

10.3 Supporting and planning smallholder certification projects

10.3.1 Recommendations for the government of Indonesia

- **Improve access to inputs:** data collected in the field demonstrates that smallholders often had to struggle to get access to enough high-quality and affordable inputs. Thus, access to inputs, such as fertiliser and high-quality seedlings, should be improved or eased in order to support small holders in applying good agricultural practices.
- **Engage local government and the provincial *Dinas Perkebunan*[105]:** the local government should facilitate the establishment of groups (including access to subsidised fertiliser), and the procurement of land certificates (if the land has not been obtained illegally).

105 The provincial *dinas perkebunan* are the "plantation offices" of the provinces under the General Directorate of Estate Crops of the Ministry of Agriculture.

10.3.2 Recommendations for supporters of certification projects

- **Promote information on standards transparently and proactively:** project partners need to promote information on standards more actively and transparently in order to provide smallholders with a realistic picture of certification and the preparation process.
- **Provide financial support to cover the start-up costs[106] of certification:** preparation and compliance costs are substantial and in most cases exceed the smallholder's financial capacities. Though part of the costs can be considered as investments that might later payoff in terms of better farming practices and higher yields, initial costs need to be covered. For this, smallholders will need financial support, e.g. in terms of loans.
- **Make projects financially sustainable:** after the first successful audit, the project should be financially self-sufficient and smallholders should be able to continue with trainings and maintain their groups without support. Accordingly, there should be enough smallholders participating in the project in order to share the expenses. The revenues (deduction from FFB prices) must be sufficient to finance the ongoing activities.
- **Strengthen ecological component of the projects:** the ecological aims of RSPO should be given the same attention – from the beginning – as the socio-economic aims. One possible approach: when joining a *kelompok,* smallholders should sign a contract forbidding the establishment of new plots in forested areas – be it nearby or in other provinces. The breach of such a contract should be sanctioned by withdrawing the certificate of the whole group or by excluding the respective member of the group to generate social pressure. In addition, special trainings should be provided that focus on the benefits of environmentally sustainable production for the smallholders.
- **Choose capable and committed partners:** project partners on the ground should identify themselves with all of the goals of RSPO, and not

106 "Start-up" costs are: (i) initial standard *sosialisasi* (first information distribution about the standard); (ii) formation of smallholder organisations (i.e. *kelompok, gapoktan* depending on the individual case); (iii) training of smallholders concerning standard compliance; (iv) training of *kelompok* staff concerning organisation.

focus on its own agenda primarily. Moreover, the partner should have the human and financial capacity to run a complex project for at least three to five years.

- **Draft a budget and a time schedule:** not all project partners followed a harmonised budget and time schedule, yet this is essential. Thus, the research team recommends focussing on drafting a realistic budget and a time schedule for the project together with all relevant project partners. Both documents should be flexible so as to be adaptable to the situation on the ground.
- **Begin establishing groups with the smallest units *(kelompoks):*** start with establishing *kelompoks* to involve smallholders from the beginning. Continue with setting up cooperatives / *gapoktans* that fulfil more complex services. Appointing a group manager in parallel at the beginning of the process is important, in order to strengthen his capacity early on and to enable him to support the formation and operation of smallholder groups. Furthermore, it is important to define the responsibilities at each level of organisation.
- **Start trainings and the establishment of organisations simultaneously:** it is less ineffective to give trainings when a *kelompok* (and thus a system of knowledge transfer and sharing) is not yet in place. Likewise, it is not viable to establish *kelompoks* without an immediate benefit for the smallholders (i.e. such as regular trainings or systematic knowledge transfer). If there is no immediate benefit, the smallholders might no longer attend *kelompok* meetings and the *kelompok* would become inactive.
- **Decision of smallholders to become certified:** in the visited certification projects, smallholders were asked at different stages about their individual decisions to certify their plots. It is important to decide early on, at which stage of the process the smallholders will be asked whether they want to become certified or not. This can take place at the beginning, with the risk that smallholders know too little or are scared away by the magnitude of the task. Alternatively, it can take place at the end, with the risk that smallholders profit from extensive support, especially trainings, without becoming certified.

- **Choose reputable certification bodies with reliable auditors:** the quality of different certification bodies varies, but quality should override price when deciding on a certification body for the audit. Auditors should choose a representative sample independently and resist all attempts of being influenced.

The above-mentioned recommendations hint at the complexity of such projects. In order to ensure the success of those projects and minimise potential challenges, it is necessary to take into account that project management is an essential success factor. A meticulous planning of the project phases and the sequence of the different steps is as important as the early planning of the timetable and budget.

The above-mentioned recommendations are targeted at the implementation and management of certification projects. But in addition to making certification projects work, it is important to make the standards themselves work – which requires improving their effectiveness as tools to promote sustainability in oil palm cultivation and palm oil production.

10.4 Increasing the effectiveness of sustainability standards

In order to be effective, any standard – be it public or private – needs a favourable economic and institutional environment. Although the architecture and approach of voluntary private standards (like RSPO) and mandatory public standards (like ISPO) differ, both need an enabling environment of supportive institutions to achieve their aim to foster sustainability. Thus, strengthening good governance as a common basis for standards is essential to ensure their effectiveness.

10.4.1 Recommendations for the government of Indonesia

- **Improve coherence of land planning:** private standards alone cannot prevent indirect land-use change. It is the task of the government to develop an effective plan for land use that avoids the allocation of new plantation areas on forested land, peatland or ancestral land of indigenous communities. To improve sustainability of land-use planning, the Ministry of Forestry, the Ministry of Environment and the Ministry of Agriculture, and above all the BPN, should cooperate and coordinate

their activities more closely. The involved ministries and agencies should develop an institutional architecture to establish consistent databases and definitions.

- **Reform and strengthen institutional framework:** sustainability standards necessitate a coherent and clear distribution of institutional authority and accountability, an improved collaboration and coordination between the relevant institutions at the national and regional levels, as well as streamlining a transparent provision of adequate relevant data.
- **Improve coherence of laws and regulations:** laws and regulations should be coherent at the national level (i.e. between different parts of the government), as well as between the national and subnational levels. Ambiguities or even contradictions in legislation should be resolved in order to close resulting legal loopholes.
- **Strengthen law enforcement:** laws need to be enforced on every level. For example, regional governors financing their election campaigns by selling licences for protected areas must be held accountable.
- **Fight corruption:** corruption hampers the effectiveness of standards (e.g. when land certificates for protected areas can be bought or auditors are bribed). Thus, further strengthening transparency measures and supporting institutions that take action against corruption[107] should also be aims for government agencies in the agriculture sector.
- **Monitor protected areas effectively:** neither smallholders nor companies – certified or not – should be allowed to illegally encroach into protected areas without being discovered and should be held accountable accordingly.

10.4.2 Recommendations for standard-setting bodies

- **Balance trade-off between strict- and easy-to-reach standards:** when (re-)formulating a standard, it is important to find a balance between a strict, effective standard, and achievable targets for independent smallholders.

107 Such as, for example, the *Komisi Pemberantasan Korupsi* (Corruption Eradication Commission).

- **Balance trade-off between socio-economic and ecological goals:** when (re-)formulating a standard, it is paramount to make sure that ecological and socio-economic aims are given the same weight.
- **Certify whole plantation area:** in the longer run, neither smallholders nor companies should be allowed to own certified and uncertified plots at the same time. Smallholders should be forbidden to open uncertified plots in forested areas.
- **Increase incentives for smallholder inclusion:** there should be more incentives for smallholder certification, for example, by requiring or rewarding the inclusion of smallholders.
- **Increase incentives or external pressure to stay certified:** there is a risk that independent smallholders take along the benefits of certification projects but then choose not to become, or stay, certified. This can be prevented by using incentives, such as adequate price premiums, or through external pressure, such as certification of all local mills and the corresponding threat of market exclusion.
- **Foster demand for certified sustainable palm oil:** intensify information campaigns not only in Europe and the United States, but especially in Asian countries (in China and India, as well as in the Indonesian domestic market).
- **Clarify role of smallholder organisations:** in order to clarify the importance of an adequate smallholder organisation for the certification process, RSPO should explicitly formulate the role of such organisations in its standard for group certification.

10.4.3 Recommendations for supporters of certification projects

- **Avoid conflicting goals:** make sure that an improved socio-economic situation of the smallholders and an increased attractiveness of palm oil production do not lead to an expansion of smallholder plots into forested areas or peatland.
- **Strengthen ecological component of projects:** for example by letting smallholders sign a contract forbidding the establishment of new plots in forested areas or peatland.

- **Support the law enforcement unit created under the moratorium:** in order to strengthen the coherence of relevant laws, as well as the enforcement of such laws.
- **Support sustainable land planning and monitoring of protected areas:** both are currently lacking in Indonesia, but are a prerequisite to make sustainability standards more effective.

10.5 Facilitating cooperation between standards for increased effectiveness

Private and public standards need to be coordinated in order to tackle common problems and create synergies. Private and public standards share common difficulties concerning implementation and operationalisation. The effort to include smallholders exemplifies one of the common difficulties and thus, at the same time, serves as an example for possible synergies.

10.5.1 Recommendations for the government of Indonesia and standard-setting bodies

- **Collaborate on improving monitoring infrastructure:** both ISPO and RSPO certification need a reliable high-quality auditing and accreditation infrastructure. Thus, there should be a focus on strengthening and controlling a jointly used monitoring, reporting and verification (MRV) infrastructure.
- **Establish transparency:** it is necessary to make the MRV and accreditation processes transparent in order to engage civil society and empower them to act as a controlling institution.
- **Ensure independence:** in order to deliver credible and objective results, the MRV and accreditation institutions should be independent from output-distorting influence of politics and private-sector parties.
- **Support external controlling:** all institutions of the MRV system should be evaluated on a periodic basis by external accreditation institutions. The evaluation should be made transparent in order to ensure credibility and legitimacy of the system.

- **Combine audits:** for different standards such as RSPO and ISPO, options offering combined audits in order to reduce overall costs of certification and making certification under several standards more attractive should be explored.
- **Collaborate on including smallholders:** both ISPO and RSPO have to include smallholders, and there are similar challenges in doing so. Thus, they should be coordinated to jointly tackle the challenges of smallholder certification.
- **Align training:** for both standards, smallholders need intensive training and extension services. RSPO and ISPO should be coordinated to achieve the aims mentioned above under 10.1. Thus, in order to create synergies, the training modules / schedules of both standards should be aligned in terms of content and methods.
- **Support the organisation of smallholders:** for the implementation of both standards, smallholder organisations can play an essential and important role but they have the same challenges. RSPO and ISPO should thus work together to achieve the aims mentioned above under 10.2. Facilitating an exchange of experiences between smallholder groups and offering systematic support to the groups through extension services would also be an opportunity.
- **Increase overall collaboration:** all of the above-mentioned approaches require regular and open communication based on partnership between the representatives of both standards. Both standards' projects should be evaluated and generate a joint exchange of experiences and lessons learnt.

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Annexes

Annex 1: Comparing sustainability standards

This section assesses existing sustainability standards and certification schemes from a comparative perspective. A detailed comparison of the relevant standards and certification systems does not yet exist but is essential for comparing them in terms of key dimensions such as the challenges they pose for smallholder inclusion or the strictness regarding their indicators – and to what extent there are trade-offs between these two perspectives. In order to fill this research gap and generate first insights into the comparison between different standards and certification systems, we have conducted an in-depth comparative desk-study of the currently available sets of rules that are relevant for our research project. For the purpose of our project study, four sets of rules were compared: (1) the RSPO Principles & Criteria and indicators (RSPO 2007b), (2) the National Interpretation of the RSPO P&C and indicators for Indonesia (RSPO TFS 2007), (3) the RSPO P&C and indicators for Indonesian scheme smallholders (RSPO TFS 2009) and (4) the ISCC-EU[108] sustainability requirements for biomass production and cultivation (ISCC 2011a), complemented by the ISCC requirements for GHG emission savings (ISCC 2010).

1. General differences in the RSPO and ISCC certification systems

While certification under ISCC requires compliance with sustainability requirements, GHG emission-reduction and traceability requirements, RSPO requires compliance with the RSPO P&C, which do not include traceability requirements. Certification under ISCC requires compliance with three categories of ISCC certification. In addition to the above-mentioned sustainability requirements and requirements for GHG emission savings, several requirements for traceability and mass balance have to be fulfilled *"in order to provide consistent evidence of the origin of the biomass"* (ISCC 2011 System Basics, 10). RSPO does not specify the traceability requirements under the general Principles & Criteria, given that

108 Regarding ISCC, there are two sets of rules: ISCC-DE for biomass directed to the German market, and ISCC-EU for biomass for the European market; the difference being the central standard registration and control institution – the Bundesanstalt für Landwirtschaft und Ernährung (BLE) for ISCC-DE and the European Commission (EC) for ISCC-EU. In the following, ISCC will refer to ISCC-EU.

these refer only to the upstream producers. Downstream processors or users of certified sustainable palm oil need to adhere to the RSPO Supply Chain Certification Systems in order to become certified as well (RSPO 2009 Supply Chain, 4). Currently, palm oil can be traded through one of four supply chain models approved by RSPO: Preserved Identity, Segregation, Mass Balance, or Book and Claim. The typical current practice is to use the Book and Claim model, which provides tradable certificates for RSPO certified palm oil to the palm oil supply base (e.g. plantation or smallholders). The supply base can then sell these certificates on a web-based transaction system such as GreenPalm to end-users who want to claim that they support a specific volume of CSPO or its derivative (RSPO 2009 Supply Chain, 25). In the following, the standard comparison only refers to criteria for certification of upstream processors, not of the whole supply chain.

The criteria and indicators / procedures of RSPO and ISCC are different in their structure, formulation and external transparency. RSPO works with eight major principles and several criteria, indicators and guidance for each of the principles. ISCC has specified six principles and a larger number of criteria than RSPO. The ISCC criteria often express what the situation must be (e.g. "There is compliance..."). Instead of indicators, ISCC has formulated "procedures". However, they are not publicly available for commercial reasons given that ISCC competes with other certification systems. This implies that it is not clear how ISCC verifies the compliance of its criteria. RSPO often expresses the criteria as an aspired situation (e.g. "There should be..."), thus leaving potentially more space for interpretation.

Concerning the strictness about compliance, ISCC prescribes the fulfilment of all "major musts" (57 out of 107 criteria), while RSPO requires that the National Interpretation of 32 out of 39 criteria include at least one compulsory indicator. However, RSPO leaves it up to the NI as to which of the proposed indicators are defined as compulsory – under the condition that 45 per cent of all indicators are compulsory and that *"[t]he combination of indicators for each criterion must be sufficient to ensure compliance with the criterion"* (RSPO 2007 RSPO certification systems, 25). A non-fulfilment of a compulsory indicator implies a "major non-conformity", which must be corrected in order to receive RSPO certification. Minor non-conformities do not lead to denied certification under RSPO. The 45 per cent rule provides a loophole to avoid difficult (but deci-

sive) indicators because in the NI, the indicator that is the easiest to achieved can be picked as the one compulsory indicator (e.g. the mere existence of specific documents). In our view, the second condition – that the combination of indicators must be sufficient to ensure compliance with the criterion – is not met for several criteria within the NI of RSPO criteria for Indonesia.

For successful certification under ISCC, all "major musts" and at least 60 per cent of all "minor musts" have to be fulfilled. National adjustments are only possible for principles 2 to 6 and only if producers cannot fulfil certain requirements due to specific characteristics in an individual country (ISCC 2011 Sustainability Requirements for the Production of Biomass 2.3, 4). While there is no adjusted smallholder version of ISCC criteria as of now, ISCC has indicated the need to develop them in the near future.

The most striking difference with respect to the content of both standards is that ISCC is more comprehensive and strict on ecological sustainability criteria. Under ISCC, a reduction in GHG emissions is a crucial criterion for certification, especially due to the requirements of the EU Renewable Energy Directive. As mentioned above, RSPO is not (yet) recognised as a qualifying standard by the European Commission, given that RSPO does not include any strict GHG reduction criterion as of now. Such a strict criterion – as well as the application of RSPO in the context of EU-RED – had been opposed by several RSPO members, particularly food companies, given that they consider biofuels a major driver of increasing prices of agricultural products. However, RSPO has established a draft version of "RSPO additional guidance for compliance with the EU Renewable Energy Directive", a voluntary additional guidance for those producers and processors who want to comply with the requirements of the Directive (RSPO 2010). With this elaboration, RSPO has applied for recognition under EU-RED at the European Commission (Cinkole 2011). As mentioned in Section 3.4, the European Commission has recently approved RSPO to qualify for certification under EU-RED, which has been criticised by many environmental groups.

RSPO pays more attention to social criteria than ISCC does, particularly concerning consultation processes, community involvement and FPIC. With respect to social criteria, ISCC focusses mostly on working conditions, while RSPO has a broader concept of social sustainability – which might in part be explained by the stronger involvement of social

NGOs in the establishment process of the RSPO standard. One should also bear in mind that ISCC was developed for any biomass that can be processed into biofuels, whereas RSPO has been specifically established for the palm oil sector. Thus, another reason for less emphasis on social and community issues under ISCC might be that ISCC does not specifically concentrate on developing countries given that the EU and United States are producers of biofuel biomass as well.

2. Differences between RSPO and ISCC criteria

Transparency commitments

RSPO has transparency requirements that prescribe the provision of information on environmental, social and legal issues upon request as well as the documentation and maintenance of records of requests and responses. Moreover, RSPO requires the existence of (management) documents related to environmental, social, legal and business aspects, as well as to negotiation and grievance mechanisms. The Indonesian NI is similar, but it does not specifically require documentation on negotiation and grievance mechanisms. Instead it lists "documentation of social activities and community programs". The RSPO Indonesian scheme smallholder indicators are a lot less comprehensive and include only documentation on land rights, environmental impact assessment and organisational and social activities. ISCC has not specified comparable criteria regarding transparency requirements.

Compliance with regional, national and international laws

Both ISCC and RSPO have a criterion on compliance with all applicable regional, national and international laws. However, the National Interpretation of RSPO has defined a number of relevant indicators as non-compulsory and requires as compulsory indicators – similarly to the RSPO smallholder version – "(1) Evidence of compliance with relevant requirements" and "(2) Evidence of efforts made to comply with changes in the regulations". Both RSPO and ISCC require legitimate land-use rights and recognise customary and traditional rights. However, in the RSPO National Interpretation, FPIC is only a minor indicator and the smallholder version does not consider conflicts and respective resolution mechanisms with communities over land rights. There is no definition given for the term

"acceptable conflict resolution" used by RSPO. ISCC, on the other hand, does not mention conflict resolution mechanisms and FPIC at all.

Economic and financial viability

RSPO has included economic and financial viability as a principle, with business plans and replanting programmes as indicators. ISCC requires "good management practices", mainly a recording system for each production unit – but the details are not clear. Experiences, e.g. in Thailand, showed that documentation systems and management plans indeed helped smallholders to improve the economics of their production, which has potentially increased efficiency and incomes, and thus the acceptance of standards.[109]

Use of best practices by growers and millers

Soil fertility is a minor criterion both for RSPO and ISCC. Measures for soil erosion are a major must for ISCC, but are not compulsory according to RSPO. ISCC handles aspects with respect to soil in much greater detail, including more criteria, which are predominantly "major musts".

ISCC seems to be more comprehensive on water protection and irrigation aspects than RSPO. The NI of RSPO categorises relevant indicators as minor. The only compulsory RSPO indicator for smallholders in this respect is trainings on soil and water conservation. Implementation of trained practices or incentives for such are not verified and monitored.

With respect to the use of chemicals in the production of palm oil, ISCC provides more detailed and restrictive requirements than RSPO. ISCC focusses more explicitly and strongly on the environmental impact of chemical use. While RSPO mentions the necessity of trainings for competent chemical application already here, ISCC mentions it under 3.1 Safe Working Conditions. Both RSPO and ISCC have rules on waste management and disposal of empty chemical containers – both are minor musts, with the exception of ISCC 1.10.4 rinsing of empty containers. The impact of small-

109 Interviews with Mr Henke of Meo Consult / ISCC System GmbH in Düsseldorf, Germany, on 20 January 2012; and with Mr May of GIZ Thailand, on 20 January 2012.

holder rules is again questionable but important to assess in the field – considering that the handling of chemical products generates substantial challenges for smallholders.[110]

Both RSPO and ISCC have requirements on safe working conditions. ISCC is much more specific with respect to individual sub-criteria. However, in comparison to other fields of criteria of ISCC, only a small fraction of the safety criteria is compulsory. The RSPO NI categorises the majority of indicators relevant for actual impact measurement as minor. The RSPO smallholder version reduces the requirements even further and categorises only the existence of a health and safety plan and training on safe working conditions as major, not the implementation. The RSPO rules may inhibit some inconsistencies with respect to trainings. Criterion 4.8 prescribes appropriate trainings for all workers (one compulsory indicator), but it does not make explicit which trainings are meant when referring to the term "appropriate".

Conservation of natural resources and biodiversity

ISCC contains more requirements regarding important environmental issues, above all GHGs. In this context, ISCC is especially strict concerning the requirements for establishing new plantations.

RSPO prescribes an environmental impact assessment and a timetable for changes in order to reduce the necessary impacts. However, there is no requirement to indicate which negative impacts have to be corrected within which time frame. The RSPO NI and smallholder version only contain an environmental impact assessment, but do not require a timetable for actions of change. ISCC does not demand an environmental impact assessment but requires that "[e]nvironmental aspects are considered if planning buildings".

Comparing RSPO and ISCC with respect to protection of biodiversity is difficult. While RSPO rather emphasises the need for information on endangered species etc. on plantations and their protection, ISCC generally prohibits biomass production on land with high biodiversity value and

110 Interviews with Mr Henke of Meo Consult / ISCC System GmbH in Düsseldorf, Germany, on 20 January 2012; and with Mr May of GIZ Thailand, on 20 January 2012.

highly biodiverse grassland (so far, no definition of highly biodiverse grassland has been developed by the European Commission. Therefore, currently any conversion of grassland is prohibited). Smallholders, according to RSPO, only have to be able to list all protected flora and fauna in their area.

Burning for land clearance is not allowed at all under ISCC, while RSPO restricts the use of fire for land preparation for replanting and for waste disposal, but allows exceptions for burning for land clearance under criterion 7.7, which are not specified in detail (they refer to guidelines of the Association of Southeast Asian Nations (ASEAN) and regional best practices). The RSPO NI requires the evidence of implementation of (ASEAN) zero-burning policy as a major indicator. The smallholder version limits the use of burning to cases relevant for pest reduction under the condition of approval of government agencies. ISCC does not allow burning in the cultivation process without permission (it is not specified by whom permission has to be given).

Regarding greenhouse gas emissions, ISCC strictly requires a specific minimum emission-reduction achievement, while the respective RSPO criterion only requires an emission-reduction plan. Based on Directive 2009/28/EC, ISCC requires a 35 per cent emission reduction from the use of biomass compared to the fossil reference (50 per cent in January 2017, and 60 per cent in January 2018 for installations where production started after 2017).[111] ISCC provides a comprehensive catalogue of requirements for GHG savings and the calculation methodology. The calculation and verification of emissions is applied to the entire supply chain, including "all relevant emissions" from biomass production, conversion processes, and transport and distribution. At the last stage of the supply chain, the percentage savings of GHGs in comparison to the fossil reference is calculated (ISCC 2011 GHG, 4). RSPO envisages under criterion 5.6 the development, implementation and monitoring of pollution and emission-reduction plans. However, the RSPO NI only considers the identification of pollution and emission sources as well as monitoring as compulsory indicators. Reduction plans and their implementation are only minor indicators.

111 Exempted from the GHG criterion are old biomass production units that were in operation 23 January 2008. This exemption is valid until 1 April 2013. Then, all production units have to apply the GHG criterion in order to be ISCC-certified. The last "old" certificates expire one day earlier.

Social impacts on workers and surrounding communities

RSPO and ISCC require an assessment of social impacts on communities etc. RSPO underlines the participatory nature of the assessment procedure. ISCC prescribes "sufficient compensation" for (negative) impacts. Under RSPO, any indicator that goes beyond the mere assessment is considered only minor in the NI and smallholder version. ISCC does not specify any further and generally considers this criterion as minor. Both RSPO and ISCC have rules on communication and consultation procedures. While RSPO considers here a wider range of stakeholders – mainly the communities – ISCC focusses on the communication between managers and employees. However, again, under RSPO the focus is on documentation of meetings, not on results. ISCC does not specify the relevant details any further. While the assessment of social impacts is a major criterion under RSPO, it is a "minor must" under ISCC.

Both RSPO and ISCC require the existence of complaint mechanisms for workers and communities. However, when it comes to solutions of conflicts, outcomes and compensation, the indicators of NI and the smallholder version are only minor. While this criterion is major under RSPO, it is only minor under ISCC. RSPO requires documentation of negotiations and compensations related to the loss of lands. ISCC has no such criterion. The National Interpretation requires the documentation of participatory (i.e. under involvement of community) identification, calculation and compensation of loss of land as a compulsory indicator. However, the documentation of implementation of compensation payments is a minor indicator. Smallholders do not have to provide proof of any compulsory indicator regarding this.

Furthermore, RSPO prescribes payment of legal or industry minimum wage, available information for workers about labour laws and union agreements, and some other rights for workers. The RSPO NI only requires documentation of wage payment and contracts in accordance with existing regulations as compulsory indicators. For smallholders, this criterion is less important; they have to prove payments to (contract) workers. ISCC criteria reflect working regulations of industrialised countries; the applicability to developing countries is questionable. All ISCC criteria under this point are minor, except payment of minimum wage and prohibition of forced labour.

Both RSPO and ISCC prescribe that companies have to accept the right of workers to join labour unions. No compulsory indicators for smallholders are stated. RSPO prohibits child labour, but makes exceptions

for family farms as long as education is not affected. The RSPO NI and smallholder version require child labour policy in accordance with national laws.

RSPO requires growers and millers to deal fairly and transparently with smallholders and other local business. This includes information on price determination and price level, as well as fair, legal and transparent contracts. However, the NI only requires transparency with respect to FFB price mechanisms and actual prices, but does not mention fairness as a compulsory indicator.[112] ISCC only refers to contract farming arrangements with its (minor) requirements on fair and transparent contracts.

The "contribution to sustainable local development" mentioned by RSPO is a rather vague criterion – any contributions can be counted. The indicator is not compulsory. ISCC includes two criteria that should be mentioned in this context. Criterion 4.22 requires that biomass production does not impair food security – while it is not clear how this is supposed to be verified and it is not a "major must" – and criterion 4.12 requires that all children living on the farm have access to quality primary education.

Responsible establishment of new plantations

RSPO requires a participatory social and environmental impact assessment (SEIA) prior to the establishment of new plantations; it also requires such an SEIA for smallholders. But for smallholders, the nucleus has to prepare the SEIA. The integration of SEIA results into management plans and operational procedures is not a compulsory indicator within the NI and the smallholder interpretation. ISCC does not have a criterion with respect to an SEIA prior to the establishment of new plantations.

Moreover, RSPO requires that soil surveys and topographic information are used for site planning of new plantations. However, the RSPO NI requires such surveys only to determine the suitability of soil as a compulsory indicator, while evidence for the establishment of plantations in accordance with suitability is only a minor indicator. For smallholders, as a major indicator, it is mentioned that the suitability survey is provided for by the nucleus plantation. Surprisingly, peatlands appear under this criterion

112 For smallholders, the indicator is the following: records of no repetition of complaints from nucleus estate (partner companies) and/or other local business partners to smallholder. It is not clear why the interpretation is so different for smallholders.

for smallholders as another compulsory indicator *("planting on peatlands shall be in accordance with existing regulations")*. If the term "existing regulations" refers to Indonesian regulation, this implies that smallholders can plant on peat as long as Indonesian regulations do not prohibit it.

According to RSPO criterion 7.3, it is required that new plantings (since 2005) do not replace primary forest or any area required to maintain or enhance any HCV area. The indicators, however, as well as the RSPO NI are less strict. The RSPO NI prescribes that new plantations between November 2005 and November 2007 are established "in accordance with the existing regulations". This is a temporary rule for the pilot phase. It is not clear what the current status of the rule is. The smallholder version is somehow more explicit: smallholders have to show *"that the lands for new plantings have not derived from primary forest or area with high conservation value (HCV)."* The National Interpretation should refer to existing national definitions of HCVs or equivalent land-use / conservation plans or consider how growers and the audit team can identify HCV areas. This may involve collaboration with other bodies (RSPO 2007 P&C, 40f.).

ISCC is strict with regard to land use and refers to the requirements set out in the EU Renewable Energy Directive. However, it focusses on the protection of land with high biodiversity value or high carbon stock and does not explicitly include land with high cultural value. Planting on steep terrain or fragile soil is only considered due to a weak and minor criterion within the RSPO framework. ISCC does not account for this aspect within its criteria catalogue.

Within a compulsory criterion, RSPO requires FPIC of local communities and of indigenous peoples for the establishment of new plantations. However, corresponding indicators in the NI, though compulsory, are weaker and do not explicitly use the word "consent". Instead, they speak of a participatory SEIA, documented socialisation plans and proof of payments and proper handing-over of lands. The smallholder version, on the other side, requires proof of no rejections from local communities or indigenous peoples on the development of new plantings. ISCC is rather vague, stating that land is used legitimately and that traditional land rights have been secured, but it does not give hints on how this is supposed to be achieved. No FPIC or negotiations and consultations are mentioned.

With respect to land acquisitions, RSPO requires identification and documentation of legal and customary rights, identification of people

entitled for compensation payments, a calculation system for compensations etc. However, in the NI, indicators going beyond the mere identification of eligible recipients of compensation are only minor.[113] ISCC mentions "compensations for all impacts", also affecting land owners, but does not explicitly mention procedures related to compensations and the aspects of land acquisition. The ISCC criterion is moreover only a minor must.

For the preparation of new plantations, RSPO prescribes the "avoidance of use of fire except in specific situations", in reference to the ASEAN guidelines, thus constituting a potential loophole for burning practices. The NI requires "records on implementation of zero-burning policy", while smallholders merely have to prove knowledge and ability of implementation of zero-burning techniques. ISCC does not allow at all for burning as a means of land-clearing. RSPO has added a vague criterion on commitment to continuous improvement of its activities, particularly with respect to the minor non-conformities, also called "options for improvement", identified in the audits. But as stated before, pressure for action is not particularly high.

3. Audit sampling and incentives for compliance

For the credibility of audit results in the case of group certification, the sample size and sample selection is highly relevant. Unlike RSPO, ISCC has established an incentive for growers' aspiring certification to enter an audit only when they are well prepared for the compliance of the required criteria. The sample size is $\sqrt{n}$, with n being the number of group members.[114] If the auditors find any non-conformities, the sample size is doubled. If then again non-conformities are identified, the sample size doubles again. This procedure provides an incentive to prepare the growers well for certification and to undertake internal audits prior to the external audit, given that the costs of auditing rise quickly as the sample size increases. RSPO rules require a smaller sample size of $0.8\sqrt{n}$ (RSPO 2007 System Basics, 13) and do not incorporate such an incentive.

113 For example, consider indicators that refer directly to the calculation and distribution of compensations.

114 If the growers are located in high risk areas, e.g. close to the deforestation frontier or on a specific type of soil, the size can be multiplied by a factor of 1.5 or 2.

Annex 2: List of interview partners

Institution	Name
German and international development cooperation	
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Eschborn	Carsten Schmitz-Hoffmann's team and other GIZ colleagues
GIZ Office Thailand	Daniel May
The Delegation of the European Union to Indonesia	Walter van Hattum Sakura Moretto
German Embassy Jakarta	Mr Andreas Beckermann
GIZ Office Indonesia	Mr Frank Jattke and colleagues
International Finance Corporation (IFC)	Ross Jaax Ernest E. Bethe Triyanto Fitriyardi
United Nations Development Programme (UNDP) Indonesia	Tomoyuki Uno Marlisa Ayu Trisia

Kreditanstalt für Wiederaufbau (KfW)	Mr Björn Thies Mr Thorsten Schneider
Central and local government	
Ministry of Agriculture of the Republic of Indonesia	Mr Rismanyah
Ministry of Energy of the Republic of Indonesia	Maritje Hautepead
Ministry of Forestry of the Republic of Indonesia	Mr Trijoko
Dinas Perkebunan North Sumatra (Provincial Plantation Office)	Aspan Sofian
Dinas Perkebunan Riau (Provincial Plantation Office)	Mr Yafiz
Dinas Perkebunan South Sumatra (Provincial Plantation Office)	Singgih Himawan
Standard-setting bodies	
RSPO Indonesia (RSPO Indonesia Liaison Office – RILO)	Desi Kusumadewi Asril Darussamin
ISPO (Indonesian Sustainable Palm Oil) Secretariat	Rosediana Suharto

Indonesian Sustainable Palm Oil (ISPO) Foundation	Purwo Susanto
International Sustainability and Carbon Certification (ISCC) / Meo Consult	Mr Jan Henke Ms Lydia Pforte
Companies	
Unilever Germany	Merlin Koene
BASF Germany	Viola Möller
PT Hindoli	Anthony Yeow Herwandi Augustian Romi Latato Pak Yono
PT Musim Mas (Oil Palm Plantation and Palm-Oil Refinery and Edible Oil Production Plant)	Kanna Ramdhan
PT Perkebunan Nusantara III (PTPN III) (State-owned palm oil company)	Mr Arnold Mr Dahlin Mr Indra

PT Sal (Oil Palm Plantation and Palm-Oil Refinery)	Mr Junet Mr Marbun
Certification bodies and consultancies	
Aksenta (Socio-Enviro Management Consulting / Auditing Body)	Dwi Muhtaman
BSI Group Indonesia (Auditing Body)	Aryo Gustomo
Daemeter Consulting (Natural resource sustainability – consulting firm / HCV Auditing Body)	Aisyah E. Sileuw
Mutu Certification (Auditing Body)	Taufik Margani
TÜV Nord (Auditing Body)	Ellys Simamora

NGOs	
Greenpeace Indonesia	Bustar Maitar
Sawit Watch	Norman Jiwan
Serikat Petani Kelapa Sawit (SPKS)	Chica Susanti Darto Wojtyla Mr Rifin
Solidaridad Network	Piers Gillespie
The Nature Conservancy Indonesia (TNC)	Wahjudi Wardojo Lex Hovani
World Wide Fund for Nature (WWF) Indonesia	Mr Haryono
	Dani Rahadian P. Hidayat Mr Suhandri
Elang	Mr Janes Mr Jay Mr Rico

Setara	Ms Uki Adhiey Sahadi
Elaksa	Mr Bekmi
PanEco	Graham Usher
Smallholder associations	
ASPEKPIR	Mr Mawardi
APKASINDO	Mr Abunawas Mr Yuslim
Academic institutions	
ETH Zurich	Janice Lee
Indonesian Oil Palm Research Institute (IOPRI)	Edy Sigit Sutarta Donald Siagaan

Other
During the field research in South Sumatra, North Sumatra, Jambi and Riau, the team conducted numerous additional interviews with smallholders, middlemen, heads and staff of *kelompoks* / *gapoktans* as well as heads and staff of collector groups. As we assured confidentiality to the individuals with whom we spoke, we will not include their names in this list.

Annex 3: Data RSPO baseline study

1. Data from the DIE questionnaire

Please note that this Annex presents only the most relevant and reliable data from the questionnaire.

Table 1: Location

Province	Freq.	%
North Sumatra	111	56.63
Jambi	85	43.37
Total	**196**	**100**

Figure 21: Location

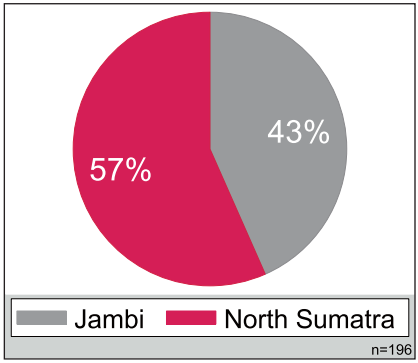


Table 2: Gender

Gender of interviewee	Freq.	%
Male	181	92.82
Female	12	6.15
Both male and female answered questions	2	1.03
Total	**195**	**100**

Please note: in many cases, the wife or other family members were present during the interview and answered individual questions. We documented only in two cases that both answered about the same amount of questions.

2. Socio-economic characteristics

2.1 Age, household size, education, *transmigrasi* (transmigrant)

Table 3: Age

Variable	N	mean	min	max	Sd	p25	p50	p75	p90
Age	195	48.14	22	88	13.33	40	47	56	65

Please note: our sample is rather old (average age 48, only 25 per cent are younger than 40 years). However, regarding the practices, the age does not seem to make a large difference, i.e. young farmers of our sample were not more likely to implement good agricultural practices (GAPs) or practices in accordance with RSPO than older farmers.

Question 8: Who lives in your house (interviewer writes down number of people)?

Table 4: Household size

Variable	N	mean	min	max	sd	p25	p50	p75	p90
Household size	195	4.09	1	10	1.44	3	4	5	6

Please note: this question might not have been understood correctly by all interviewees. Some did not name or count the children who live with them in the house, while others counted children who did not live in the house anymore.

Question 9: What best describes your level of education?

Figure 22: Level of education

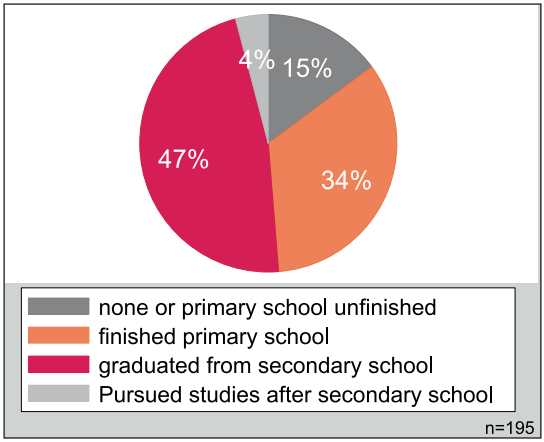


Table 5: Level of education

Education	Freq.	%
Graduated from secondary school	92	47.18
Finished primary school	66	33.85
None or primary school unfinished	29	14.87
Pursued studies after secondary school	8	4.1
Total	**195**	**100**

Question 10: Were you / your family part of the transmigrasi programme?

Table 6: Number of *transmigrasi* (transmigrants)

Transmigrants	Freq.	%
Farmer or family are/were not transmigrants	128	65.64
Farmer or family are/were transmigrants	67	34.36

Please note: there are different transmigration programmes. Furthermore, some smallholders consider themselves to be a transmigrant when they actually followed their transmigrant parents. We therefore marked "yes, transmigration" if the smallholder said they or their family are/were transmigrants.

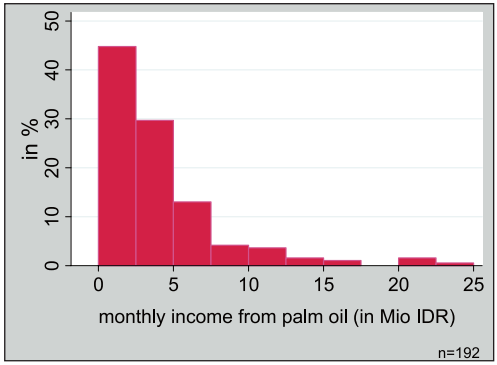
2.2 Sources of income and expenses

Question 11: What is your income from your palm oil plantation per month?

Table 7: Monthly gross income from palm oil (Mio IDR)

Variable	N	mean	min	max	sd	p5	p10	p25	p50	p75	p90
Monthly income from palm oil (Mio IDR)	192	3.86	0.20	25.00	3.91	0.60	0.84	1.50	3.00	5.00	8.00

Figure 23: Monthly gross income from palm oil (Mio IDR)



Please note: palm oil income depends on the yield, given that the FFB payment is based on weight. Among other factors, the yield depends on the season (different rainfalls, climate etc.). We asked for the average monthly gross income from their palm oil plantation but some farmers might have referred to the income of last month, based on the yield of last month (the interviews took place in March 2012, "track season"). Others might have referred to their average monthly gross income based on average yields during high season. If many farmers did refer to February's income and not average monthly income across the year, the average income is sub-estimated. We were only able to gain the farmers' own estimates of their gross incomes; it would have been very hard or impossible to collect data on net income, given that it requires smallholders to document their expenses etc.

Question 12: What has been the contribution of palm oil production to your total household income over the last 12 months?

Figure 24: Contribution of palm oil to total household income

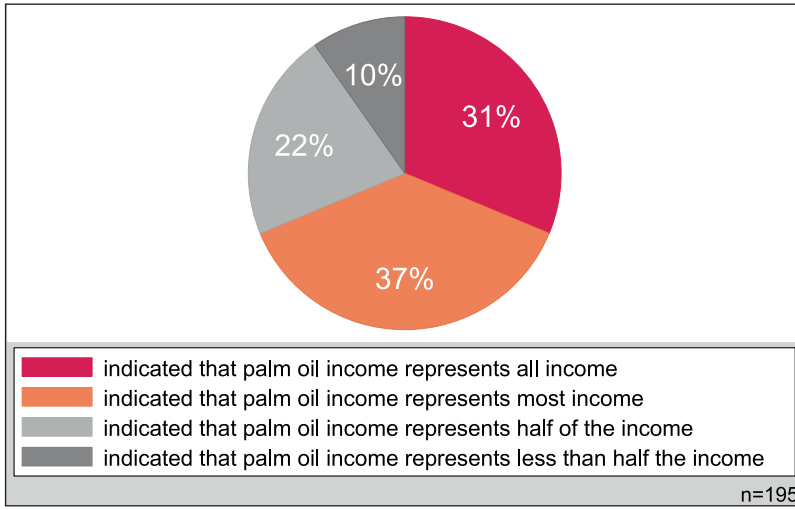


Table 8: Contribution of palm oil income to total income

Contribution of palm oil income to total income	Freq.	%
Indicated that palm oil income represents most income	73	37.44
Indicated that palm oil income represents all income	61	31.28
Indicated that palm oil income represents half of the income	42	21.54
Indicated that palm oil income represents less than half the income	19	9.74
Total	**195**	**100**

Please note: many smallholders seemed confused by the question, thus we cannot be certain about the quality of the data. Smallholders might not always have made the clear distinction between income deriving from palm oil production and income deriving from other economic activities. On the other hand, some smallholders had no problems understanding the question and were even able to indicate percentages of the contribution of each income source.

Question 13: If other income sources exist, what additional income sources do you and the people living in your household have?

Table 9: Other income sources

Other income sources	Freq.	%*
Commerce/trade (e.g. shop)	30	24.79
Rubber plantation	28	23.14
Other labour (e.g. construction works)	28	23.14
Support from family members	19	15.70
Worker on other plot (palm oil or other)	18	14.88
Other agriculture	17	14.05
Other	12	9.92
Worker on palm oil plantation	11	9.09
Collector / work for ramp / collectors' group	11	9.09
Animal farm / cattle / fish	7	5.79

* Percentage of farmers who mentioned this income source (multiple answers possible); n=121.

Other income sources included (usually only mentioned 1–2 times): mining; retirement / pension from a plantation company; public service job (e.g. elementary school teacher, village head); BRI bank debt collector.

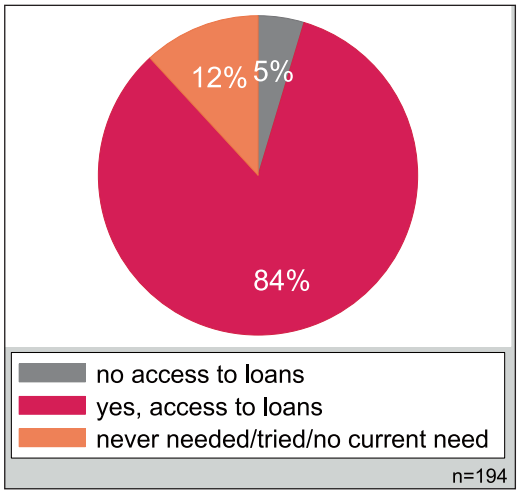
Question 14: If you want(ed) a loan, could you get one?

Table 10: Access to loan

Loan	Freq.	%
Yes, access to loans	162	83.51
Never needed or tried/no current need	23	11.86
No access to loans	9	4.64
Total	**194**	**100**

Please note: this question was not always clearly understood due incorrect translation in Bahasa Indonesia. The question was intended to serve as a proxy for access to finance and was supposed to ask whether the smallholder hypothetically has access to finance, independently of whether or not he has made use of this access already. However, many understood the question rather as "Have you already taken a loan?" Nevertheless, considering the result that the broad majority indicated "yes", one can conclude that most smallholders do have access to loans. Four of those that said "never needed or tried / no current need" actually indicated where they could get a loan.

Figure 25: Access to loan



Question 16: If yes (access to a loan): from where do you get it?

Table 11: Source of loan

Source of loan	Freq.	%*
Bank	119	73.01
Local trader	36	22.09
Middleman	19	11.66
Kelompok / cooperative	7	4.29
Other	6	3.68
Family	3	1.84
Plantation company	2	1.23
Credit union	1	0.61

* Percentage of interviewed farmers who indicated this source for a loan (multiple answers possible); n=163.

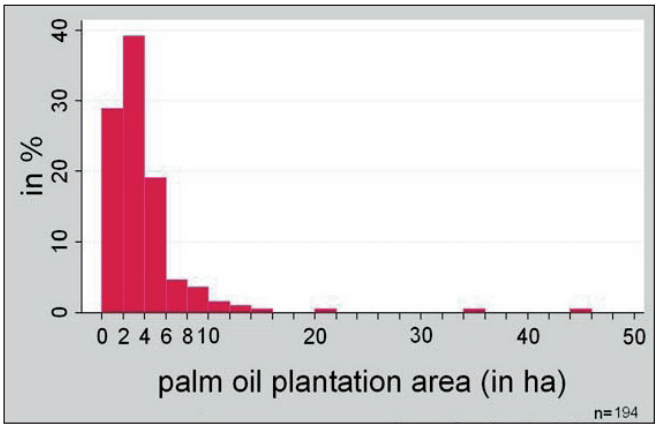
Please note: most smallholders who indicated that they could get a loan from a bank named the BRI bank.

3. Producing fresh fruit bunches (FFBs)

Table 12: Hectares palm oil

Variable	N	mean	min	max	sd	p25	p50	p75	p90
Plantation area (ha)	194	3.54	0.20	45.00	4.61	1.50	2.00	4.00	6.00

Figure 26: Access to loan



Please note: we use the smallholder definition laid out by RSPO, defining smallholders as any family-based enterprise producing palm oil from less than 50 hectares of land (the Indonesian government sets the limit at 40 hectares). Multiple hectares belonging to one smallholder do not necessarily have to be located next to each other.

Question 18: Since when do you have palm oil plots?

Table 13: Experience in oil palm cultivation

Variable	N	mean	min	max	sd	p25	p50	p75	p90
Palm oil experience	190	1995	1960	2012	8.64	1990	1996	2002	2006

Please note: this variable is supposed to serve as a proxy for the experience with oil palm cultivation. The weakness of this proxy is that some smallholders actually worked for plantation companies, were scheme smallholders or workers on plantations and/or other smallholders' plots before they bought their own palm oil plots. Thus, they might have already gained some experience concerning oil palm cultivation prior to becoming a smallholder.

Question 19: How old are the palm trees?

Table 14: Oil palm age

Variable	N	mean	min	Max	sd	p25	p50	p75	p90
Palm age*	186	13.64	1.00	34.00	6.59	9.00	13.00	17.50	22.00

* Each observation is the unweighted mean of the age of each smallholder's palm trees.

Please note: the indicated values represent only a rough indication, given that each observation is the unweighted mean (not weighed by amount of hectares) of the age of each smallholders' palm trees. Furthermore, the mean age of palm trees is not interesting in itself, but rather the effect of the palm tree age on yields. It is rather interesting to examine how many smallholders might not obtain high yields because they have young palm trees, and how many smallholders will have to replant soon because they have old trees (for both, see the table below).

Table 15: Immature and old palm trees

Variable	Freq.	%*
Has old palm trees (> = 20 years)	55	29.57
Has young palm trees (< = 4 years)	29	15.59

* Percentage of smallholders who answered the question (n=186) and had young / old palm trees (multiple answers possible).

Question 20: Do you own the land or do you rent it?

Table 16: Land ownership

Land ownership	Freq.	%
Owned	193	99.48
Manages the plot for someone else	1	0.52
Total	**194**	**100**

Question 21: In case of owned land, please specify the land title.

Table 17: Type of land title

Type of land title*	Freq.	%**
BPN[a]	86	44.79
SKT[b]	46	23.96
Legal trade[c]	30	15.63
None (for part/all of plantation area)***	20	10.42
Other	17	8.85
SKGR[d]	12	6.25
Customary land[e]	4	2.08

* For a definition of the different land titles, please consult table below.

** Percentage of interviewed smallholders who indicated the respective type(s) of land title (n=192, number of smallholders of our sample who

answered the question); multiple answers possible (e.g. different land titles for every ha of land).

*** Out of those that have no land title, 14 smallholders (7.29 per cent) have no land title whatsoever for all of their palm oil land. The other 6 only lack the land title for part of their land.

Other land titles included the answers “don’t know”, document of Grand Sultan, certificate from Agraria, wrong name on land certificate, land certificate not processed yet, certificates from Department Dalam Negeri.

Figure 27: Land title

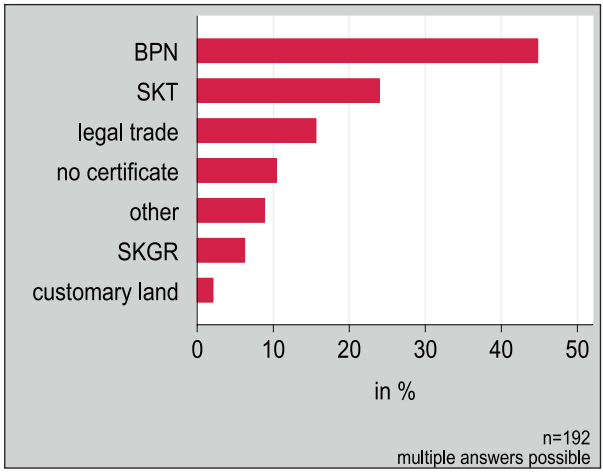


Table 18: Definition land titles

Land titles	Definition
[a]BPN	Badan Pertanahan Nasional(National Land Agency)
[b]SKT	*Surat keterangan camat*(official statement of land ownership letter), a land certificate was issued by head of sub-district
[c]Legal trade	Legal trading system, usually recognised by the government
[d]SKGR	A kind of a land certificate issued by Head of Kampung/ Head of Village
[e]Customary land	The land belonged to a clan

Question 22: How did you get your land?

Table 19: Land origin

Land origin	Freq.	%*
Buy	128	66.32
Inherited	66	34.20
It was given to me through the transmigrasi programme	24	12.44
Other	6	3.11
It was community land before	4	2.07
Cut down forest which belonged to nobody	0	0.00

* Multiple answers possible; n=193.

Other answers: from village head; “because there was land left”.

Question 23: How did the land look like before the oil palms were planted? [show pictures]

Table 20: Land cover before oil palm planting

	Freq.	%*
Imperata	67	35.08
Secondary forest	40	20.94
Old growth forest	31	16.23
Rubber	28	14.66
Agroforest	19	9.95
Peat/swamp land/forest	18	9.42
Rice	14	7.33
Other	14	7.33
There were already oil palms	8	4.19
Cacao	7	3.66
Acacia	5	2.62

* Multiple answers possible because plantation area can be split up; n=191.

Other answers include: corn, maniok, jackfruit, durian, coconut, banana, pineapple.

Please note: the question was answered with the help of photographs that depicted each type of land. In some cases, at first a picture was pointed at other than the one indicated and named in the end. However, the research team only counted the final answer. Furthermore, the land covered by other agricultural land uses (e.g. rice, rubber) prior to oil palm was indeed covered by forest before those other agricultural land uses.

For RSPO, it is only relevant if primary forest was cleared after 2005. If one takes the information gained from the question about since when the smallholder has palm oil plots in combination with the information on palm age, it can be concluded that 2 (7) smallholders actually cleared primary forest after 2005 (2000) and 7 (16) cleared secondary forest since 2005 (2000).

Question 24: How was the land cleared?

Table 21: Mode of land clearance

Mode of land clearance	Freq.	%*
Logging	116	61.05
Burning	95	50.00
Spraying	41	21.58
Clearing machines	24	12.63
Other	23	12.11
Don't know	14	7.37
Drainage (canal)	3	1.58

* Multiple answers possible; n=190.

Please note: in some of the cases where "don't know" was indicated, it was actually the plantation company that cleared the land and planted the palm tree.

Question 25: Who does most physical work on your plot?

Table 22: Physical work

Physical work done by	Freq.	%*
Farmer himself	166	85.57
Workers	81	41.75
Family members	61	31.44
Members of cooperative and/or *kelompok*	2	1.03
Other	1	0.52

* Multiple answers possible; n=194.

Please note: it is likely that the work of family members on the plot is underestimated, given that many consider it as normal that their family members contribute to the plot management and do not count them as external help. There is a likely possibility that the question was misunderstood, as the research team allowed for multiple answers, whereas the sense of the question implies only one answer. Many smallholders understood the question as "Who works **a lot** on your plot" and not "Who does **most physical** work on your plot".

Question 26: Do you hire workers?

Table 23: Hiring workers

Workers	Freq.	%
Yes, hired workers	127	65.46
No hired workers	67	34.54
Total	**194**	**100**

Question 27: If yes: for which activities [do you hire workers]?

Table 24: Workers activities

Worker activities	Freq.	%*
Harvesting	107	83.59
Fertiliser application	50	39.06
Pesticide application	43	33.59
Other	31	24.22
Weeding	17	13.28
Planting	16	12.50
Clearing land	10	7.81
Pruning	7	5.47
Herbicide application	4	3.13

* Multiple answers possible; n=128.

3.1 Sources of knowledge and extension services

Question 28: What are your sources of knowledge about palm oil farming?

Table 25: Knowledge source

Knowledge source	Freq.	%*
Big company in the neighbourhood	99	51.30
Family/friends	50	25.91
Neighbouring farmers	44	22.80
Other	13	6.74
Books and magazines	9	4.66
Governmental extension services and/or trainings by other institutions	8	4.15
Learning-by-doing	7	3.63
Cooperative/KUD	6	3.11
Setara	5	2.59
Farmers group/*kelompok*	3	1.55
None	2	1.04

* Multiple answers possible; n=193.

Other answers given: local school for oil palm cultivation; children studied agriculture; important person in the village; studied agronomy at university; mill; workers of PT PN3 taught him; salesman.

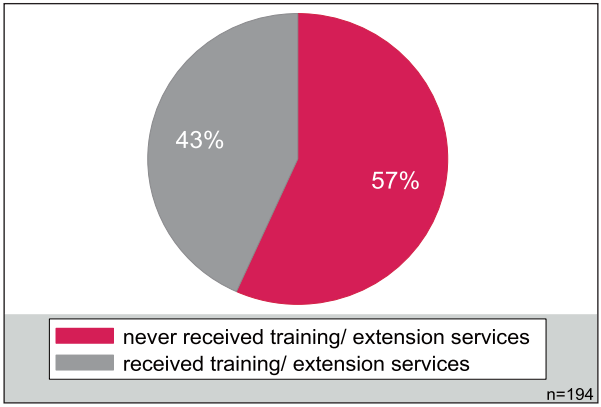
Please note: the answer "Big company in the neighbourhood" contains both the answers of smallholders who gained knowledge by copying the practices of the plantation company and the answers of smallholders who were part of a PIR / transmigration / scheme smallholder programme or worked as contract workers for the plantation company.

Question 29: Do you receive extension services / trainings?

Table 26: Extension services / training

Extension services / training	Freq.	%
Never received any extension services / trainings	111	57.22
Yes, extension services / trainings	83	42.78
Total	**194**	**100**

Figure 28: Extension services / training



Please note: having received training or extension service is not an indicator of the frequency and quality of training and/or extension services (see

below regarding data of training and/or extension services frequency). The category "training / extension services" not only includes agricultural training but also various other forms of training, including training about organisation and group management as well as RSPO.

Question 30: [If the interviewee has received extension services / trainings] Who provides the extension services / trainings?

Figure 29: Provider of extension services / training

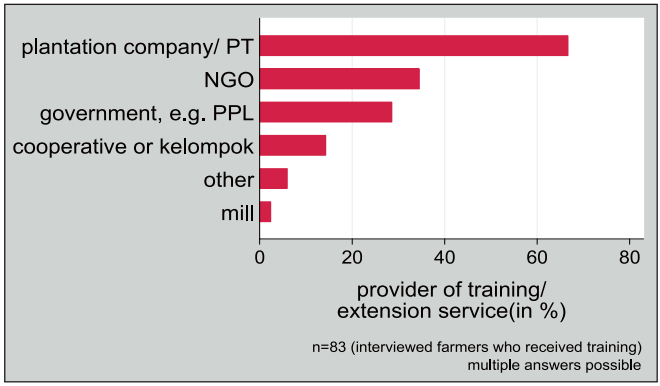


Table 27: Provider of extension services / training

Extension services / training provider	Freq.	%*
Plantation company (PT)	56	67.47
NGO	29	34.94
Government, e.g. extension services officer (PPL)	24	28.92
Cooperative/smallholder group (*kelompok*)	12	14.46
Other	5	6.02
Mill	2	2.41

* Multiple answers possible; n=83xx dd.

Other providers: Balai Penyuluhan Pertanian (BPP); Bentasil (collector group); village head; "not sure"; TKI.

Question 31: [If the interviewee has received extension services / trainings] How often do you receive extension services / trainings – approximately?

Table 28: Frequency of extension services / training

Frequency of extension services /training		Freq.	%
Once in total	only before 2004	2	2.63
	only since 2004	9	11.84
	time of extension services /training not indicated	3	3.95
2–6 times in total	only before 2004	2	2.63
	only since 2004	5	6.58
	time of extension services /training not indicated	6	7.89
1–2 times per year	only before 2004	0	0.00
	only since 2004	1	1.32
	time of extension services /training not indicated	8	10.53
3–4 times per year	only before 2004	2	2.63
	only since 2004	0	0.00
	time of extension services /training not indicated	4	5.26
5 times per year or more	only before 2004	7	9.21
	only since 2004	8	10.53
	time of extension services /training not indicated	8	10.53
Irregularly	only before 2004	2	2.63
	only since 2004	3	3.95
Don't know	-	6	7.89
Total		**76**	**100.00**

Please note: unfortunately, there were no dates indicated for all answers regarding the frequency of extension services / training. However, it is still remarkable that many received extension trainings either only before or after 2004. The threshold of 2004 was chosen rather arbitrarily in accordance with the date of the creation of RSPO.

Question 32: [If the interviewee has received extension services / trainings] How helpful were the extension services / trainings for your plot management?

Table 29: Evaluation of extension services / training

Evaluation of extension services /training	Freq.	%
Very helpful	65	81.25
Rather helpful	10	12.5
Rather not helpful	4	5.00
Not helpful at all	1	1.25
Total	**80**	**100**

Question 33: [The interviewee has received extension services / trainings and if (rather) not helpful] Why was it (rather) not helpful?

Table 30: Reasons for negative extension services / training evaluation

Reason for negative evaluation	Freq.	%
Content did not address my questions	1	16.67
Other reason	5	83.33
Total	**6***	**100.00**

* One interviewed smallholder evaluated the training as "rather helpful" but still made a comment on how it could be more helpful.

Other reasons included: not enough money to implement the recommendations (for example concerning fertiliser); only theory; can't find the solution by his own through book and internet; training did not help either; there was too much theory and not enough practice; training was focussed on condition in West Sumatra and he feels they do not apply to him.

Question 34: In order to improve your agricultural practices, which trainings would you like to receive? And if you do, would you be willing to pay for it?

Figure 30: Wish for more training

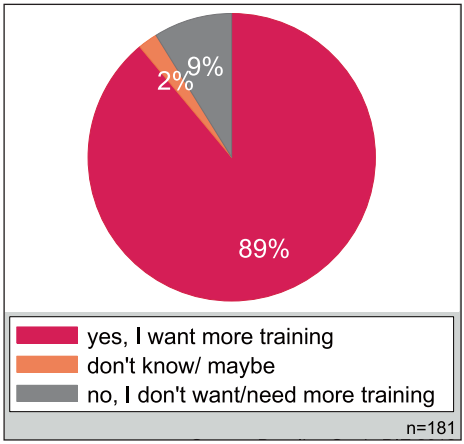


Table 31: Wish for more training

Wish for more trainings	**Freq.**	**%**
Yes, I want more training	161	88.95
No, I don't want/need more training	16	8.84
Don't know/ maybe	4	2.21
Total	**181**	**100**

Table 32: Content of wished training

Wished trainings (content)	Freq.	%*
Fertiliser	68	37.57
GAP in general	48	26.52
Pest management	32	17.68
How to increase yield and quality	31	17.13
Seedlings	29	16.02
Planting and replanting	27	14.92
Harvesting	11	6.08
Other	8	4.42
Organic fertiliser/ how to protect the environment	5	2.76
How to plant on peat/swamp land	4	2.21
Finance andloans	3	1.66
Group management	2	1.10
RSPO	2	1.10

* Percentage of interviewed farmers who wished for the respective training content (n=181, number of farmers of our sample who answered this question); multiple answers possible.

Other answers: for the future he would like to know: what the prospect of palm oil is; for which different products there will be demand for palm oil; how prices are set; how to get a good price for the fertiliser; how to grow short leaf palm oil tree; how to get much money; how to make dead land (unfertile) productive again; what to do with dead leaves.

Figure 31: Content of wished training

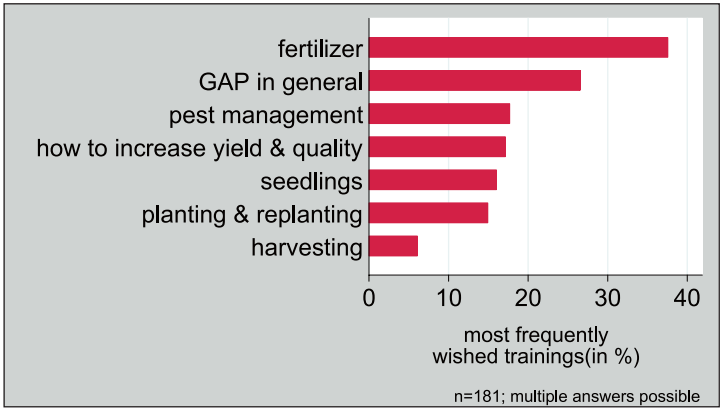


Figure 32: Willingness to pay for training

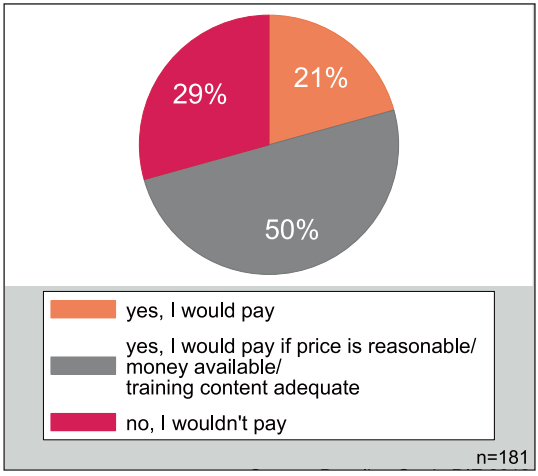


Table 33: Willingness to pay for training

Willingness to pay for training	Freq.	%
Yes, I would pay	24	20.69
Yes, I would pay if price is reasonable	58	50
No, I wouldn't pay	34	29.31
Total	**116**	**100**

Question 35: Do you have a seedling record?

Table 34: Seedling record

Seedlings record	Freq.	%
No seedlings record	183	95.81
Yes, seedlings record	8	4.19
Total	**191**	**100**

Question 36: Where did you buy your seedlings?

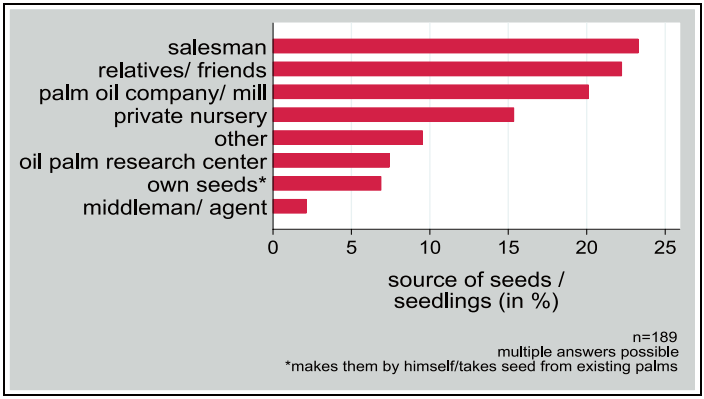
Table 35: Source of seeds / seedlings

Seedling source	Freq.	%*
Salesman	44	23.28
Relatives, friends	42	22.22
Palm oil company / mill	38	20.11
Private nursery	29	15.34
Other	18	9.52
Oil palm research centre	14	7.41
Makes them by himself / takes seed from existing palms	13	6.88
Middleman / agent	4	2.12

* Percentage of smallholders who indicated the respective seedling source (n=189); multiple answers possible.

Other sources: training provider; government / *dinas perkebunan; kelompok;* palms were already there; don't know

Figure 33: Source of seeds / seedlings



Please note: we used oil palm research centres (particularly IOPRI in North Sumatra) as a proxy for very good seedling quality. The seedling source palm oil company / mill can also be considered to be substantially better than that offered by a salesman, middleman / agent and private nursery. Seedlings from relatives, friends and from existing palms (own seedlings) are likely to be of bad quality as well. Considering that we did not assess the quality of oil palm breeds on the plots, we decided that only oil palm research centres and company / mill serve as an adequate proxy for good seedling quality.

Definition "private nursery": a private nursery usually describes small to medium-sized family businesses that nurture seedlings. The variance of quality provided is supposed to be very high. The quality tends to be rather low, and thus a private nursery does not function as a proxy for good seedling quality.

Definition "salesman": in contrast to a middleman / agent, who engages in FFB trading, a salesman in this context means an individual engaging solely in seedling trading. They do not engage in own seedling nurturing but buy the seedlings from other sources. In most cases one can consider the provided quality of seedlings as low, due to dubious seedling sources.

Question 37: Why did you decide to buy these seedlings?

Table 36: Reasons for seedling choice

Reasons for seedlings choice	Freq.	%*
Convenience/no choice/didn't know other source	61	33.70
Quality of seedlings	60	33.15
Cheap price/no money for other source	44	24.31
Other	26	14.36
Others did same/recommended	11	6.08
Plantation company planted	6	3.31
Well accepted source/with licence	3	1.66

* Percentage of interviewed smallholders who indicated the respective reason (n=181, farmers who answered this question); multiple answers possible.

Other reasons include: can buy small amounts of seedlings from salesman; possible to pay in instalments; not relevant; don't know how to make own seedlings; don't know why I chose these seedlings; because of trust; because it does not matter where bought; because I didn't know that the seedling source would influence the quality of the FFBs (only Setara told me); because salesman said he was from Medan.

Fertiliser and pest management

Question 38: Who decides about fertiliser application?

Table 37: Who decides about fertiliser application

Decision person (fertiliser application)	Freq.	%
Smallholder decides by himself	177	92.67
Family/ friends	11	5.76
Other	2	1.05
KUD/*kelompok*	1	0.52
Total	**191**	**100**

Question 39: What does it depend on whether and how much fertiliser is applied?

Table 38: Criteria for fertiliser application

Criteria for fertiliser application	Freq.	%*
Fixed schedule	115	59.90
Money available for fertiliser	73	38.02
As/when his friend(s) do it or as/when other people tell him to	43	22.40
Age or size of the palm tree	27	14.06
Other	22	11.46
Price of fertiliser	19	9.90
Result of leaves analysis/examination	17	8.85
FFB yield	15	7.81
Don't know	4	2.08
Price of FFB	2	1.04
Result of soil analysis/examination	1	0.52

* Percentage of interviewed smallholders who indicated the respective criterion for fertiliser application (n=192, smallholders who answered this question); multiple answers possible.

Other reasons include: season; rainfall; book; type of land; examination of the fruit; no systematic use.

Please note: many smallholders had difficulties answering this question. The answer "fixed schedule" means that the smallholder indicated some sort of fixed schedule that he tries to comply with. In many cases, this means that the schedule is complied with as long as money is available. The schedule can originate from different sources, including the imitation of and recommendation from friends, neighbouring farmers, plantation companies or other actors (e.g. NGOs). The quality and adequacy of the applied schedule can differ widely.

Figure 34: Criteria for fertiliser application

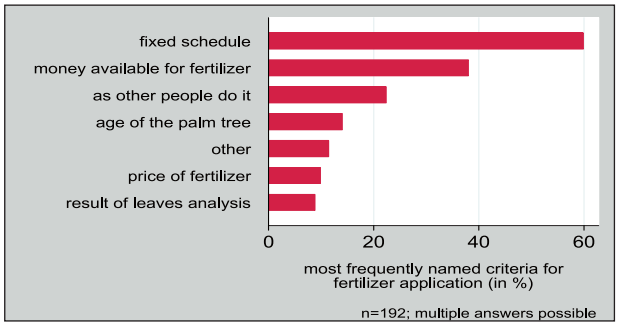


Table 39: Source of fertilising schedule

Source of fertilising schedule	**Freq.**	**%***
No origin given	45	39.13
Former worker at, or imitation of, a plantation company	26	22.61
Own schedule by habit or trial and error	11	9.57
Derived from friends / family / neighbouring farmers	9	7.83
Derived from unspecified trainings / *sosialisasi*	6	5.22
Derived from extension services	6	5.22
Derived from books or own studies in agriculture	4	3.48
Derived from smallholder group (*kelompok* / cooperative)	3	2.6
Derived from NGO trainings	3	2.6
Derived from fertiliser salesman or middlemen	2	1.74
Total	**115**	**100**

Question 40: Where do you get your fertiliser from?

Table 40: Fertiliser source

Fertiliser source	Freq.	%*
KUD / *kelompok*	65	35.33
Local shop	61	33.15
Salesman	48	26.09
Middleman / agent / collector	18	9.78
Other	9	4.89
Nearby palm oil plantation	1	0.54
Mill	1	0.54

* Percentage of interviewed smallholders who indicated the respective source of fertiliser (n=184, number of smallholders who answered this question); multiple answers possible.

Other reasons given: cows; subsidised fertiliser from nearby local government shop; own shop (he buys from PT Petrokimia Gresik and PT Pupuk Srinidjaja); buys it from the driver who works at PT Sal; ordered from a retailer; shop / market in Banko.

Question 41: Are there or were there ground covering plants, such as kacangan, on your palm oil plot?

Table 41: Cover crops

Cover crops (kacangan)	Freq.	%
No cover crops	134	70.16
Yes, there are/were cover crops	57	29.84
Total	**191**	**100**

Please note: due to translation errors, the interviewed smallholders probably only referred to kacangan and not to ground covering plants in general. In addition, smallholders often did not understand the term "cover crops" correctly. Many considered grass, low-growth bushes or intercropping as cover crops.

Question 42: What do you do against rats?

Table 42: What is done against rats

Rats	Freq.	%*
No rats on my plot	99	51.83
Do nothing / leave them	60	31.41
Poison	18	9.42
Leaving snakes alive	10	5.24
Other	10	5.24
Keeping owls	2	1.05

* Percentage of interviewed smallholders who indicated the respective measures against rats (n=191, number of smallholders who answered this question); multiple answers possible.

Other answers: cat; fence; not yet anything – but wants to because there are a lots of rats; does not know what to do about the rats; traps.

Please note: this question was originally supposed to serve as a proxy for "integrated pest management". However, it entails some weaknesses because, in most cases, we did not check specifically whether the smallholder is fully aware of the link between leaving snakes alive and combating rats. Only 11 smallholders explicitly mentioned the connection between keeping certain animal species alive and combating pest populations.

Most smallholders indicated that they either had no rats on their plots (or knew of none) or that they would not combat them because they are not a pest. Thus, the question lacks adequacy in generating assumptions and/or evidence concerning IPM.

Overall the received impression was that the basic understanding of natural predatory relations between animal species and their potential benefit to the smallholders is not widespread.

Question 43: What do you do against rats?

Table 43: Wild animals

Wild animals	Freq.	%
Let them go	112	58.03
No wild animals on the plot/ not seen	28	14.51
Kill some animals	16	8.29
Tree protection, e.g. fence	16	8.29
Chase animals away	9	4.66
Kill animals	5	2.59
Catch (sell / keep) animals	4	2.07
Other	3	1.55
Total	**193**	**100**

Other answers: cat; fence; not yet anything – but wants to because there are a lots of rats; does not know what to do about the rats; traps.

Question 44: Do you use agricultural chemicals, such as pesticides or herbicides?

Table 44: Use of agricultural chemicals

Agricultural chemicals	Freq.	%
Yes, I use such chemicals	146	75.65
No, I don't use such chemicals	47	24.35
Total	**193**	**100**

Question 45: Do you use agricultural chemicals, such as pesticides or herbicides?

Table 45: Total spraying

Total spraying	Freq.	%
No, I don't do total spraying	63	43.15
Yes, I do total spraying	83	56.84
Total	**146**	**100**

Please note: we defined total spraying as follows: the application of pesticides and/or herbicides to the whole plot at the same time, incl. or excl. a circle around trees. Selective application of pesticides and/or herbicides (e.g. just specific weeds, just footpath etc.) is not considered to be total spraying. We cannot be sure that smallholders understood the term "total spraying" the same way. However, we asked where they spray, if they indicated the use of total spraying, thereby classifying their pesticides and/or herbicides application according to our definition.

Question 46: [In case of using chemicals] Where do you store the chemicals?

Table 46: Chemicals storage

Chemicals storage	Freq.	%
Separate storage shack outside of house	56	38.36
Other	36	24.66
In the house	29	19.86
Separate storage room in the house	24	16.44
Central storage facility of smallholder	1	0.68
Total	**146**	**100**

Question 47: [In case of using chemicals] Do you, your family members or your labourers put on a mask or gloves when using the chemicals?

Table 47: Chemical protection

Chemicals protection	Freq.	%
No (mask and gloves)	88	60.27
Yes, always (mask and gloves)	44	30.14
Yes, sometimes (mask and gloves)	14	9.59
Total	**146**	**100**

Please note: If only mask or gloves were used sometimes or always, the answer "no" was checked.

Question 48: [In case of using chemicals] What do you do with the empty containers?

Table 48: Disposal of empty chemical containers

Disposal of empty chemicals containers	Freq.	%*
Dump on private site (e.g. plot)	62	42.18
Sell	38	25.85
Burn	26	17.69
No disposal, further use for other purposes	13	8.84
Bury	13	8.84
Throw in the river	9	6.12
Give away, further use by somebody else	6	4.08
Other	3	2.04
Central collection site	0	0.00

* Percentage of interviewed smallholders who indicated the respective mode of disposal (n=147, number of smallholders who answered this question); multiple answers possible.

Other answers: keep it in their barn; workers take the containers away; workers do the spraying, he does not know.

Please note: "further use for other purposes" included, for instance, further use for fuel or water storage.

Question 49: What do you do with dead leaves?

Table 49: Dead leaves as organic fertiliser

Dead leaves as organic fertiliser	Freq.	%
Did not say explicitly that they use dead leaves as fertiliser	108	56.84
Said explicitly they use dead leaves as fertiliser	82	43.16
Total	**190**	**100**

Please note: this question was an open-ended question. We intended to clarify the level of knowledge of smallholders about the possibilities of using dead leaves as T-boxes and/or organic fertiliser. However, we did not explicitly ask these questions in all cases. This is why we analysed the answers only with regard to the question as to whether smallholders explicitly mentioned that they use the dead leaves as organic fertiliser.

Question 50: Do you do circle weeding?

Table 50: Circle weeding

Circle weeding	Freq.	%
Yes, does circle weeding manually	105	64.81
No, doesn't do circle weeding manually	57	35.19
Total	**162**	**100**

Please note: we were interested in finding out how many smallholders do manual circle weeding (or with small machines), without usage of agricultural chemicals, due to three reasons: (1) circle weeding is important for seeing ripe fruit that falls down; (2) depending on the agrochemical used and the concentration applied, the palm roots can be damaged; and (3) because the application of chemicals for this purpose unnecessarily harms the environment. Some of the observations from our first interviews in North Sumatra were not taken into account here (they were replaced by missing values) because we did not explicitly ask from the beginning what each smallholder means by the term "circle weeding". After the first few days of the field research period, we started to collect data about the understanding of the individual smallholder regarding the term "circle weeding".

3.2 Harvesting and expansion

Harvesting

Question 51: How often do you harvest?

Table 51: Harvest frequency

Harvesting	Freq.	%*
Harvest every 2 weeks or twice a month	181	94.76
Harvest every 10 days or less	11	5.76
Harvest every 20 days or more	1	0.52

* Percentage of interviewed smallholders that indicated the respective frequency of harvesting (n=191, number of smallholders that answered the question); multiple answers possible (if harvesting frequency not always the same).

Question 52: What was an average yield per ha last month?

Table 52: Monthly average yield

Variable	N	mean	min	max	sd	p25	p50	p75	p90
Yield (kg)	187	1107.65	90	3000	591.20	650	1000	1500	2000

Please note: among other factors (e.g. seedling quality), the yield depends on the season (different rainfalls, climate etc.). We asked for the average yield per hectare in the previous month (March 2012, "track season" with lower yields), but we cannot be sure whether maybe some farmers referred to the yield in the high season. Furthermore, it is possible that some interviewed smallholders indicated only the yield of one harvest, although they typically have two harvests per month. Other smallholders might have indicated the sum of their monthly yields from several hectares of plantation area.

Question 53: Do you have any plan to expand your area of oil palm plantation?

Table 53: Expansion plan

Expansion plans	Freq.	%
When I have money/no concrete plan yet	114	59.38
Yes, I have expansion plans	40	20.83
No expansion plans	38	19.79
Total	**192**	**100**

Only 29 of the interviewed smallholders with concrete expansion plans also indicated a specific amount of hectares. These indications lie between 1 and 20 hectares; the most frequently named amount of hectares was 2 hectares (named 11 times).

Question 54: [In case of expansion plans, also hypothetical] Is the land covered by forest?

Table 54: Expansion land

Expansion land	Freq.	%
Land not covered by forest	40	60.61
Land covered by forest	26	39.39
Total	**66**	**100**

Question 55: [In case of expansion plans, also hypothetical] How will the land be cleared in case of expansion? [multiple answers possible]

Table 55: Type of land-clearing in case of expansion

Land clearance in case of expansion	Freq.	%*
Logging	40	51.95
Burning	31	40.26
Wants land with already planted palms	14	18.18
Spraying (e.g. in case of Imperata)	5	6.49
Clearing machines	3	3.90
Don't know	3	3.90
Logging and selling the wood	2	2.60
Other	2	2.60

* Percentage of interviewed smallholders who indicated the respective mode of clearance in case of expansion (n=77, number of smallholders who answered this question); multiple answers possible.

Question 56: [If burning is / will be used for clearing] Why do you use fire?

Figure 35: Reasons for burning

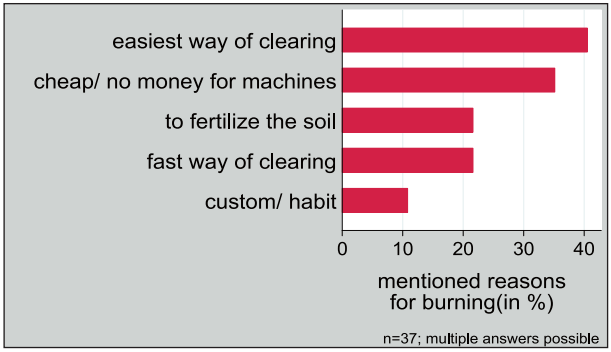


Table 6: Reasons for burning

Reasons for burning	Freq.	%*
Easiest way of clearing	15	40.54
Cheap / no money for machines	13	35.14
Fast way of clearing	8	21.62
To fertilise the ground	8	21.62
Custom / habit	4	10.81

* Percentage of interviewed smallholders who indicated the respective reason (n=37, number of smallholders who answered this question); multiple answers possible.

Additionally, 6 persons mentioned that they know about the prohibition of burning, but they did it / do it anyways.

3.4 Selling fresh fruit bunches (FFBs)

Question 57: What was an average price received last month?

Figure 36: Average price (subsample North Sumatra)

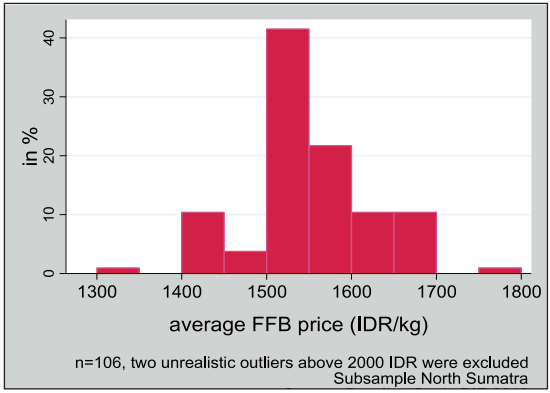


Figure 37: Average price (subsample Jambi)

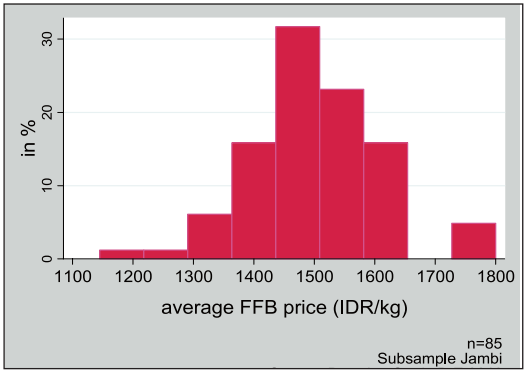


Table 57: Average price

Variable	N	mean	min	max	sd	p25	p50	p75	p90
Average price per kg of FFB (in IDR, March 2012)	190	1547.74	1145	5500	311.53	1500	1500	1580	1638

Please note: there are two outliers in the sample regarding the average price per kg of FFBs. Both are above 2000 IDR per kg of FFBs.

Question 58: Does the price of FFBs that you receive depend on FFB quality?

Table 58: FFB price quality dependence

FFB price quality dependence	Freq.	%
No, price doesn't depend on quality	144	75.79
Yes, price depends on quality	41	21.58
Yes or no, depending on who I sell to*	5	2.63
Total	**190**	**100**

* If FFBs are sold to *kelompok* or mill, the price depends on quality; if FFBs are sold to middleman, it is not (according to these 5 interviewees).

Out of the 144 smallholders who answered "no, price doesn't depend on quality", 130 sell to middlemen, 4 sell directly to the mill and 17 sell to a group.

Out of the 41 smallholders who answered "yes, price depends on quality", 32 sell to middlemen, 4 sell directly to the mill and 8 sell to a group (multiple answers were possible regarding the question about where the FFBs are sold to). There is no clear pattern identifiable.

Please note: the answer depends on the understanding of the smallholder: some base their answer on whether the middleman or smallholder group receive an FFB price from the mill according to quality; others base their answer on whether the FFB price they themselves receive from the middleman or smallholder group depends upon FFB quality. In many cases the answer differs regarding both cases. Thus, the question lacks adequacy in generating evidence concerning the link between price and quality. Please take a closer look at the textbox "Selling Structure" in the final report published by the German Development Institute.

Question 59: Do you know every month what the FFB price is that is determined by your *dinas perkebunan*?

Table 59: Knowledge about *dinas* price

Knowledge *dinas* price	**Freq.**	**%**
No, but I would like to know	109	57.67
No, and I don't care	58	30.69
Yes, I know the *dinas* price	22	11.64
Total	**189**	**100**

Please note: the price determined by the *dinas perkebunan* (provincial directorate for plantations) is regularly published by local newspapers.

Question 60: To whom do you sell your FFBs?

Table 60: FFB buyer in North Sumatra

North Sumatra		
FFB buyer in North Sumatra	**Freq.**	**%***
Middleman	106	97.25
(directly to) Selling groups / cooperatives	6	5.50
(directly to) Mill	1	0.92

* Percentage of interviewed smallholders who sold to the respective FFB buyer (n=109, number of smallholders who answered this question); multiple answers possible.

Table 61: FFB buyer in Jambi

Jambi		
FFB buyer in Jambi	**Freq.**	**%***
Middleman	66	77.65
(directly to) Selling groups / cooperatives	26	30.59
(directly to) Mill	3	3.53

* Percentage of interviewed smallholders who sold to the respective FFB buyer (n=85, number of smallholders who answered this question); multiple answers possible.

Please note: the answer option "middleman" also includes those smallholders who sell their FFBs to middlemen, who sell the FFBs directly to a collectors' group or to another middleman / main collector, who then sells the FFBs to the collectors' group. In North Sumtra, collector groups had a stronger presence. Only few *kelompoks* existed and most of them did not sell the FFBs of smallholders. Therefore, not all smallholders of the entire sample had the choice to sell to a *kelompok.*

Question 61: [If FFBs are sold to middleman] Why do you sell your FFBs to a middleman?

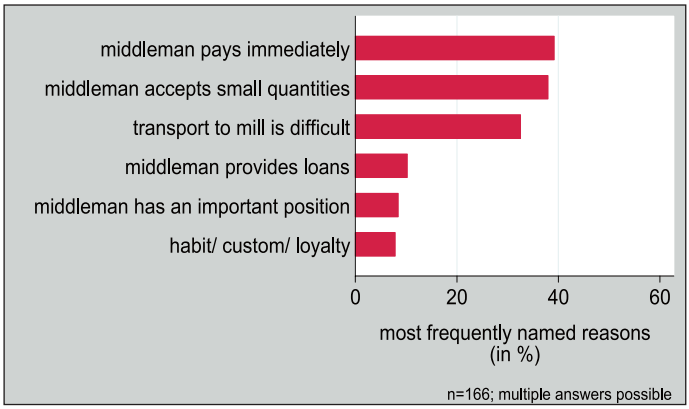
Table 62: Reasons for selling to middleman

Reasons for selling to middleman	Freq.	%*
Middleman pays immediately	65	39.16
Middleman accepts small quantities	63	37.95
Transport to mill etc. is difficult	54	32.53
Middleman provides loans	17	10.24
Middleman has an important position	14	8.43
Habit / custom / loyalty	13	7.83
Other reason	11	6.63
No KUD anymore/group doesn't work/no member	11	6.63
Farmer has debt with middleman and feels obliged	9	5.42
Middleman is nearby / convenience	9	5.42
Contract/agreement with middleman	7	4.22
Doesn't want to deal with sorting / rejected FFBs / quality issues	7	4.22
Middleman is a relative or friend	5	3.01
Middleman sells fertiliser	4	2.41

* Percentage of interviewed smallholders who indicated the respective reason (n=166, number of smallholders who answered this question); multiple answers possible.

Other reasons: good price; middleman gives information; plot too far to sell to *kelompok;* doesn't want to mix *kelompok* FFBs with former scheme FFBs; the complete yield cannot be transported by the *kelompok;* it is difficult to sell to the mill; the process is faster when selling to a middleman; middleman helps with problems; habit; transport is handled by middleman according to schedule; because he followed his friend and KUD is not active anymore.

Figure 38: Reasons for selling to middleman



Question 61a: [If FFBs are sold to middleman] Does the middleman come to you to pick up the FFBs?

Table 63: Middleman picks up FFBs

Middleman picks up FFB	Freq.	%
Yes	145	94.77
No	7	4.58
Sometimes	1	0.65
Total	**153**	**100**

Question 61b: [If FFBs are sold to middleman] What percentage of FFBs are rejected by the middleman?

Table 64: Rejected FFBs

Rejected FFBs (in %)	Freq.	%
0	134	91.78
1	3	2.05
2	3	2.05
4	2	1.37
9	1	0.68
10	1	0.68
23	1	0.68
50	1	0.68
Total	**146**	**100**

Question 62: [If FFBs are sold directly to a mill] Why are you selling your FFBs directly to a mill?

Table 65: Reason for selling to the mill

Reasons for selling to the mill	Freq.	%*
Better price	9	69.23
Contract/agreement of smallholder with the mill	1	7.69
Other	6	46.15

* Percentage of interviewed smallholders who indicated the respective reason (n=13, number of smallholders of our sample who answered this question); multiple answers possible.

Other reasons: he is a middleman; he is a collector; sometimes he sells to the mill depending on how strict the sorting process is; weighing scale is better.

Question 64: [If FFBs are sold directly to a mill] What is the main reasons for a delay of transport?

Table 66: Reasons for delay of transport

Reasons for delay of transport	Freq.	%*
Other	4	40
Road conditions	3	30
Organisation of transport	2	20
Don't know	2	20

* Percentage of interviewed smallholders who indicated the respective reasons for delay (n=10, number of smallholders in our sample who answered this question); multiple answers possible.

Other reasons: machines in mill are broken; rainy season; car breaks down; sometimes IEP closes on Sunday so there is a long line on Monday; sometimes vehicle broken.

Question 65: [If FFBs are sold directly to a mill] On average, how long are the waiting lines at the mill?

Table 7: Waiting lines at the mill

Waiting lines at the mill	Freq.	%
2–8 hours	10	83.33
Less than 2 hours	1	8.33
Don't know	1	8.33
Total	**12**	**100**

Question 66: [If FFBs are sold directly to a mill] What percentage of your FFBs are on average rejected at the mill?

Table 8: Rejected FFBs at the mill

Rejected FFBs at the mill (in %)	Freq.	%
0	3	27.27
2	2	18.18
5	2	18.18
1.25	1	9.09
3	1	9.09
3.3	1	9.09
10	1	9.09
Total	**11**	**100**

On average (mean), 2.87 per cent of the FFBs that these 11 smallholders bring to the mill are rejected.

Question 67: [If FFBs are sold to a *kelompok* / cooperative] Why do you sell your FFBs to the KUD?

Table 9: Reasons for selling to KUD / *kelompok*

Reasons for selling to KUD / *kelompok*	Freq.	%*
Better price	15	60.00
Other	13	52.00
Support by the KUD / *kelompok*	4	16.00
Transport organised by KUD / *kelompok*	1	4.00

* Percentage of interviewed smallholders who indicated the respective reason (n=25, smallholders of our sample who answered this question); multiple answers possible.

Other reasons: because he is a member and wants to support the activity of the *kelompok; kelompok* buys fertiliser; we have a good relation; wants to contribute to road maintenance with the fee; because he's the secretary; I would like to join the *kelompok* because of unity of village; good contacts with and getting information from other villagers; *kelompok* gets special treatment from mill because mill knows it is good quality; because friends do it also.

Question 68: [If FFBs are sold to a *kelompok* / cooperative] Does the *kelompok* / cooperative / KUD get your FFBs to the mill within 24 hours?

Table 10: FFB transport to mill within 24 hours

FFB transport to mill within 24 hours (by *kelompok* / KUD)	**Freq.**	**%**
Half the time	2	8.33
Usually / always	22	91.67
Total	**24**	**100**

Question 69: [If FFBs are sold to a *kelompok* / cooperative] What is the main reason for delay of transport to the mill by the *kelompok* / cooperative / KUD?

Table 11: Reasons for delay of transport to the mill

Reasons for delay of transport to mill (by *kelompok* / KUD)	**Freq.**	**%***
Road conditions	6	30
Don't know/not relevant	6	30
Other	5	25
Organisation of transport	3	15
Broken vehicle	2	10

* Percentage of interviewed smallholders who indicated the respective reason for delay (n=20, number of smallholders in our sample who answered this question); multiple answers possible.

Other reasons: number of trucks available; queue at the mill; waiting until quota or trucks are full.

Question 70: [If FFBs are sold to a *kelompok* / cooperative] What percentage of your FFBs are on average rejected at the mill?

Table 12: Rejected FFBs at the mill

Rejected FFBs at the mill (in %)	Freq.	%
0	6	40
10	2	13.33
1.5	1	6.67
1.666667	1	6.67
2	1	6.67
2.5	1	6.67
4	1	6.67
8	1	6.67
15	1	6.67
Total	**15**	**100**

On average (mean), 3.64 per cent of FFBs that the KUD / kelompok brings to the mill are rejected.

3.4.1 Documentation

Question 71: Do you record your farm activities?

Table 13: Documentation

Documentation / records	Freq.	%
No	167	87.43
Yes, always	16	8.38
Yes, sometimes	8	4.19
Total	**191**	**100**

3.5 Organisation

Question 72: Are you a member *(anggota)* of any smallholder group / association?

Table 14: Membership in smallholder group

Membership in smallholder group	Freq.	%
No	109	56.48
Yes	84	43.52
Total	**193**	**100**

Table 15: Membership in smallholder group by province

By province:	North Sumatra		Jambi	
Membership in smallholder group	Freq.	%	Freq.	%
No	84	77.06	25	29.76
Yes	25	22.94	59	70.24
Total	**109**	**100**	**84**	**100**

Please note: most smallholders are organised in small groups (i.e. *kelompok tani*). Few smallholders are integrated in larger group structures (i.e. cooperatives; *gapoktan – gabungan kelompok tani*).

Question 74: [In case of membership] Did the members of the "*group*" [insert for "*group*" the type of smallholder group named in question 75] help each other before the "*group*" was formed?

Table 16: Support before existence of group

Support before existence of group	Freq.	%
No	48	58.54
Yes, sometimes	24	29.27
Yes, often	9	10.98
Don't know	1	1.22
Total	**82**	**100**

Please note: not all smallholders understood the question the same way, some only referred to help related to oil palm cultivation, others to help in general.

Question 75: [In case of membership] Do the members of the "*group*" [insert for "*group*" the type of smallholder group named in question 75] help each other now?

Table 17: Current support of group members

Current support of group members	Freq.	%
Yes, sometimes	30	37.5
Yes, often	28	35
No	21	26.25
Don't know	1	1.25
Total	**80**	**100**

Please note: not all smallholders understood the question the same way, some only referred to help related to oil palm cultivation, others to help in general.

Additional questions in Jambi:

Jambi Question 75a: [In case of membership] Who has which responsibilities and tasks in the group?

Table 18: Knowledge of responsibilities and tasks in the group

Knowledge of group structure and responsibilities	Freq.	%*
Smallholder knows *kelompok* positions and responsibilities	17	29.31
Smallholder knows *kelompok* positions and partly responsibilities	21	36.21
Smallholder does not know responsibilities and/or not all positions	18	31.03
Smallholder did not comment	2	3.45
Total	**58**	**100**

* Percentage of interviewed smallholders in Jambi who were part of the respective group (n=58)

Please note: this question is only a proxy for the knowledge of group structures and responsibilities of group staff.

Jambi Question 75b: [In case of membership] Does the group have internal regulation?

Table 19: Internal group regulation

Existence of internal group regulation	Freq.	%
No	30	53.57
Yes	21	37.5
Don't know	5	8.93
Total	**56**	**100**

Five smallholders explicitly said that they do not know whether the group has internal regulations.

Please note: the definition of internal regulation applied by smallholders is likely to differ widely. Many associated different things with respect to "internal regulation".

Jambi Question 75c: [In case of membership and in case of existing internal regulation] Which internal regulation?

Table 20: Content of internal regulation

Content of internal regulation	Freq.	%*
No content given	6	28.57
Meeting attendance	4	19.05
Payment or "*gotong royong*" for infrastructure	4	19.05
Harvesting schedule	4	19.05
Saving for fertiliser procurement	3	14.29
Pesticide usage reduction	2	9.52
No burning	1	4.76
Record keeping	1	4.76

* Percentage of interviewed smallholders in Jambi who were part of a group and answered that there was internal regulation in their group (n=21); multiple answers possible.

Please note: it is very likely that many smallholders mentioned only some of the several rules that existed in a group – either because they did not know all existing rules or because they did not understand that they had to list them all. Furthermore, the definition of internal regulation applied by smallholders is likely to differ widely. Thus, the data has to be interpreted with a great amount of care, as it can only function as a rough indicator of what regulations exist and what regulations smallholders remember.

Jambi Question 75d: [In case of membership] Can you take a look at the *kelompok's* official documents whenever you want?

Table 21: Access to official documents

Access to official documents	Freq.	%
Yes	44	83.02
Don't know	5	9.43
No	4	7.55
Total	**53***	**100**

* This question was only asked in Jambi.

Five smallholders explicitly said that they do not know whether they can take a look at the *kelompok's* official documents whenever they want.

Jambi Question 75e: [In case of membership] Have you ever taken a look and accessed the official documents of the group?

Table 22: Use of right to access documents

Made use of right to access to documents	Freq.	%
No	29	58
Yes	21	42
Total	**50***	**100**

* This question was only asked in Jambi.

Please note: the term "official document" is sometimes misunderstood by smallholders. The understanding of the term differs between smallholders. The definition of the term "official documents" used by the research team is as follows: all written documents concerning the smallholder groups. This includes – among others – bills, financial books, staff and business contracts, and founding documents.

Question 76: [In case of membership] Please specify the activities and services or support of the "*group*" [insert for "*group*" the type of smallholder group named in question 75]:

Table 23: Group activity

Group activity	Freq.	%*
Procurement of (subsidised) fertiliser	44	56.41
Road maintenance (work/payment)	15	19.23
Share information/ advice	13	16.67
Selling FFBs	12	15.38
Training	11	14.10
Savings plan / loans	11	14.10
No activities yet/anymore	9	11.54
Other	6	7.69
Help each other on the plot	5	6.41
Procurement of other inputs	4	5.13
Documentation (e.g. yield)	4	5.13

* Percentage of interviewed smallholders who named the respective group activity (n=78, number of smallholders of our sample); multiple answers possible.

Other activities: social activities; helping to obtain a land title; help to buy cattle; plot re-measurement for information to BPN in order to receive a land certificate; health insurance and downpayment if someone dies; provide agribusiness support within a government programme.

Please note: not all farmers listed all activities, services and support that their *kelompok* offers due to different reasons (e.g. difficulties with translation etc.). Thus, the activities that were named are not complete. Most smallholders added further activities, if the interviewer asked the question repeatedly. However, not in every interview, the question was asked repeatedly.

Question 77: [In case of membership] Are you satisfied with the management of your "group" [insert for "group" the type of smallholder group named in question 75]?

Table 24: Satisfaction with group management

Satisfaction with group management	Freq.	%
Rather satisfied	37	49.33
Fully satisfied	23	30.67
Rather not satisfied	14	18.67
Not at all satisfied	1	1.33
Total	**75**	**100**

Please note: the question is not being evaluated overall because we expect a strong bias towards positive answers for two reasons. First, the research team often resided – due to logistical constraints – in houses of group staff (e.g. a head of *kelompok*) or respected persons with high social status in the village. Sometimes group staff was even present during the interviews or the interviewers were at least shown to the houses of the interviewees by group staff. Thus, we do not expect that smallholders gave an impartial answer. Second, considering the Indonesian tendency to not openly address conflicts and dissatisfaction (as it is probably seen to be disrespectful), we expect a positive bias. Nevertheless, the few mentioned reasons for dissatisfaction can provide a rough indication for potential problems withgroup organisation.

Table 25: Reasons for dissatisfaction with group management

Reasons for dissatisfaction with group management	Freq.	%
No reasons specified	4	26.7
No meetings / too few meetings	3	20
No activities / too few activities (incl. extension)	3	20
Extension / training not detailed enough	2	13.3
Lack of new information / discussion about oil palm cultivation	2	13.3
No provision of loans	1	6.7
Total	**15**	**100**

Question 78: [In case of membership] Are you satisfied with the management of your "*group*" [insert for "*group*" the type of smallholder group named in question 75]?

Table 26: Frequency of group meetings

Frequency of group meetings	Freq.	%
Once a month	27	33.75
Irregularly	16	20
Every 2–4 months	15	18.75
1–2 times per year	7	8.75
Don't know	6	7.5
Every 1–2 weeks	5	6.25
Never	4	5
Total	**80**	**100**

Six smallholders (7.5 per cent) also mentioned that their group meets more often when needed.

Question 79: [In case of membership] Do you participate in "*group*" [insert for "*group*" the type of smallholder group named in question 75] meetings?

Table 27: Participation in group meetings

Participation in group meetings	Freq.	%
Yes, always	49	59.04
Yes, sometimes	23	27.71
No	11	13.25
Total	**83**	**100**

Question 80: [In case of membership] Has the organisation and management of the "*group*" [insert for "*group*" the type of smallholder group named in question 75] changed during the last year?

Table 28: Group development

Group development	Freq.	%
It has gotten better	40	53.33
It has stayed the same	32	42.67
It has gotten worse	3	4
Total	**75**	**100**

Please note: we expect a bias towards a positive answer since our team often resided in houses of group staff (e.g. a head of *kelompok*) or respected persons with high social status in the village. The interviewees knew about these connections.

3.6 Certification

Question 81: Have you heard of RSPO (Roundtable on Sustainable Palm Oil) certification?

Table 29: Awareness of RSPO

Have you heard of RSPO?	Freq.	%
No	143	74.48
Yes, a little	43	22.4
Yes, in detail	6	3.13
Total	**192**	**100**

Question 82: [If the interviewee has heard of RSPO] From whom did you get information?

Table 30: Information about RSPO

Information source	Freq.	%*
NGO	18	37.50
Near plantation company	10	20.83
Other	9	18.75
(main) Collector	7	14.58
Cooperative / smallholder group (kelompok)	4	8.33
Local trader /middleman	3	6.25
Government, e.g. extension service officer (PPL)	2	4.17
Family	1	2.08
Input supplier / salesman	1	2.08
Mill	0	0.00
Credit union, bank or other financial institution	0	0.00

* Percentage of interviewed smallholders who indicated the respective source of knowledge (n=48, number of smallholders of our sample who answered this question); multiple answers possible.

Other sources: books given out during the training, TV / internet, PTPN3 staff, *sosialisasi.*

Question 83: [If the interviewee has heard of RSPO] Do you feel sufficiently informed about RSPO requirements and its certification process?

Table 31: Sufficiency of information about RSPO

Sufficiently informed about RSPO?	Freq.	%
No	20	43.48
Partly	20	43.48
Yes	6	13.04
Total	**46**	**100**

Question 84: [If the interviewee has heard of RSPO] Do you want to get certified? Why or why not?

Table 32: Motivation to become certified

Motivated to become certified	Freq.	%
Yes	40	93.02
No	3	6.98
Total	**43**	**100**

Table 33: Reasons for certification motivation

Reasons for certification motivation given by smallholders	Freq.	%*
Receiving training and information	11	22.45
Better quality of produce	10	20.41
Receiving a better price for produce	8	16.33
No reasons given	8	16.33
Don't know	6	12.24
Higher yield	5	10.20
Reduce impacts on the environment**	4	8.16
Improvement of cultivation and plot management	3	6.12
Easier selling of produce (international markets)	2	4.08
Better reputation	1	2.04
Because it is obligatory	1	2.04
In order to fulfil int. standards	1	2.04
In order to get help from the government	1	2.04

* Percentage of interviewed smallholders who knew of RSPO (n=49); multiple answers possible.

** Wide variance in detail of argumentation and knowledge about environmental impacts; from just "not killing animals" to mentions of providing for a higher species variety and thus reducing monocultural character of the plot.

Question 86: [If the interviewee has heard of RSPO] How often did you receive training for RSPO preparation?

Table 34: Amount of specific RSPO trainings / sosialisasi

Amount of specific RSPO trainings / sosialisasi	Freq.	%*
Smallholder received official training / *sosialisasi* once	23	46.94
Smallholder received no official training / *sosialisasi*	15	30.62
Smallholder received official training / *sosialisasi* twice	6	12.24
Smallholder received official training / *sosialisasi* thrice	3	6.12
Smallholder received official training / *sosialisasi* 4 times or more	2	4.08
Total	**49**	**100**

* Percentage of interviewed smallholders who have heard of RSPO "a little" or "in detail" (n=49).

3.6.1 Benefits

Question 87: [If the interviewee has heard of RSPO] Do you think you will have benefits from RSPO certification?

Table 35: Benefits from certification

Benefits from certification	Freq.	%
Yes	31	83.78
No	6	16.22
Total	**37**	**100**

Most frequently named benefits expected by smallholders:

Table 36: Benefits expected by smallholders

Benefits expected by smallholders	Freq.	%*
Better quality of produced FFBs	17	34.69
Reduce impacts on the environment**	14	28.57
Receiving a better price for produce	11	22.45
Higher yield	11	22.45
No benefits specified	9	18.37
Receiving training and information	6	12.24
Easier selling of produce (certified mills and international markets)	5	10.20
Don't know	5	10.20
Improvement of cultivation and plot management	5	10.20
Improved infrastructure***	4	8.16
There are no benefits	3	6.12
Better reputation	2	4.08
Getting support from the government and other actors	1	2.04
Higher safety (e.g. chem. usage)	1	2.04
Longer productivity of oil palms	1	2.04
Better organisation of farmers	1	2.04
Closer ties to a company (loans, trainings)	1	2.04

* Percentage of interviewed smallholders who knew of RSPO (n=49); multiple answers possible.

** Wide variance in detail of argumentation and knowledge about environmental impacts; from just "not killing animals" or "to not destroy nature" to "less chemical use" to even mentions of climate change, no burning policy and river distance planting.

*** Indirectly through higher income in the village and through better road maintenance through organisation.

Please note: the two questions concerning (1) the motivation of smallholders to get certified and (2) the expected benefits are closely related. Yet, many smallholders gave different answers to both questions. Thus, the table below provides an overview of all stated reasons for certification motivation and expected benefits. Mentions of the same factor in both answers by the same persons have not been counted twice.

3.6.2 Difficulties

Question 89: [If the interviewee has heard of RSPO] What do you think is tiresome or difficult in the preparation for RSPO certification?

This table shows how many of the smallholders actually associated something tiresome or difficult with the preparation for RSPO certification:

Table 37: RSPO difficulties

RSPO difficulties	Freq.	%
Yes	19	54.29
No	9	25.71
Doesn't know	7	20
Total	**35**	**100**

Most frequently named difficulties expected by smallholders:

Table 38: Difficulties expected by smallholders

Difficulties in certification expected by smallholders	Freq.	%*
Reduce chemical application	6	12.24
Documentation	4	8.16
Training (enough, adequate and understandable)	4	8.16
Seedling record	3	6.12
Land certificate / land title (stored at bank)	3	6.12
Regular knowledge sharing (regular group meetings)	2	4.08
Chemical handling (protection and disposal)	2	4.08
Correct harvesting (e.g. adequate ripeness)	2	4.08
Adequate fertilising (e.g. sufficient amount)	1	2.04
Buffer zone to rivers	1	2.04
Replanting	1	2.04
Certification fee	1	2.04

* Percentage of interviewed smallholders who knew of RSPO (n=49); multiple answers possible.

Question 90: [If the interviewee has heard of RSPO] Do you think RSPO certification creates additional work for you?

Table 39: Additional work as a result of RSPO

Additional work	Freq.	%
Yes	16	53.33
No	13	43.33
Doesn't know	1	3.33
Total	**30**	**100**

Most frequently named reasons expected to create additional work:

Table 40: Reasons for additional work

Reasons for additional work expected by smallholders	Freq.	%*
Attendance of trainings	4	8.16
More work on the plot in general	3	6.12
More time necessary for manual weeding	2	4.08
Documentation	2	4.08
Plant cover crops	1	2.04
Put up pictures**	1	2.04
Adequate fertilising	1	2.04

* Percentage of interviewed smallholders who knew of RSPO (n=49; multiple answers possible).

** Answer given by a head of the collector group Ramayana. He refers to pictures concerning endangered animals.

Question 91: [If the interviewee has heard of RSPO] Do you think RSPO certification creates additional costs for you?

Table 101: Additional costs

Additional costs	Freq.	%
No	16	55.17
Yes	12	41.38
Doesn't know	1	3.45
Total	**29**	**100**

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