UNIVERSITY OF ANTWERP

INSTITUTE OF DEVELOPMENT POLICY AND MANAGEMENT

End of Module Paper III

Sustainable palm oil: Including smallholders in a sustainable supply base - A case study in Thailand

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Academic Year 2015-2016

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List of acronyms

CPO	Crude Palm Oil
CSPO	Certified Sustainable Crude Palm Oil
FAO	The Food and Agriculture Organization of the United Nations
FFBs	Fresh Fruit Bunches
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit, GmbH
Ha	Hectare
ICS	Internal Control system
MMT	Million Metric Tonnes
MPOB	Malaysian Palm Oil Board
NGOs	Non-governmental Organizations
Patum Oil	Patum Vegetable Oil Company
P&C	Principles and Criteria
RSPO	Roundtable on Sustainable Palm Oil
UNEP	The United Nations Environment Programme

1. Introduction

Nowadays, the global bioenergy demand is rising by the need to replace fossil fuel and lessen dependence on high-price imported oil. However, the production of palm oil is also controversial because it leads to environmental and social problems such as destruction of tropical forests, climate change, land right conflicts and threats to smallholder livelihoods. Advocacy and civil society organizations have launched several campaigns on public media targeting major consumer brands, retailers, and industry sub-sectors, like Kit-Kat food snack and Dove shampoo etc. Consumer awareness on these issues is then spreading out. Furthermore, the pressure on global production network tends to give an emphasis to *transparency* and *sustainability*. As stated by Thomas et al. (2015), certification, traceability and transparency are the key processes to ensure accountability in today's palm oil market as they could ensure that companies, suppliers and producers are meeting stated sustainability requirements.

In line with the global demand on sustainable palm oil, the *big multi-national* companies such as *Nestlé*, *Cargill*, *McDonald*'s, *Unilever* and *Shell* Global etc. have put their commitment towards sustainable palm oil production. These initiatives are the critical factors to advocate the other stakeholders along the supply chain working on sustainable palm oil production nationally and globally. In addition, the *Amsterdam Declaration* has been announced on December 2015. They are encouraged by the European private sector organisations engaged in the palm oil supply chain joining forces in a commitment and drive towards 100% sustainable sourcing and trade and increased traceability of this commodity by no later than 2020. As EU countries are the 2nd world leading importer of palm oil, it is believed that Europe can be an important 'game changer' when it comes to a sustainable palm oil supply chain for the world.

In response to the global trend, local processors and producers in palm oil sector have been forced to change the nature of business to drive down profits while increasing the effective management and long-term vision on sustainable palm oil production (Levin et al., 2012). They inevitably have to comply with standard-driven market. Round table on Sustainable Palm Oil (RSPO) is currently the most broadly recognized framework reference for sustainability in oil palm and defines standards for plantations, including environmental and socio-economic aspects (UNEP, 2011).

As similar to many countries around the world, Thailand has significantly increased its oil palm production for the last couple of years. The majority of Thai oil palm production comes from over 120,000 smallholders throughout the country. RSPO has been introduced in Thailand and its standard was accepted by private sectors as voluntary standard, but apparently stakeholders in the upstream particularly for farmers have been moving very slowly. The reasons are that they lack knowledge and most importantly financial support (Dallinger, 2011).

The main challenge in this context are how can independent smallholders in Thailand adapt to the Global production Network ? and How can include them in a sustainable supply base to access the global market and sustainable palm oil?

In search of the answers, this study uses secondary data, case study and work experience in the field to produce qualitative description. First of all, the short review of concept of standards and inclusion of smallholders are conducted to analyze of these data. Second, it explores the overview of Thai Palm Oil. Third, it focuses on Roundtable on Sustainable Palm Oil – RSPO standard and then analyzes the adaptation of Thai smallholders. The next session, it reviews the case study of downstream initiative project demonstrating the inclusion of smallholders in Thailand. The objective of this paper aims to be the practical guidelines to include the independent smallholders into the global production network.

2. The concept of inclusion of smallholders

In the past decades, the proliferation of voluntary standard has been emerged in international agricultural trade. A wide range of empirical literature argues that standards may act as a barrier to market access for smallholders whereas some studies find positive effects, arguing that standards can be a catalyst for upgrade by improving farming techniques and product quality (Lemeilleur, 2013). Therefore, it is a contentious issue and mainly an empirical question (Swinnen et al., 2013 and Henson and Jaffee 2008 in Lemeilleur, 2013). Swinnen et al. (2013) also study the constraints to smallholders participation in high-value agriculture in West Africa and find that the structural changes of high-value chain have important implications for farmers around the world, who find themselves *confronted with new competitive pressures* as well as new opportunities from these developments. In the paper of Lemeilleur (2013), it shows the first major barrier to adoption is linked to accessing information about the standard as exporting enterprises were the most informed actors. Although poor people participate in a value chain, they may be highly marginalized of excluded in another sense (Bolwig et al., 2010; Du Toit, 2008). The adoption of the standard is mostly found in their activities through vertical integration. However, it points to the assistance of public aid agency than private firm-partnership.

As this paper focuses on possibilities for inclusion of smallholders, It finds some concepts to apply for smallholders to adapt and manage to compete in the market. Kledal et al. (2013) address the possible approaches to overcome market and inclusion barriers in case of organic market chain. These are;

Designing flexible supply systems

Smallholders should be encourage to transform their farm into diverse and productive entities that are able to produce quality output – which require substantial training and technical advice. In addtion, it is important to ensure high productivity and product quality and farmers have access to appropriate inputs such as seeds of suitable varieties and pest management means etc. As well as ensure finding the market and achieving a reasonable price and premium. However, the business should be based on realistic price expectation.

Efficient organization of farmers for the market

There are different ways to organize the group such as cooperative or a similar type of producer organizations or organized and contracted by a trade house etc. However, smallholders tend to have difficulties in building up and maintain efficient management structures and skills. For that reason, appropriate extension and training are crucial for the success of organic production initiative. Furthermore, smallholder organizations need to be able to earn sufficient income to pay for their products, to cover costs for extension, certification and marketing and to cover overhead and management costs of the organization. This may take three to five years. They may need the external supports from companies that involve in trading the produce, or by development organization.

Developing partnership with clients

Selling agricultural products on the spot market exposes smallholders to high market volatility and fierce competition for price. It is advised that the market should be linked to vertically integrated value chains in which buyers enter into a long-term partnership with certain producer groups. Also vertical integration has advantage that routes get shorter (avoiding middlemen), controlling quality and traceability becomes easier, and supply can be matched with demand in term of volumes and product specification. Building trustful and loyal relationship between smallholders and buyers, however, requires time and specific efforts. It is noticed that Many buyers are ready to provide pre-financing, support to improve product quality, market know-how and sometimes even provide direct support to the community. The empirical evidence in the study of Swinnen et al. (2013) also shows that successful case requires management and entrepreneurial skills, which are often lacking in a group of poorly educated small farmers. Therefore, it is crucial to *establish sustainable partnerships* between producers' organizations and private sector actors.

Appropriate support systems

In many cases, the development of organic market is facilitated by development non-governmental organizations (NGOs) and business development programmes which their role is usually a temporary one to help overcome hurdles and bottlenecks. Therefore, they should work as facilitators to make information accessible, stimulate innovation and support interested chain actors in building necessary capacities.

In addition, FAO (2014) states that some studies have shown that the ability of exporters and farmers to meet the requirements of voluntary standards depends largely on greater assets, knowledge of certification requirements and pre-existing relationships with certified value chains. The institutional contexts within which smallholders operate are important.

The conceptual framework in this paper, then could describe as the diagram below;

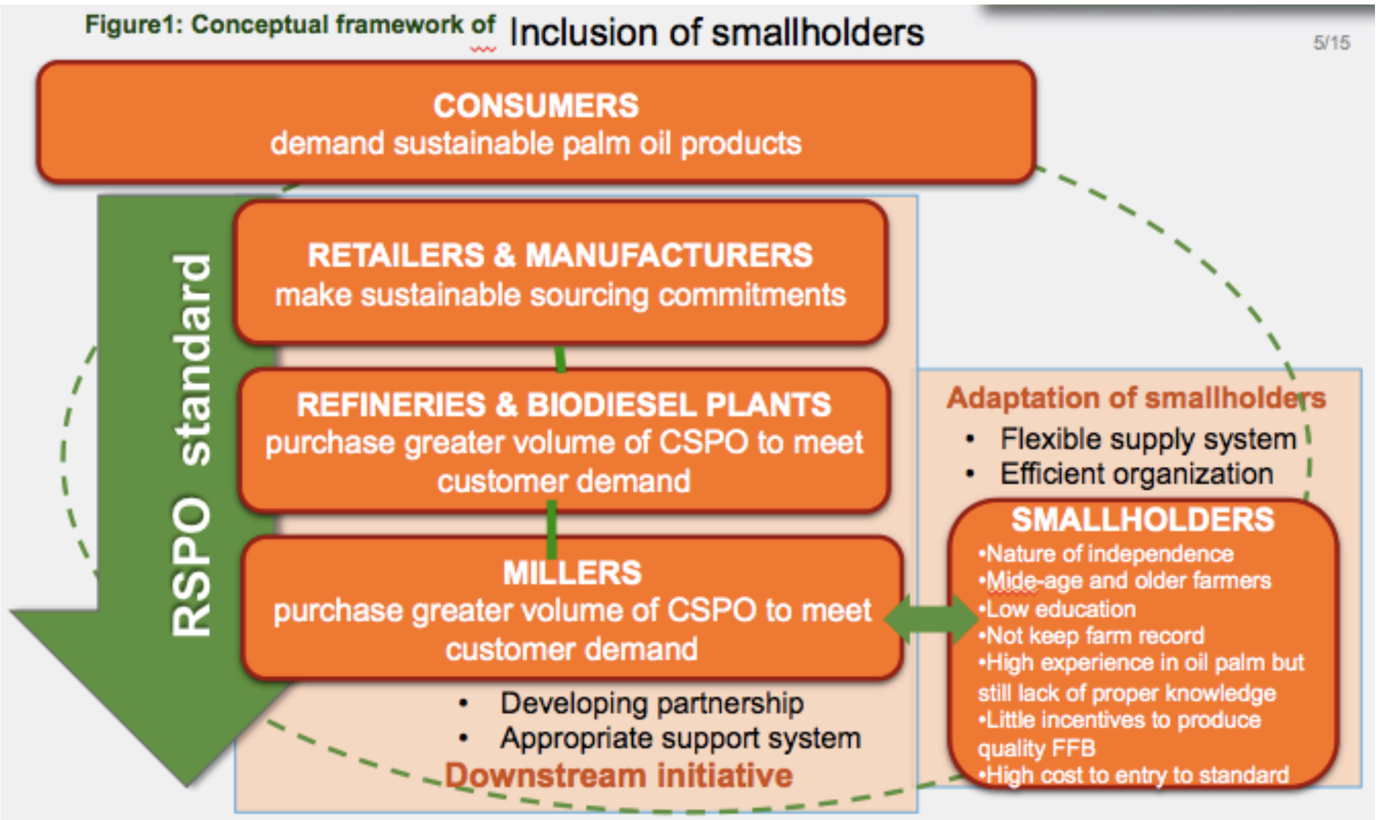

Figure1: Conceptual framework of Inclusion of smallholders

Due to the demand global of sustainable palm oil from consumers, Shell Global (Transnational retailer & manufacturer) has to collaborate with Patum Vegetable Oil Company Limited (Biodiesel plant) by launching the support system to include smallholders in Thailand. They develop partnership with millers to work together with smallholders in the project.

3. Oil palm supply chain in Thailand

Figure2: Palm oil supply base in Thailand and RSPO standard

In figure 2, it illustrates the key supply chain of palm oil production in Thailand which comprises *smallholder, miller, refinery and Biodiesel plant* and consumer. More than 70% of the area planted with oil palms is managed by ***smallholders*** with average sizes of 8 ha (Dallinger 2011). Fresh fruit bunches (FFBs) from plantation are then taken to **a mill**, where the oil is extracted with pressure and steam, which yields crude palm oil, or CPO and the kernel. The extracted oil is taken to **refinery or biodiesel plant** to be refined into primary palm oil fractions, such as palm stearine and olein[1].The refined oil and fractions are then transported to downstream ingredient **manufacturers** who may sell as is or process it further into more complex fractions and derivatives for use by consumer goods manufacturers. **Retailers** then sell the end products containing palm oil and/or palm oil fractions to **consumers** (Thomas et al., 2015).

Currently, 11 bio-diesel plants, 15 palm oil refineries and more than 80 palm oil mill companies are in operation in Thailand (DIT 2016). The mills are mostly considered as “stand-alone” as not have own plantation. Therefore, they rely solely on buying FFB from third-party smallholders. Smallholders play a crucial role in the Thai palm oil sector. Approximately 90% of the total area planted with oil palm in Thailand is concentrated in the Southern Provinces of Thailand. Due to the fact that the production areas are generally small-size, fragmented and located far away from the mills, it is difficult in delivering FFB to the mills.

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[1] Palm olein is the liquid fraction obtained by fractionation of palm oil after crystallization at controlled temperatures, which is commonly bottled and sold as cooking oil. The more solid fat portion is called "palm stearin" and it is commonly used to formulate trans-free fats such as margarine, shortening and vegetable ghee. (Malaysian Palm Oil Council, 2016)

Therefore, a middleman system to collect and deliver FFB to the mills is necessary and pretty common in Thailand. The quality monitoring system is then difficult to control. An annual average FFB yields of 19 ton/ha is reported (OAE 2016a) which is lower than that in Malaysia and Indonesia where large growers are prevalence. This is because the smallholders usually do not follow the best management practices (BMP) or good agricultural practices (GAP) as a result of lacking of knowledge and limited credits.

Although Thailand occupies the third place in the world with a forecast production of about 2.2 million metric tonnes (MMT) in 2015 and forecast to increase to 2.2 MMT in 2016 (USDA Foreign Agricultural Service, 2015), it is hard to compete with Malaysia and Indonesia in term of the production and yield quality. Therefore, Thailand should set positioning to promote enhancing capacity of smallholders as well as increase the quality yield of palm oil in limited sizable areas. In this regard, standards are important for farms and firms because they determine access to specific segments of the market. The challenge of rising standards provides the opportunity for selected suppliers to add value, assimilate new functions, improve their products, and even spur enhanced forms of co-operation among actors in a specific industry or country (Jaffee, 2003 in Bolwig and al., 2010). In addition, social and environmental upgrading process can facilitate including smallholders into global production network as well as access to the world market.

4. Roundtable on Sustainable Palm Oil – RSPO

4.1 RSPO Multi-stakeholder standard

The RSPO standard is a multi-stakeholder initiative setting through oil palm producers, processors or traders, consumer goods manufacturers, retailers, banks and investors and environmental or social NGOs. The RSPO has formed in 2004 and developed eight principles and thirty-nine criteria, known as the RSPO P & C in 2005. The Principles and Criteria have been interpreted to account for local conditions, resulting in national interpretations that reflect local laws, regulations and best practices.

RSPO aims to promote the sustainable production of palm oil worldwide and help to reduce the negative impacts of palm oil cultivation on the environment and communities. The RSPO has more than 2,500 members worldwide which represent all links along the palm oil supply chain. They have committed to produce, source and/or use sustainable palm oil certified by the RSPO. As mid-2015, RSPO certified palm oil plantations cover more than 20% of palm oil globally. RSPO's vision is to "transform markets to make sustainable palm oil the norm." (RSPO,

Figure 3: RSPO P&C

2016a)

Today RSPO has become the global reference for sustainable palm oil production. However, the RSPO has also been criticised from various sides and accused of green-washing the oil palm industry.

4.2 RSPO and smallholders

Smallholders are defined by the RSPO as farmers growing oil palm, sometimes along with subsistence production of other crops, where the planted areas of palm are usually below 50 hectares in size. This farm provides the majority of income to the family, and in turn the family provides the majority of labor on their farm. Smallholders can be organized as either "scheme" or "independent" smallholders (RSPO, 2009). There are two main type of smallholders in the RSPO certification system

1) Independent smallholders are farmers who have freedom to choose how to use their lands, which crops to plant, and how to manage them. Independent smallholders are self-organized and self-financed, and not contractually bound to any particular mill or association. They may receive support or extension services from government agencies (RSPO, 2009).

2) Scheme smallholders can be a diverse group of small farmers who are structurally bound by contract, a credit agreement, or some other form of planning, to a particular mill. Scheme smallholders are often not free to choose which crop they plant. They are supervised in their planting and crop management techniques by the managers of the mill, estate or scheme to which they are structurally linked. Scheme smallholders are also known as "contract farmers" or "outgrowers" (Levin, 2012)

Smallholders are critical, over 2.2 million oil palm smallholders worldwide who producing 40% of the palm oil, but suffering from lower yields. Smallholders usually work in community clusters and therefore may generally lack access to expertise, capacity building and infrastructure for sustainable practices. The RSPO has also launched the Smallholder Support Fund enables smallholders with capacity building to improve agricultural practices and fully reimburses their audit costs. It aims to support more smallholders to become RSPO certified, in order to produce more sustainable oil palm accessing to proper land rights, reducing the threat to forests and biodiversity, and raising level of income among poor farmers. To date, there are 131,432 individual smallholders get support and gain certification (RSPO, 2016b). The estimated volume of certified sustainable palm oil by schemed and independent smallholders is over 8.66 million metric tonnes, representing over 14.5% of total RSPO certified sustainable palm oil.

5. Adaptation of independent smallholders to the global standard

5.1 Constraints to enter the value chain

The baseline study in 2010 of some 500 oil palm smallholders in the South and the East of Thailand identified that the majority of the farmers in Thailand are mid-aged and older, and nearly all of them obtained at most secondary education, and have on the average of 16 years of experience with oil palm production. Four of every five smallholders grow oil palms for the main income of their families. In addition, the majority of smallholders **do not keep farm records** and thus could not benefit from their own experience and from their neighbour proper (Kiatpathomchai and Kaewrak, 2011). Moreover, farmers often do not have the necessary knowledge on nutrient requirements of their palms, on adequate fertilizer application or on measures to improve soil fertility. Besides, they often do not professionally manage their farms and don't have clear systems and procedures for farm management due to the nature of independent smallholders. In addition, under the current situation in Thailand there are little incentives for farmers to produce quality FFB which is necessary to maintain high OERs in the oil palm mills. Because of the overcapacity in FFB crushing mills, farmers and middle men can sell any quality of FFB to any mill (Dallinger, 2011).

5.2 Adaptation of Thai smallholders

Considering the characteristics of Thai smallholders, they need a lot of area adaptation to comply with RSPO certification. Therefore, a set of criteria to guide the selection of smallholders is required. The farmers who want to participate in the group certification should become active participants in the smallholder organisation and demonstrate commitment to their plantation and the organisation.

However, smallholders need to have a **high degree of trust and confidence** in the farmer organisation and the **partner milling company** in order to make a smallholder project function. This does not happen without intensive training over a period of at least 5 years. (Jelsma et al., 2009). In case of Thailand, the downstream initiative project takes 3 years working with the smallholder groups to achieve the RSPO certification. The shorter time, it is because there is the GIZ pilot project to use the existing materials and simplified the model fitting to scaling up amount of 1,500 farmers. Other factor could be the project manger is assigned to mainly responsible for this work mission and gain trust with the mill partners who are the key players in the field project.

At the starting up process, it consumes a lot of time in **raise awareness** in sustainable palm oil and RSPO to the mill partners and farmers. Several meetings have been set, including the internal filed meeting with farmers, organized by mill partners. The project need to repeatedly present only the project background and RSPO at least 4 times each group areas covering 4 provinces in Krabi, Trang, Surat thani and Nakorn Si Thammarat. The project has to have a clear roles to support farmers without hidden agenda and face to the pressure of premium expectation by explain he truth of market mechanism. The project staff has to communicate frankly and does not give any over expectation about premium and financial support. This adaptation of independent smallholders can be framed by flexible supply and efficient organization.

After mutual understanding, they need to sign the document to commit to

RSPO. At the beginning, it is difficult to **form the group** due to the nature of independent farmers. In this process, series of trainings are needed. Also changing behavior on **recording** is the main obstacle of smallholders. They have to realize the benefit from recording. Showing the good sample of farmers can facilitate others to follow as they are talk ‘the same language” – being farmers and doing the same, hence easily to believe that they can do it.

Adaptation is a process of work. It takes time and the understanding the background and benefits as well as the clear roles and responsibilities among partners and groups are also the key achievement. However, along the process, smallholders have fewer capital resources for such investments. Primary costs include High Conservation Value assessments and audits, trainings for RSPO implementation including better agricultural practices, and ongoing RSPO management. These expenses are typically met through a combination of the estate/buyer, the smallholder cooperatives themselves, and in some cases foreign donors (Levin, 2012).

6. Including Thai smallholders in a sustainable supply base

6.1 RSPO in Thailand

Sustainability certification is a **new phenomenon in Thailand**. Smallholders in Thailand are independent in nature, self-organized and self-financed, therefore not contractually bound to any mills. To achieve RSPO certification, it requires a lot of resources, training schemes and high cost of RSPO membership and auditing fee annually. This would represent a significant **barrier** to certification **to smallholders in Thailand**. A group certification can be the solution to reduce the cost and access to external support at the beginning of group formation process. However later on, the groups have to manage the internal group management. **A key to success** is the fact that farmers need to realize a benefit for participating in a certification scheme and understand the roles and responsibilities of group members and organisation (Oates, 2009). The inclusion of smallholder concept has worked into 2 parts. First, a supporting from supply chain stakeholder is needed by developing partnership and providing appropriate support system to work with smallholders’ groups. Second, smallholders have to adapt to the changes in value chain and strengthen efficient organization. They therefore understand the rationale of participation in high-value chain process.

In a case study in Thailand, RSPO has been introduced by Deutsche Gesellschaft für Internationale Zusammenarbeit, GmbH (GIZ) since 2009 as a tool to work on possibly sustainable palm oil production in Thailand. The project worked with palm oil producers, and government bodies to promote sustainable palm oil policy, while working with 412 pilot smallholders groups to get the first RSPO certification. However, the project has completed in 2012. Patum Vegetable Oil Company (Patum Oil) recognized the benefits of farmers which included about increased yields, reduced in fertilizer costs, reduced health risks, access to farming knowledge, better relationships with other industry actors, and group certification. Thus, Patum Oil collaborate with Shell Global to initiate the project called "*Enhancing capacity of Thai oil palm partners for sustainable palm oil*" which its main objective is to provide necessary funding and related knowledge through the trainings to Thai oil palm smallholders. Smallholder RSPO certification is a tough but worthwhile task for the project. Success will add lustre to the Thai oil palm industry reputation in Europe and Southeast Asia (Fairhurst et al., 2009).

6.2 Downstream initiative project

Shell Global and Patum Oil are the downstream in production of palm oil including the refinement of CPO, the manufacture of oleo chemical product and biofuels. Both parties also aim to support sustainable oil palm all along supply chain from downstream to upstream process in Thailand by complying with RSPO standard. However to achieve greater impact of RSPO in Thailand, it is necessary to involve the groups of smallholders. Due to the situation of small farmers in Thailand which often lacks opportunity to access to the world market, while the market is likely to shift more and more towards certified sustainable palm oil in the future. The both parties agreed that it should not wait to support our smallholders to adapt to these changing market requirements. The project therefore has started since ***July 2012*** with main roles to facilitate and contribute necessary any resource i.e. providing advice and technical support and related knowledge through the trainings and project publications to Thai oil palm and aimed to get certified by RSPO by end June 2015. In this connection, the project has sought out the collaboration from multi-partnerships. There were 6 mill companies with 8 smallholders groups joining the project in support of human resources and implementation work process in the field areas covering Krabi, Trang, Surat thani and Nakorn Si Thammarat province. The project later got RSPO smallholder support fund for auditing fee in ***2014***

About Shell:
Shell Thailand forms part of a global group of energy and petrochemicals companies with around 93,000 employees in more than 90 countries and territories. As a significant purchaser of today's biofuels for blending, Shell has been championing sustainability standards in their own biofuels supply chain for a number of years with a preference for robust multi-stakeholder schemes such as RSPO.

About Patum Vegetable Oil:
Patum Vegetable Oil Co. Ltd is a producer and distributor of Gaysorn brand cooking palm oil, founded in 1975. Patum Vegetable Oil is also a major producer of biofuel, making about 28-30 million litres each month, mainly for the domestic market. We are aware of reputation and market access risks associated with the sale or use of products containing unsustainable palm oil.

The project aims that mills could develop linkage to their farmers and communities nearby. Farmers can also benefit from implementing sustainability standards like the RSPO as capacity building is an integral part of this standard. Meeting the challenge of achieving certification will also lead to make our smallholder farmers better organized and put them in a better position to manage their farms.

6.3 Inclusion of smallholders

The project has started by the downstream initiative of Shell Global and Patum Oil, partnering with 6 mill companies. These mill companies could link directly and work together with smallholder farmers. Later on, the groups get partially funded for auditing cost at the first year. The crucial roles of the project are developing partnership as well as giving contribution and facilitation the appropriate support system. At the operating level, the project staff has to simplified the standard to work with mill team and smallholder groups. Due to the different group background and local context, the project designs to work as "Tailor-made model" which defined that the project work with them, at the same time, allows them to decide what tools and methods the most fit to them. This could make them realize the roles and responsibilities in the group and community. They are gradually able to change their behavior in farm practice. To sum up, the concept of inclusion of smallholders, introducing by Kledal et al. (2013) can describe the working process of downstream initiative project as follow;

Designing flexible supply system

To implement the work process, the project applied "Tailor-made" model to fit the most need of each partner in the field. The project designed the flexible supply system based on a consultation process to suit their organizational structure and human resource availability. From observation, it can be described project work models as 2 types 1) Supply chain based cooperation model which scale up and enhance from GIZ pilot model. The crushing mill would be the key supporter to the group 2) Farmers cooperative group which started working with the voluntary involvement of cooperative members. The group would form the sub-group of cooperative membership as internal pilot and then plan to expand the number of members in the next year round.

To ensure producing sustainable oil palm, the project sets the training program upon smallholders' needs, starting with Farm management and fertilizer application training. The series of training had been set following to the RSPO P&C standard and ICS as follow;

Figure 4:

The project had provided 13 main trainings, more than 25 rounds with about 500 group representatives (to be a trainers) and more than 1,000 farmers to get further training in the field during year 2013-2014.

In addition, a set of publishing materials had been produced to distribute to farmers in the project and interested parties for developing their capacity in farm management and enhance their productivity in compliance with sustainable development.

At the end of the project, Thailand, has since then certified an additional 6 initiatives plus 1 group from surveillance auditing, with supports from Shell Global and Patum Vegetable Oil Ltd. (Patum Oil), comprising 1,150 individual smallholders over 6,626 hectares of production area, with an estimated production of close to 32,000 metric tonnes of certified sustainable palm oil (CSPO). This marks a significant milestone for Thailand as the market with the largest volume of CSPO from independent smallholders currently worldwide (RSPO, 2016b). The mills have committed to top-up FFB price to smallholders in the project. Furthermore, Patum Oil and Shell also purchase and facilitate the mills and the groups to trade CSPO in the market as well (S. Triyanond, personal communication, June 2015). This aims to ensure finding the market and achieving a reasonable price and premium.

Efficient organization of farmers for the market

RSPO standard also set the criteria of Internal Control system (ICS) to ensure the institutional arrangement of the group. Therefore the formation of farmer groups proceeded well-structured and well-documented. Following to the ICS process, the team had to make a preliminary assessment of farmers who applied for members before approval. After the recruitment process, the group members got the training the overview of RSPO and ICS system at the beginning to make them understand the member responsibilities of the group. In parallel to the training process, the group has been formed. The group had to get registered as legal entity and later on get apply for RSPO membership. In general, the project suggested to set up the structure of group committee as below;

Figure 5: The structure of group committee

However, each group could adjust it freely to suit their character of the group agreed mutually by group members. This process took about 1-3 months depends on working structure i.e. process of recruitment, fragmentation of area, size of group and workload of working etc. It is necessary that the group committee had to schedule to visit and monitor the member in the group regularly. The group meeting had to set at least bi-monthly.

In setting up the complex ICS poses a major challenge because normally Thai farmers are independent characteristics. This started with forming functional groups, which is a long and difficult process requiring a lot of resources, training and support. Therefore the project supported in facilitating to form the group and organizing and the series of training as a key strategy to work with the group.

Developing partnership with clients

The mills are the key partners in this project as facilitators of farmers' group. Each mill would have their RSPO working team. The key to have a good starting points are all stakeholders are understanding the process and also their advantage they would get in long term as well as they have clear roles and responsibilities to work with the project. At the start-up phase, the project still had no any farmer to work with. We therefore kept a strategy to work closely with the field working team assigned by the management executives.

The project represented as a good linker in the field particularly between the mills and farmers. Both of them are the key stakeholders at the upstream chain to produce sustainable palm oil production. Previously, the relation between them was not in good contacting partners. They get difficult to trust in each other when dealing with the flow of market price and quality of fresh fruit brunch. Mills therefore get difficult to convince farmers to implement certification. The project ought to build their trust by go to have a meeting with them more often, make a clear point about the project purpose and steps to work with them, answer their questions clear as much as it could.

The project also supported them to work closely together. Several meetings and trainings had been provided. For the time being, the relation and understanding each other had grew along with the project activities. The approach we work with them is a process of work and it took time. We focused on the long-term advantage of producing sustainable palm oil by knowledge transfer and technical support

Appropriate support systems

The project would be in the role of facilitator partnership. We provided the necessary trainings to all partner team and simplified the process as much as possible. After that the working team would design working model individually at their group management.

In conclusion, the supports from the project are as follow;

- Facilitate/give advice on group management and RSPO certification
- Provide a series of trainings on sustainable palm oil

- Gather/develop documents/materials
- Technical support based on their needs
- Mediate among farmer groups-mills-downstream companies

The project could not been done successfully without the mill support. It is good that the mill-partners could foresee the benefits to participate in the project particular in linking their farmers by constructive activities. At the end, the mill could monitor the quality of fresh fruit brunches. It is found from production recording, the FFB of group members have better yield than other general farmers. Therefore, they actively work through the project activities and give more support upon the need from the field.

Mills contributions to farmer groups are as follow;

- Assign team staff to working closely with farmer groups
- Join the group meetings continually with productive comments for improvement and development
- Support in database management
- Provide special privilege(s) for farmers who are project members i.e. fast track lane for FFB purchasing, EFB without any charge and premium FFB price
- Contribute fund to the group for project activities

The project activities have been planned following to comply with RSPO standard by project team and later on develop by each working team to most suits to their work in the field. At the end of the project, we aim that the groups in any work model can run firmly in sustainable way.

7. Conclusion

The commodity market has changed fast and the consumer-driven market is strong. The stakeholders in the palm oil supply chain have to adapt to high value chain in the market. In fact, compliance with standards often requires considerable human, physical, financial, informational, and network resources (Lemeilleur, 2013) While, large estates and companies, for example, were able to achieve economies of scale in their RSPO implementation costs, and thus experienced lower barriers to entry (Levin et al., 2012), the poor smallholders are the most sensitive group to encounter the numerous types of constraint as well as different transaction costs, when trying to enter commercial value chains (Kledal et al., 2013).

In Thailand, this downstream initiative is the new concept of partnership to work closely with communities with a long time process of work. This support allows smallholders to be included in lucrative international market. Finally, **All 8 smallholder groups** have successfully certified in 2015, comprising 1,150 individual smallholders over 6,626 hectares of production area, with an estimated production of 32,000 metric tones (MT) of certified sustainable palm oil (CSPO). The mills have committed to **top-up FFB price** to smallholders in the project. Patum Oil is **buying CSPO** with premium in general 20-30 USD/MT in order to 1) encourage them 2) show strong commitment to support and 3) maintain sustainable relationship with suppliers. Smallholder groups **have a choice** to allocate selling physical CSPO via any supplier or Green Palm system - like stock market system.

As a consequence of the certification process overall supply chain planning and management was improved through better management at each stage and strengthening the connection between each step in the production chain (Oates, 2009). **Linking farmers** to markets is an important to facilitate at the adaption period. In the next after adaptation phase, it is interested to continue monitoring the group management while the groups start to get income from purchasing CSPO. How they can have financial management and bankability in the group?

Finally, I introduce 4 policy relevance which can have an influence on inclusion of smallholders in the global production network.

- As each country, each product and each market segment has its own specific context. It is then difficult to identify an approach that work for all possible situations. However, it can adopt some practical guidelines to apply for smallholders adapting and managing to compete in the market.
- The downstream business can be the key player to facilitate including and linking the upstream, partcular to poor smallholders to the market.
- The initiated project requires a strong committed supporting resource environment focusing longer-term capacity building as well as securing sustainable supply chain partnership.
- The impacts are not limited only at the economic returns but the farmers' groups also get good relationship with mill partners and community. Also they finally have awareness on environmental issues from participating in the certification scheme.

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