Report of the Basic Study on the Coherence in Policies on ODA and Trade of Agricultural Commodities

－ Vegetable oils/fats and Spices －

（Summary）

March 2009

Overseas Merchandise Inspection Co., Ltd.

Report of the Basic Study on the Coherence in Policies on ODA and Trade of Agricultural Commodities – Vegetable oils/fats and Spices –

Entrusted By
The Ministry of Agriculture, Forestry and Fisheries of Japan

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Preface

This report compiles the results of "The Basic Study on the Policy coherence on ODA and Trade of Agricultural Commodities" carried out in fiscal year 2008, entrusted by the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF).

The Official Development Assistance (ODA) Charter of Japan refers to "the systematic linkage of ODA to trade and investment" and "collaboration between ODA policies and other key policies, and compatibility of policies in general" and thus the implementation of ODA in the field of agriculture needs to maintain consistency and coherence with policies concerning the trade of agricultural commodities and agricultural promotion.

In December 2005, Japan proclaimed a "Development Initiatives" at the WTO Hong Kong Ministerial Conference and, consequently, MAFF also is promoting cooperation aimed at "comprehensive support from the production site to the table in export destinations" and "to produce saleable agricultural products" in order to promote the "Development Initiatives".

The objectives of the Study are to identify the direction of cooperation by which the agriculture of Japan and the agriculture of developing countries can mutually cooperate and develop, and which will contribute to improvements in the ability of developing countries to export agricultural commodities. This involves the survey and analysis of the actual conditions of production, distribution and export of agricultural commodities, along with aid policies and specific cases of assistance in the Study area.

The Study examined the direction of effective and efficient cooperation in agriculture, forestry and fisheries, together with an analysis of specific cases of vegetable oils/fats and spices production and export in the African region, and compiled the results in this report.

Shea Nuts and Sesame Seeds as commodity items and Nigeria as object region were selected as examples of vegetable oils/fats, and Vanilla and Cloves as commodity items and Madagascar as object region were selected as examples of spices. Additionally the Study team examined the related reports about Shea Nuts production countries surrounding Nigeria to compare the production/export situations in these countries.

In order to implement the Study, the Study team was organized and conducted a series of surveys in

Germany, Nigeria and Madagascar from November to December, 2008. In the exporting/developing countries of Nigeria and Madagascar, the Study team conducted field surveys and interviews with government officials, producers, processors, distributors, exporters, and aid organizations in order to understand the process from production through to the distribution and export of agricultural commodities, as well as the relationship between international cooperation and increased exports. In the importing/donor countries of Germany, the Study team also conducted field surveys and interviews with government officials, processors, market traders and aid organizations in order to clarify the impact of agricultural imports from developing countries, and their response to policy coherence and aid policies.

Moreover, an Advisory Committee consisting of academics and business practitioners was established and held three committee meetings throughout the course of the Study. The committee gave valuable advice and recommendations to the Study team regarding study policy and compilation of the study findings.

The Study team and the Advisory Committee were composed of the following members.

Study team

Team Leader	Mr. Kazumi Ueno	OMIC General Manager
Agricultural Marketing	Mr. Toshio Watanabe	OMIC Principal consultant
ODA and Agricultural Policy	Mr. Hiroshi Yoshimura	IDCJ Senior Researcher

Advisory committee

Dr. Keishiro Itagaki	Professor	Tokyo University of Agriculture
Dr. Naoki Ogata	Researcher	National Institute of Crop Science
Mr. Naoki Katsuragawa	Senior Staff	Vox Trading, Oil & Spice Dept.2
Mr. Yoshitaka Sumi	Deputy Director General	JICA, Rural Development Dept.

I would like to express my utmost gratitude to the International Cooperation Division, International Affairs Department, the Minister's Secretariat, Ministry of Agriculture, Forestry and Fisheries for their guidance. Much assistance with the field surveys in Germany, Nigeria and Madagascar was also received from government organizations, the Embassy of Japan and the offices of the Japan International Cooperation Agency (JICA) in the respective countries, JICA Experts, international aid organizations, Non Governmental Organizations (NGO), producers, distributors and exporters. I would like to express my deep gratitude to all these organizations.

Finally, it must be noted that the Overseas Merchandise Inspection Co., Ltd. is wholly responsible for

the compilation of this report, and it should be understood that this does not reflect the official views and policies of the Government of Japan or the Ministry of Agriculture, Forestry and Fisheries.

March 2009

Shinichi Yahagi
President
Overseas Merchandise Inspection Co., Ltd

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Summary

I. Background, Objectives and Methods of the Study

Background of the Study

In recent years, the importance of policy coherence has been recognized by the international community. Therefore, it is becoming increasingly important to implement Official Development Assistance (ODA) in the field of agriculture, forestry and fisheries in a way that will maintain consistency and coherence with agricultural policies concerning the trade in agricultural commodities and agricultural promotion. In 2005, Japan announced the "Development Initiative" and, consequently, the Ministry of Agriculture, Forestry and Fisheries (MAFF) has been promoting cooperation which aims at "comprehensive support from the production site to the table in export destinations" and "the production of saleable agricultural products."

Objectives of the Study

In these circumstances, the study was designed to examine the direction of effective and efficient cooperation to Africa in agriculture, forestry and fisheries which would ensure consistency and compatibility between ODA policies and policies concerning the trade in agricultural commodities and agriculture maintaining consistency and coherence with agricultural policies. The study focused on vegetable oils/fats and spices in Africa.

Commodities and Countries Studied

Shea Nuts and Sesame Seeds as commodity items and Nigeria as object region were selected as examples of vegetable oils/fats, and Vanilla and Cloves as commodity items and Madagascar as object region were selected as examples of spices. Additionally the Study team examined the related reports about Shea Nuts production countries surrounding Nigeria to compare the production/export situations in these countries.

II. Study Results

1. The Importance of Vegetable Oils/Fats and Spices in Agricultural Exports from Africa

1.1 Current Status of Agricultural Exports from Africa in Global Agricultural Trade

Over the past 20 years, the main agricultural products traded globally have shifted from bulk products such as grains to processed food products such as frozen foods and semi-processed food products such as vegetable oils/fats. Agricultural exports from Africa still contain a large proportion of bulk products and horticultural crops which rely on good African soil and climate conditions, but the percentage of processed and semi-processed food products is also on the rise.

The percentage of agricultural exports from Africa out of total global agricultural trade has been declining in recent years. On the other hand, agricultural trade between Africa, China

and India as well as between African countries is growing and these countries are considered to be significant emerging markets for African agricultural products.

1.2 European Market Demand for African Vegetable Oils/Fats and Spices

The study looked at EU market demand for African vegetable oils/fats and spices. The EU is a major market for agricultural exports from Africa. The EU relies on imports from developing countries for most of its vegetable oil/fat supply. Germany and the Netherlands process the raw materials (such as seeds) which come from developing countries into oils/fats and then re-export the products within the EU and to countries outside the EU, as well as consuming them domestically. In Europe, most palm oil and coconut oil is imported from Asia. There is also demand for shea butter and sesame seeds in niche markets.

EU market demand for spices is expanding due to market trends such as the internationalization of food, consumers' increasing preference for natural foods and the increasing amount of ready-made foods, for which spices are often used. In the same way as for vegetable oils/fats, EU countries import spices in bulk from developing countries, process them and re-pack them, and re-export the products within the EU and to countries outside the EU.

Due to the increasing level of consumer awareness about the safety of processed foods in recent years, strict requirements have been made by processed food manufacturers for the safety of spices (such as requirements to prevent agrochemical residues and mycotoxin contamination) which are used as secondary ingredients for processed foods. Stricter inspections are also being conducted in importing countries and some exporters are facing problems in complying with the health codes of importing countries.

2. Potentials and Problems Regarding Vegetable Oils/Fats in Nigeria (Shea Nuts and Sesame Seeds)

This chapter explains the current status of production, harvesting, post-harvest treatment, processing, domestic distribution and the export of shea nuts and sesame seeds in Nigeria. It then analyzes and summarizes the potentials and problems regarding these products.

2.1 Production, Harvesting and Processing of Shea Nuts

(1) Production and Harvesting (the Low Yield Rate)

In Nigeria, shea nuts grow on wild shea trees which are found over a wide area of the savanna zone which spreads over the Central and Northern parts of the country. Shea trees are the second largest source of vegetable oil/fat in Nigeria. Palm trees which grow in the Southern part of Nigeria are the largest source of vegetable oil/fat. All the shea nuts harvested in Nigeria come from wild species. The biggest production area is in Minna in Niger State which is located next to the Capital Abuja. The shea fruits come to fruition and are harvested in the rainy season during May-August. The shea fruits naturally fall from the trees when they ripen. Therefore, harvesting work involves collecting the fallen fruits. 86% of the fruit collectors are rural women, of which 95% work individually or in family groups and they are not organized into bigger groups.[1] Apart from rural women, there are

1 Workshop Materials, NiSPA (Niger Shea Products Association, Nigeria), 2008

also people who run fruit collecting businesses. Most of the fruit collectors are women. This is because: men are engaged in other main farming in the rainy season; women are more suitable for the work which needs patience; and shea trees have traditionally been considered sacred trees and it is the custom that only women should touch the trees and fruits. In order to enable the systematic cultivation of shea nuts, research has been conducted at the national level by NAIFO (the Nigeria Institute For Oil Palm Research) in Bida (a suburb near Minna). NAIFO is trying to develop fast-growing varieties, but so far they have been unsuccessful.

During the harvesting season, rural women go around to the neighboring shea tree habitat areas and collect the shea fruits. Fruit collecting businesses collect shea fruits in remote habitats. Typically, the fruit collecting season overlaps the busy cultivation season for other crops. Therefore, flesh is removed from the harvested fruits, the nuts are dried and stored, and then the nuts are made into shea butter during the dry season when the farmers have more time. However, the quality of nuts often deteriorate during the storage period (typically stored by individual households), due to inappropriate storage conditions such as being stored in high humidity conditions, without shade, where air is flowing, etc. and the nuts are stored with other crops.

The yield rate, i.e. the actual amount of fruits collected out of the potential yield is about 30%[2] and the remaining 70% are left behind. There also seem to be cases where already-deteriorated shea nuts which have been left behind are collected later and mixed at the processing stage. The reasons for the low yield rate appear to be that fruit-collecting work in the bush is dangerous and hard labor, that post-harvest treatment is required and that incentives are low such as low selling prices and unstable sales channels. Manufacturing of shea butter (manual operation) is also a women's job. The transportation to the marketplaces and the selling of the products is often done by men.

(2) Post-Harvest Treatment and Processing (Traditional Manual Methods)

Figure S-1 shows the typical procedures for harvesting, processing (shea butter manufacturing) and shipping.

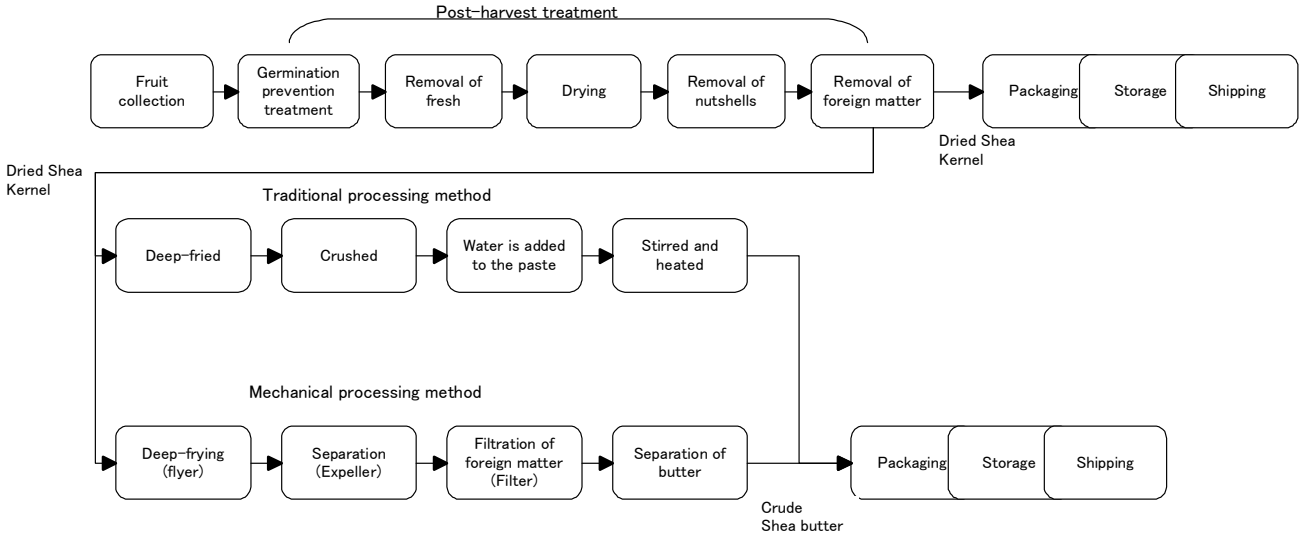
Harvested fruits go through post-harvest treatment (germination prevention treatment, removal of flesh, drying, removal of nutshells and removal of foreign matter: all are done manually). The resulting dried shea kernels are then processed (i.e. made into shea butter). There are three processing methods: (1) the traditional method (manual processing by rural women); (2) the mechanical method (the batch method); and (3) chemical extraction using solvent (the continuous method). In Nigeria, most shea butter is manufactured using method (1), a small amount is manufactured using method (2) by small-scale enterprises and none is produced using method (3). There are now seven mechanical processing companies in Niger State.

When shea butter is manufactured using the traditional processing method, rural women organize themselves into a group in each community. Dried shea kernels are deep-fried (removal of remaining moisture) and then crushed (creating a paste), water is added to the paste, which is then stirred and heated (extraction of butter). Generally, the processing is mostly done manually and it requires a tremendous amount of labor and time. The only procedure which is done mechanically in many cases is the creation of the paste from the shea kernels, which is done at nearby factories. The manufactured shea butter is used at home or

2 NiSPA (Nigeria)/Workshop Materials (2008)

sold. The process yield rate (the percentage of the end product after processing compared to the input) is very low when using the traditional method[3] (about 25%). There are more than 100 women's groups for manufacturing shea butter in Niger State.

Mechanical processing has three stages, namely deep-frying (using a fryer), separation of the butter from the meal (using a compressor), and the separation of the butter from the foreign matter (using a filter). The process yield rate is higher when compared to manual processing (40-45%). However, the processing capacity and the levels of technology used are low, and it is believed that the percentage of mixed foreign matter in the end product are not significantly different between the manual processing method and the mechanical processing method. There are manufacturers of secondary processed products made from shea butter such as soaps and skin-care products. Manufacturers of shea butter also produce these products as a secondary business in many cases.



Source: Study tem

Figure S-1 Typical procedures for harvest, processing (shea butter manufacturing) and shipping

2.2 Distribution and Export of Shea Nuts

Figure S-2 shows the typical routes for domestic distribution and export of Nigeria's shea nuts. The dotted lines in Figure S-2 indicate the channels which comprise a very small percentage of the total flow of the products.

(1) Domestic Distribution (the Role of Brokers and Related Problems)

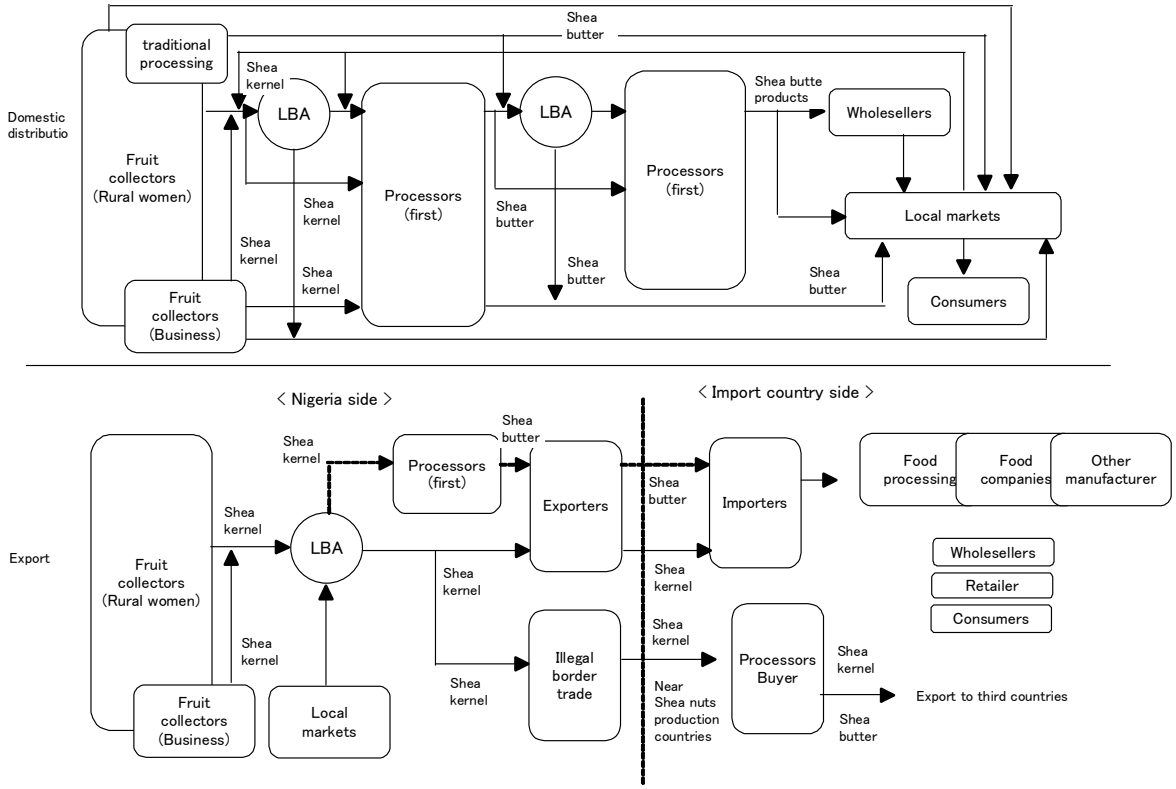
As Figure S-2 shows, various actors are connected to each other in the domestic distribution system, and there are many distribution channels.

Most of the shea nuts produced in Nigeria (more than 80%) are distributed domestically. They are mainly processed into unrefined shea butter and secondary processed products, and then marketed. These products include cooking butter, skin-care products, ointments, fuels and soaps. Trading is typically conducted at local markets (which include local bazaars and

3 NiSPA (Nigeria)/Workshop Materials (2008)

small-scale shops, hereinafter called markets). Markets are the places to sell processed products and also to procure raw materials for processing. Activities at markets include the trading of shea butter, the trading of secondary processed products made from shea butter and the trading in dried shea kernels.

Rural women who manufacture shea butter collect shea nuts in shea tree habitats in order to obtain the raw materials, and they also supplement any shortages by purchasing dried shea kernels at markets. Manufactured shea butter is sold at neighboring markets. Shea butter manufacturers (described above) procure the raw materials (shea kernels) directly from farmers in rural areas, or purchase them at markets, or have contracts with the fruit collectors. Rural women often sell the raw materials (dried shea kernels) to brokers (described below), or sell them at markets. The benefit of this type of trading for rural women is that they can immediately receive money instead of spending tremendous amounts of time and effort storing and processing the shea nuts. However, rural women are forced to sell the raw materials at a low price and they sometimes have to purchase the processed shea products for their own use at markets at high prices.



Source: Study team

Figure S-2 Typical routes for domestic distribution and export of Nigeria's shea nuts

The main actors in domestic distribution are brokers called local buying agents (LBAs). One study shows that 50% of collected shea nuts are processed into shea butter by rural women's groups, and 40% are sold to LBAs in the form of the raw material (dried shea kernels)[4]. It is likely that the LBAs then sell the dried shea kernels to four distribution channels, namely: (1) processors; (2) exporters; (3) local markets; and (4) buyers in neighboring countries through informal trade (described below). It is known that, in

4 The study conducted on the status in Niger State, Nigeria: GTZ/Assessment of Potentials for Shea Nuts in Niger State/2008

addition to their role as brokers, the LBAs act as "service providers" who connect different actors in the domestic distribution system. Since they have a means of transport and this gives them freedom of movement, they provide trading information in different areas to rural women, as well as providing other services such as helping with packing and shipping work and giving advance part payments. The LBAs also provide services to processors and exporters such as providing information about the status of fruit collecting in different areas and shipping the amounts requested by processors and exporters. Therefore, LBAs are an essential component in the seamless domestic distribution system for shea products.

However, it has been pointed out that there is a common characteristic in which the problem with brokers such as the LBAs is a lack of awareness about the quality of products, i.e. they are not interested in quality or they neglect quality, and therefore there is no substantial correlation between quality and price. This makes it impossible for information about processors' and exporters' market needs to be transferred to producers because the brokers do not communicate this information to the producers. This allows the brokers to take the initiative in deciding on price in a nontransparent manner and therefore the rural women's groups are put in a disadvantageous position. Therefore, rural women have little opportunity to increase their incomes. It is desirable for rural women's groups to trade directly with processors, etc. but this does not happen often. One major factor which contributes to the brokers' lack of awareness about the quality of products is the fact that quality standards are not widely known and even if they are known, the brokers do not use the standards when trading. This situation is created by the consumers' low awareness levels on products and their low purchasing power.

(2) Export (the Low Export Rate and Informal Trading)

Nigeria exports only a small amount of shea products, most of which is exported in the form of raw materials (dried shea kernels). A very small amount of processed goods (unrefined shea butter) is exported from Nigeria. The large percentage of raw material exported is a common characteristic of shea producing countries. This is because it is convenient for both buyers and sellers. For buyers, purchasing the raw material is beneficial because the dried raw material can be stored well (storage for a five-year period is possible) and also it can be flexibly processed and made into value-added products based on customers' needs by themselves. For sellers, the products can be immediately exchanged for money instead of spending time and effort processing the raw materials, as mentioned above. The exported raw materials are processed into refined shea butter by oil/fat manufacturers in the importing country and then it is supplied to chocolate manufacturers.

Much of the exports from Nigeria are conducted through informal cross-border trading (cross-border movements of people and goods without going through formal trading procedures). The destinations are several neighboring shea producing countries. The LBAs again play the key role in domestic distribution and informal exporting routes. The reasons for informal trading may include the following. (1) Nigeria produces relatively large amounts of shea nuts. (2) Supply and demand of shea butter in the country is currently balanced. (3) Nigeria lacks processing capacity (the capacity to manufacture shea butter). (4) Nigeria lacks the ability to maintain the quality of shea kernels as a commodity and market the product in order to export the product. (5) Several neighboring shea nut producing countries (Benin, Niger, Burkina Faso, Ghana and Mali) have less production than Nigeria, but they have relatively well-equipped processing facilities near the borders, and they vigorously export shea kernels and shea butter. (6) The movements of people and goods

near borders are not rigorously managed. These factors are perhaps creating a situation where buyers enter Nigeria from neighboring shea producing countries and they then take the raw material back to their own countries, where they process it into products for export (shea kernels and shea butter) and (re-)export the products from their countries. Some reports also revealed that processed goods (shea butter) are also exported to Nigeria from other shea nuts producing countries through informal trading, reflecting Nigeria's lack of shea nut processing capacity.

As mentioned above, Nigeria exports very a small amount of shea butter due to the lack of processing facilities and low levels of technology. In addition, Nigeria's export total and the percentage of exports out of the total production of raw materials (dried shea kernels) are also low when compared to other shea nuts producing countries such as Ghana, because of the low quality of the product which is caused by inappropriate harvesting techniques and inappropriate post-harvest treatment and storage, as described above.

(3) Unutilized Quality Standards

There is a set of quality standards for shea butter (general requirements imposed by importers) which have been adopted by eight member countries of UEMOA (the West African Economic and Monetary Union). There are three classes for the quality of shea butter based on free fatty acids, the peroxide value, the moisture content and the percentage of insoluble impurities. These measurements require laboratory analyses. However, necessary quality levels vary greatly depending on the usage of shea butter (for food, skin-care products, ointments, food industry, soaps, etc.). Therefore, in reality, the required quality of the products is decided on a case-by-case basis based on buyers' needs. In the case of Nigeria, quality standards are not widely known among the actors who are involved in the trading of shea products except for officially-recognized exporters and processors, and they are not normally used in trading, because most shea products are distributed domestically and because exporting is often conducted through informal cross-border trading.

(4) The Price of Shea Nuts

According to a shea butter manufacturer (mechanical processing, located in Minna in Niger State) which the survey team visited during the field survey, the purchase price for the raw material (dried shea kernels) was 20,000-50,000 NN/ton[5] and the selling price of shea butter was 160,000-200,000 NN/ton. The profit margin is not large considering the process yield rate (33%) and processing costs. The survey team also interviewed a rural women's group (who manufacture shea butter manually) who live in the same area as the shea butter manufacturer mentioned above. According to the women's group, the selling price of shea butter was 100,000 NN/ton (about half the price of mechanically processed products). They said that this is the minimum price with which they can make profit. Another survey which was conducted in 2007 covering 10 areas in Niger State[6] revealed that the selling price for shea kernels which were sold by rural women's groups was 15,000-27,000 NN/ton during the rainy season and 29,000-53,000 NN/ton during the dry season. The selling price for shea butter was 74,000-100,000 NN/ton in the rainy season and 150,000-180,000 NN/ton in the dry season. The results showed that prices fluctuate significantly in different areas and that there was no consistent trend to these fluctuations. Although this is speculation based on limited information, both rural women and processors may be suffering from unstable price

5 Nigeria naira (NN) 1 = approx. 0.787 yen (December, 2008)

6 GTZ/Assessment of Potentials for Shea Nuts in Niger State/2008

trends and this may make it difficult to make a profit.

(5) Comparison between Nigeria and the Leading Shea Nut Exporting Countries such as Ghana

Despite its large production of shea nuts, Nigeria's yield rate is less than the average of the seven shea nuts producing countries. Nigeria's export total as well as the percentage of exports out of the total production of shea nuts is the lowest among the seven shea nuts producing countries. The percentage of processed goods (shea butter) out of the total for exported shea products is also low. The mechanization ratio is low for the processing of shea nuts because most shea butter is produced using the traditional method. There is also the problem of unauthorized logging of shea trees and this is causing falling production (shea trees make an excellent fuel because the wood burns for a long time and emits only a small amount of smoke). Research and development for shortening the time required for the trees' to mature is progressing in Burkina Faso and Ghana in order to enable systematic cultivation, and some results have been reported. However, progress in such research and development is slow in Nigeria. Western donors and international organizations are vigorously providing assistance, which helps to facilitate exports, to other shea nuts producing countries, but there are few instances of such assistance happening in Nigeria. Regarding private foreign investment, several leading European cosmetics manufacturers concluded contracts with rural women's groups in Ghana and started production and importation of shea butter in the 1990s. A Japanese leading cosmetics manufacturer is also importing shea nuts from Ghana and producing refined shea butter in Japan. The Japanese cosmetic company has developed and is selling shampoos and hand creams which contain the shea butter. It is likely that the competitive advantage that other countries have over Nigeria was not achieved by their independent efforts, but it was largely achieved through assistance from donors and private investment. It is an undeniable fact that one of the major factors for the lack of assistance and investment to Nigeria is the unstable domestic social conditions (a lack of public safety).

2.3 Potentials and Problems Regarding Shea Nuts

The following summarizes the currently conceivable potentials and problems regarding shea nuts in Nigeria.

(1) Potentials

- A large amount of production (based on the number of shea trees)
- Various usages
- High potential demand globally due to increasing health consciousness
- Potential as a cash crop for the acquisition of foreign currency and for the improvement of farmers' income (poverty reduction)

(2) Problems

- The trees are slow-growing (obstacle to systematic cultivation).
- Problem of shea tree logging (reduced shea nuts production)
- High percentage of naturally-grown shea trees (a lack of systematic cultivation, inefficient fruit collection)
- Low yield rate (fruit collection rate)
- Slow progress in research and development for systematic cultivation, such as the

development of fast-growing varieties
- Quality degradation in post-harvest treated raw material (shea nuts) due to inappropriate harvesting, post-harvest treatment and storage
- Most fruit collectors and traditional processors (rural women) are unorganized.
- Fruit collectors and traditional processors (rural women) have little awareness about quality, low levels of technology and little business consciousness.
- A lack of mechanical processing facilities and low levels of technology for processing (inferior quantity and quality of processed goods)
- Insufficient infrastructure for processing (pure water, electric power, fuels, etc.)
- Unutilized quality standards
- Distributors' low awareness levels about quality and nontransparent pricing
- Low export rate, the low percentage of processed goods exported (shea butter)
- A lack of marketing (such as developing new export and domestic markets and developing new products)
- Informal cross-border trading, and production, export and problems of sesame seeds

2.4 Production, Harvesting and Processing of Sesame Seeds

(1) Production and Harvesting (Manual Work)

In Nigeria, sesame seeds are widely cultivated in the Central part and the Northern part of the country. The main production areas are Nasarawa State, Jigawa State and Benue State. There are two types of sesame seeds: white sesame (to be eaten in the seed form) and brown sesame (for manufacturing oil). White sesame is cultivated in Nasarawa State, Benue State, etc. near the Capital Abuja in the Central part of Nigeria. Brown sesame is cultivated in Jigawa State, etc. in the Northern part of the country. Brown sesame has about a 52% oil content, slightly higher than white sesame (about 50%). Typically, sesame is planted in June or July and harvested in October or November. The main producers are small-scale producers (smallholders) because sesame seeds are harvested manually and because catch cropping is possible since it is a fast-growing crop. The right time for harvesting is determined by the color of lower leaves and pods (when the color turns yellowish). Sesame plants are harvested manually by pulling off the stems.

(2) Post-Harvest Treatment and Processing (Mainly Manual Work)

Figure S-3 shows the typical procedures for post-harvesting, processing and shipping.

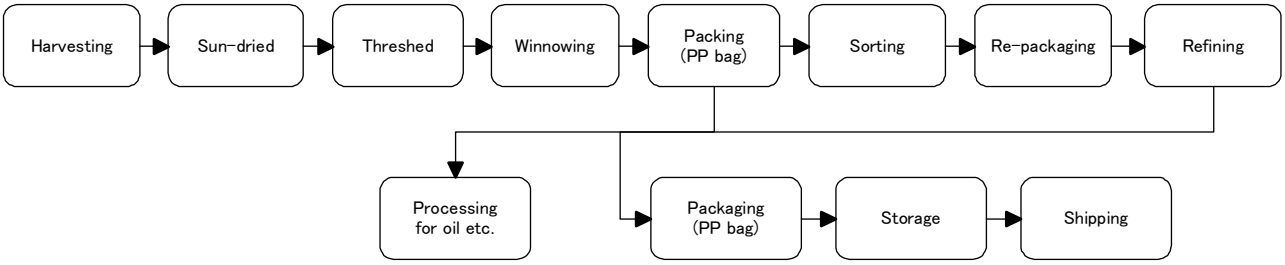
As explained above, 60-80% of sesame products produced in Nigeria are exported, most of which are exported in the form of sesame seeds. Such a small amount of processed goods (oil, confectionery, etc.) are exported that the figure is zero in the statistics. Therefore, the preparations for sesame exporting (from harvesting to shipping) only involves post-harvest treatment including drying, removing pods, rough removal of impurities, careful removal of impurities and packing, as shown in Figure S-3. As can be seen in Figure S-3, these procedures are done manually except for the removal of impurities. These procedures require time and labor. The main producers of sesame seeds are small-scale producers (smallholders).

Harvested stems are bound together in bundles (10-15 stems per bundle) and the bundles are stacked vertically to be sun-dried (or dried under eaves, for about two weeks). The sesame seeds are then removed from the pods by hitting the plants with a stick, etc. After roughly

removing impurities (winnowing), they are then packed and sold. Some public marketplaces (described below) have equipment which removes the impurities for a fee. Therefore, producers further remove impurities using this refining equipment before selling the products at the markets. Final refining before export is conducted by exporters using their refining machines. There are two types of refining machines: one sorts the sesame seeds and impurities by size using oscillating sieves; and the other sorts the sesame seeds and impurities by weight. Some white sesame seeds which are produced to be eaten as a seed form are made into "skinned sesame seeds" (where the seed skins are removed) in accordance with the requests from customers in importing countries. Processed goods (oil, confectionery, etc.) are manufactured by processed food manufacturers and they are distributed domestically. Their processing technology and the quality of the processed goods have not reached levels which are sufficient for export.

(3) Farm Management Businesses

In Nasarawa State where a field survey was conducted, farm management companies are emerging. For example, the survey team visited Company O which runs a 1,600 ha farm. They produce and sell six crops including sesame. 70 ha is planted with sesame and they are planning to yield 200 tons (i.e. nearly three tons per ha - it is doubtful if they can achieve such a yield). They are planning to mechanize the harvesting process and post-harvest treatment in the future, although all these processes are conducted manually at present because it is their first year of sesame cultivation. They use agrochemicals and fertilizers in order to increase the yield. They are presently only selling the products at local markets, but they are considering direct sales to exporters in the future. They purchase new seeds from the seed breeding and distribution project (the Agricultural Development Project) conducted by the State Agricultural Department every year. However, according to a leading exporter, most producers use part of the crop from the previous year as the seeds for the following year. Company O said that they use new bags every time they pack their products without reusing used bags. The manufacturer of bags is located in Kano State in the Northern part of Nigeria.



Source: Study team

Figure S-3 Typical procedures for post-harvesting, processing and shipping of sesame seeds

2.5 Distribution and Export of Sesame Products

Figure S-4 shows the typical routes for the export and domestic distribution of Nigeria's sesame products.

(1) Export Industry

In Nigeria, sesame seeds are an important export cash crop and there is an established sesame seed export industry. The biggest customer for Nigeria is Japan and Nigeria is one of the major suppliers for Japan. As described above, Nigeria cultivates brown varieties suitable for oil manufacturing and white varieties suitable for food. Japan imports the varieties suitable for oil manufacturing.

More than 70% of exports are handled by four major export companies. The export companies have collecting centers in each production area, distribution centers in the Northern part of the country and ship loading points in Lagos. They have refining machines at the collecting centers and distribution centers, where they conduct final refining before shipping. Their products for export are transported by land from each collecting center to distribution centers, and then on to ship loading points.

(2) Public Trading Marketplaces

Each area has a public trading marketplace (marketplace for trading agricultural products). In Nasarawa State where the field survey was conducted, the main trading marketplace is opened in different places on different days, for the convenience of producers in various areas. The survey team visited Doma which is a suburb of the State Capital Lafia, which has the largest marketplace in Nigeria. The marketplace had weighing machines and refining facilities. There are no such facilities at marketplaces in other areas. Various agricultural products including sesame seeds are traded at the marketplace.

Typically, the trading between sesame producers (85% of total producers[7]) and exporters occurs at marketplaces via agents. At the marketplaces, there are shops and warehouses run by these agents, refining machines which are used before packing and stores which sell bags for packing. Farmers pack the sesame seeds which have completed the post-harvest treatment and hand-sew the bags, and they then transport the products to the marketplaces. Many farmers have a means of transport such as bicycles, bicycle trailers and motorcycles. At the marketplaces, producers entrust agents with their products by paying commissions (1-3%) to the agents. The commissions are deducted from the prices which are decided by negotiation between agents. Producers receive the remaining amount. Producers can withdraw their products if the price negotiated between agents is too low. Sample checks are conducted visually for the quality of products (such as impurities) when they are traded, but the prices are essentially decided based on weight. There are 500 agents who trade with the producers and the average amount of sesame seeds that each agent handles is 100 tons. The percentage of sesame seeds which are exported through marketplaces is roughly estimated as follows. When assuming that 20% of the total trading occurring at the Doma marketplace is sesame seeds, the amount of sesame seeds traded at the marketplace is calculated as 10,000 tons. If it is assumed that five times more sesame seeds are traded in total at marketplaces including those in other than Nasarawa State, the total amount of sesame seeds traded at marketplaces is 50,000 tons. Assuming that 80% of this total is for export (40,000 tons), it is calculated that about 50% of total exports go through marketplaces.

Some producers directly sell their products at marketplaces instead of using agents. There is also a channel where producers sell their products to brokers other than agents. Brokers go around the villages in production areas and purchase sesame seeds from farmers, and they then sell the products to agents or at marketplaces. Since there is no objective quality standards in place, brokers tend to take the initiative in deciding on price in a nontransparent

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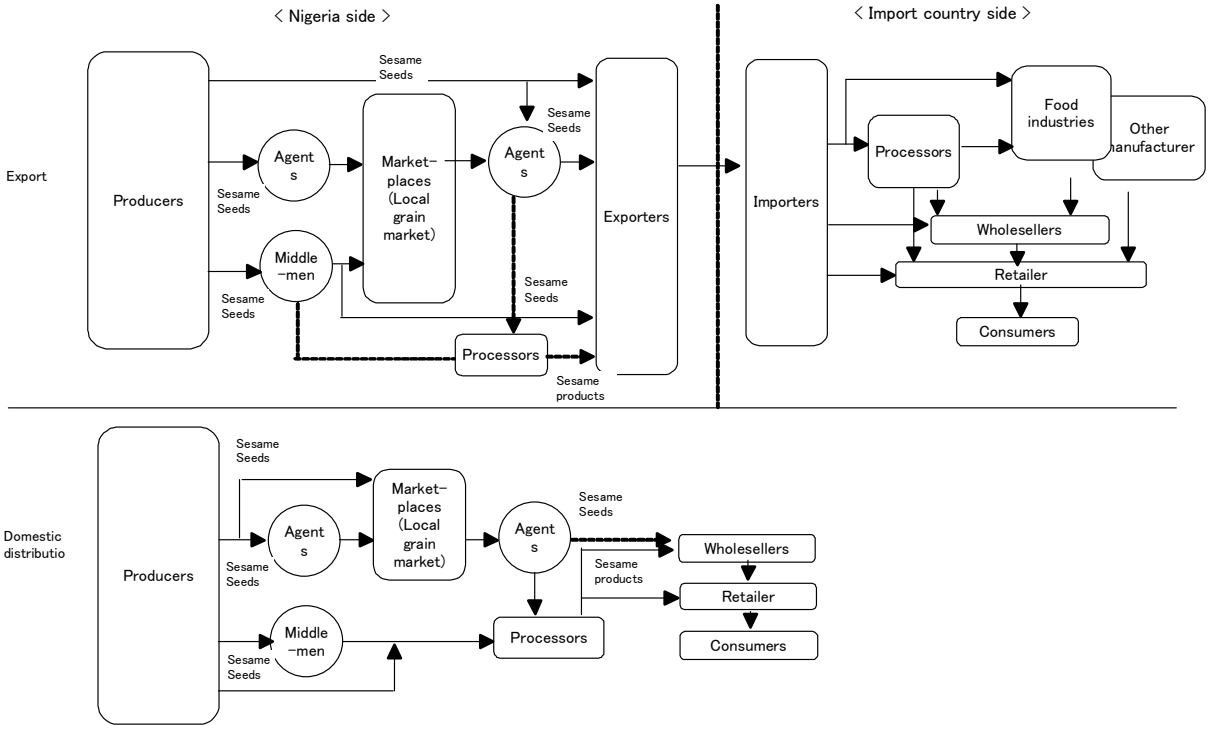
manner and therefore many producers (smallholders) are put into a disadvantageous position.



Source: Study team

Figure S-4 Typical routes for domestic distribution and export of Nigeria's sesame products

(3) Contract Farming

According to information from a donor,[8] some organized sesame producers (15% of total producers) are conducting "contract farming" for specific exporters (large-scale businesses) without going through agents or marketplaces. The contract farming system is generally called the Outgrower Scheme. The system is somewhat unusual, as Figure S-5 shows.

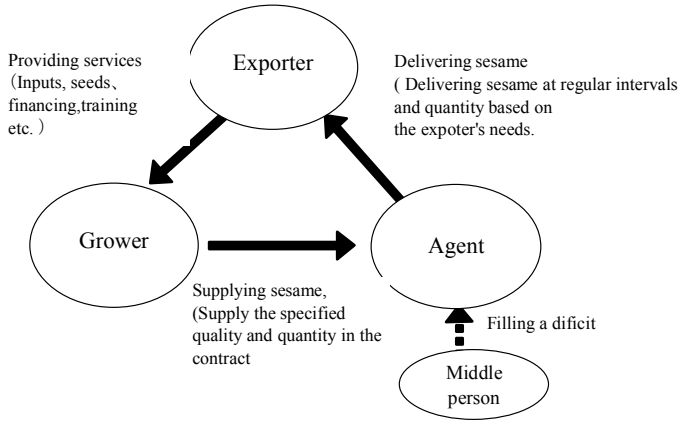


Figure S-5 Image of contract farming (Source: made by study team based on the Report of Sesame Stakeholder Workshop/2008

Exporters provide producers (groups) with seeds, inputs (fertilizers, etc.), training and financing services. Agents secure the necessary quality and quantity of products and deliver the products to exporters, based on the standard price agreed between agents and exporters (when the amount of supply from contract farmers does not meet the exporters' needs, the agents procure the shortfall from other suppliers such as brokers).

8 Interview with GTZ and the report produced by GTZ (Report of the Private Sector Sesame Stakeholder Workshop/Promotion of Sesame Value Chains in Nigeria, 2008)

Through this system, exporters aim to promptly procure and supply a specific quality and quantity of sesame seeds in accordance with demand. Exporters hedge the risks involved in the scheduled procurement of specific quantity of products, by trading through agents. For producers, the sales channel is ensured and also they can earn a reasonable amount of income as long as they keep supplying a specified quality and quantity of products at the specified time, by receiving guidance and assistance from exporters.

However, the following part of the contracts is not clear: the content of the "contracts" between producers, exporters and agents; the methods for implementation of the contracts; the requirements in the case of breach of the contracts; the exporters' standards for selecting contract producers; etc. Some involved parties also point out that this system does not work effectively because the correlation between quality and price is ambiguous. It may be that the relevant parties have low levels of awareness about the concept of contracts. There is also a concern that the enhanced sellers' market caused by the tight global supply-demand situation (as explained above) may accelerate a trend where securing quantity is prioritized over securing quality.

On the other hand, sesame producers and donors emphasize that this type of cooperation between sesame producing farmers and the private sector is effective in increasing the farmers' income. There is no doubt that the producers who are engaged in "contract farming" receive more benefits than other producers (smallholders) do.

This majority of producers (smallholders) who are not involved in contract farming should, as their priority goal, aim to improve their production to the level required to conduct contract farming (such as product quality control and the scheduled shipping of specific quantities). An effective method to enable such improvements would be to organize themselves into groups. Receiving technical support for the improvement of production processes (cultivation, post-harvest treatment and shipping) would also be effective in achieving the above-mentioned goal.

Regarding "contract farming," there is a different system in other target commodity (vanilla production in Madagascar) from the one used for sesame seed production in Nigeria. There is also a case of contract farming in Kenya regarding fruits, which was revealed in a similar survey conducted in fiscal year 2007. The case in Kenya seems to have a more advanced system. Contract farming will be discussed in detail later in next chapter, including the benefits that farmers can enjoy from contract farming and analysis of the price structure from farmers to the retailers in importing countries.

(4) Domestic Distribution

Similarly to exports, local markets are the main trading places for domestic distribution. However, unlike exports, the products distributed within the country are mainly processed goods (oil, confectionery, etc.) and only small amounts of sesame seeds are being distributed. Some organized producers sell their products directly to processors. However, the majority of producers typically sell their products through brokers.

(5) A Lack of Quality Standards

Regarding the problem of aflatoxin contamination of sesame seeds exported to Japan, there is

a risk that the products get contaminated with impurities and agrochemicals or the quality deteriorates, in the processes from production to export including cultivation, harvesting, sun-drying, storage, transport, packing, changing packages, etc. A systematic survey which follows the distribution routes is needed to understand the causes and to improve the situation.

As mentioned above, there are no objective quality standards which can be used as the basis for trading between producers and distributers or for the trading at marketplaces. Prices for the products are effectively decided by weight alone. In addition, weighing equipment is not available in most cases. This leads to price manipulation by distributers and to fraud by producers (such as deliberate mixing of impurities in order to increase the weight) and this in turn undermines the international reputation of Nigerian products.

2.6 Potentials and Problems Regarding Sesame Products

The following summarizes the currently conceivable potentials and problems.

(1) Potentials

- Established trade relationship between Nigeria and Japan (a large market)
- Established system for exports which has been developed over a long period of time
- High potential demand globally due to increasing health consciousness
- Potential as a cash crop for the acquisition of foreign currency and for the improvement of farmers' income (poverty reduction)

(2) Problems

- Production and quality management (which tackles the problem of contamination of sesame seeds exported to Japan with aflatoxins and pesticide residues which exceed the standard concentration)
- A lack of objective quality standards, no substantial correlation between quality and price (which leads to fraud, lowered quality and loss)
- Inappropriate post-harvest treatment methods and a lack of refining facilities (which lead to lowered quality)
- Expensive inputs (fertilizers, etc.)
- Insufficient infrastructure (roads, means of transport, communication and water supply)
- The National Sesame Seed Association is not functioning properly.
- Specialization in exporting to Japan and in exporting sesame seeds for oil manufacturing (they will need to find markets for sesame seeds for oil manufacturing in other countries as well as working to export sesame seeds for food to Japan)
- Limited potential for exporting sesame seeds using high oil content and low price as selling points (threat of emerging competitor countries, a need for differentiation by improving quality)
- Smallholders are not in control of cultivation and processing, and there is no assistance available to smallholders (there is a need to promote cooperation between smallholders and exporters including contract farming).

3. Potentials and Problems Regarding Spices in Madagascar (Vanilla and Cloves)

This chapter explains the current status of production, harvesting, post-harvest treatment, processing, domestic distribution and the export of spices in Madagascar. It then analyzes and summarizes the potentials, the problems and the agricultural cooperation regarding these products.

3.1 Production, Harvesting and Processing of Vanilla

(1) Production and Harvesting (Manual Work)

In Madagascar, vanilla is cultivated as an intercrop with coffee and bananas in many areas. The main production area is Sambava District in the North-eastern part of the country, which has 67% of the total vanilla cultivation area in Madagascar. The district also produces 80% of the total vanilla production in the country.[9] Vanilla is mostly cultivated outdoors and greenhouse cultivation is still at the trial stage. Flowering and pollination occurs three years after vanilla is planted and it can on average be harvested eight months after pollination occurs. It is believed that the vanilla plants continue to bear beans for 12-14 years. Typically, pollination is conducted from September to November and the beans are harvested from May to July. Jatropha trees are often used as supporting trees on which the vanilla vines can crawl. Jatropha is an excellent supporting tree because it grows to a suitable height for harvesting vanilla pods (hand-picking) and the leaves allow 50% sunlight to come through and provide 50% shade, which are the correct conditions for vanilla cultivation. Vanilla producing farmers cut part of vanilla stems, store them with jatropha trees and plant them in the following season.

In most vanilla production areas in the tropical zone, artificial pollination is conducted because no natural pollinator for vanilla (bees and hummingbirds) exists. Since the plants flower only for a day, farmers need to check their plantation every day when it is close to flowering season. They then pollinate each flower manually. Vanilla beans are harvested from May to July, depending on the area. The ripened pods are hand-picked one by one. Vanilla cultivation is known to have high production costs, because it requires labor intensive processes including pollination, harvesting and curing.

The export price fluctuates significantly. It soared to a high of US$500/kg during the boom in 2003 and plunged to US$25/kg in 2005 when the boom ended. The price is hovering around near the bottom (US$30-35/kg) as of 2008. When the price plunges, vanilla producers tend to stop taking care of their plantations or stop vanilla cultivation all together and switch to other crops. It was reported recently that some vanilla producing areas experienced outbreaks of a disease (caused by Fusarium fungus) at the cultivation stage, which caused serious damage to their production (a 60% decrease in production). It is believed that the outbreaks occurred due to negligence of the plants during cultivation. Switching to other crops leads to a reduction in vanilla production. This means that producers are not able to supply enough of the product promptly when the market recovers. This creates uncertainty and makes it difficult to have stable procurement of the product, from the importing countries' standpoint.

9 Ministry of Agriculture, Animal Husbandry and Fishing

(2) Post-Harvest Treatment and Processing (Labor-Intensive Operations)

Figure S-6 shows the typical procedures for processing and shipping.
The procedures for production, harvesting and processing (curing) are labor-intensive operations, where each procedure is conducted manually using enormous amounts of time and labor. Processors and exporters conduct curing operations. Many producers also conduct curing operations, using a simple method. There is no established standard system for curing, with different actors using completely different methods and levels of technology.

Curing

The following describes an example of curing procedures which are employed by a large-scale collecting and processing business that the study team visited during the field survey.

- Vanilla beans are soaked in 70˚C hot water for 4-5 minutes. → The beans are wrapped in cloth and stored in a wooden box for a week. → The beans are then spread out on a cloth and dried in the sun for several hours and then wrapped in cloth to be stored in the shade. This process is repeated for three weeks. → The beans are sorted (into different grades) based on the length, color and the number and the size of the splits they have. They are then placed on different shelves made of woven nets depending on their grade and sun-dried for three weeks. → (Drying and fermenting processes are repeated where necessary.) → The beans are sorted once again after checking their moisture content (final checking of the color, length, splits, flavor, moisture content, etc.) → The beans are vacuum-packed. The product which was purchased in the form of green beans and then processed in-house is differentiated from the product which was purchased as processed vanilla beans, by being placed in separate bundles. → The product is then stored.
- Sorting relies on workers' senses of sight, touch and smell, except for checking the length and moisture content where equipment is used. Grading of vanilla beans requires skill and experience.
- The product is stored in vacuum packs and they are kept until the orders to reach a certain level. It is then sold in bulk.
- There are many collecting businesses, but only 3 or 4 large-scale collecting businesses have curing facilities.

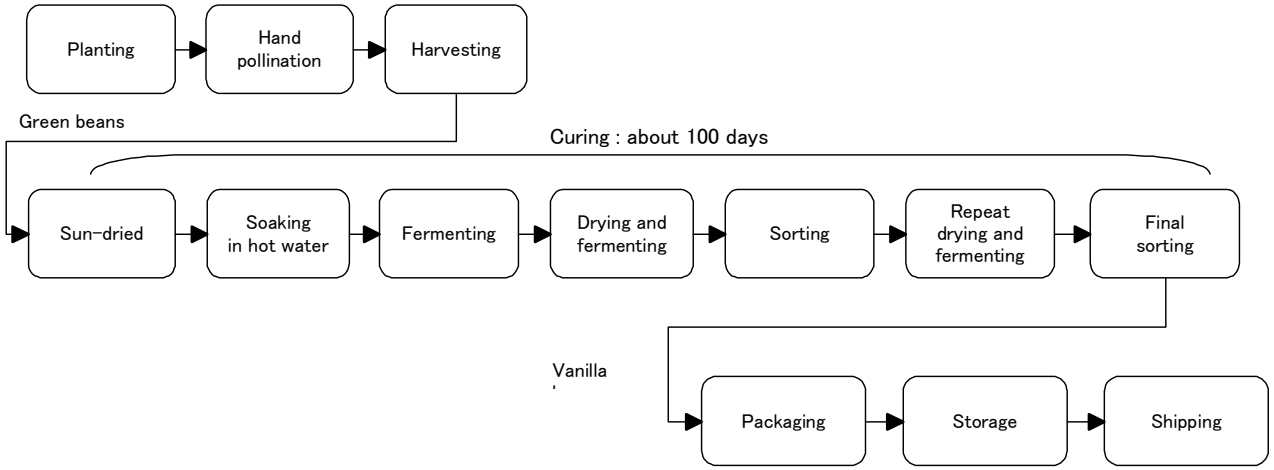
The following describes an example of the curing procedures which are employed by vanilla producing farmers.

- The green beans are soaked in hot water for three minutes. → The beans are left inside the house for four days. → The beans are sun-dried for four hours a day, over a one month period. → The beans are dried on a bamboo-woven shelf inside the house for two weeks. → They are wrapped in oiled paper and stored. It takes about two months in total.

Vanilla Essential Oil

Through a national project, two producer cooperative associations in Sambava District have been provided with devices to manufacture natural oil from vanilla beans (vanilla essential oil) using a solvent extraction method (the solvent: ethanol). The equipment is currently in operation. The product is for export and they are trying to sell it to exporters, but they have not been successful as of the end of 2008. This is an example for a project which lacks

marketing awareness, where goods have been manufactured before a market is found.



Source: Study team

Figure S-6 Typical procedures for post-harvesting, processing and shipping of Vanilla beans

3.2 Distribution and Export of Vanilla

Figure S-7 shows the typical routes for the export and domestic distribution of Madagascar's vanilla.

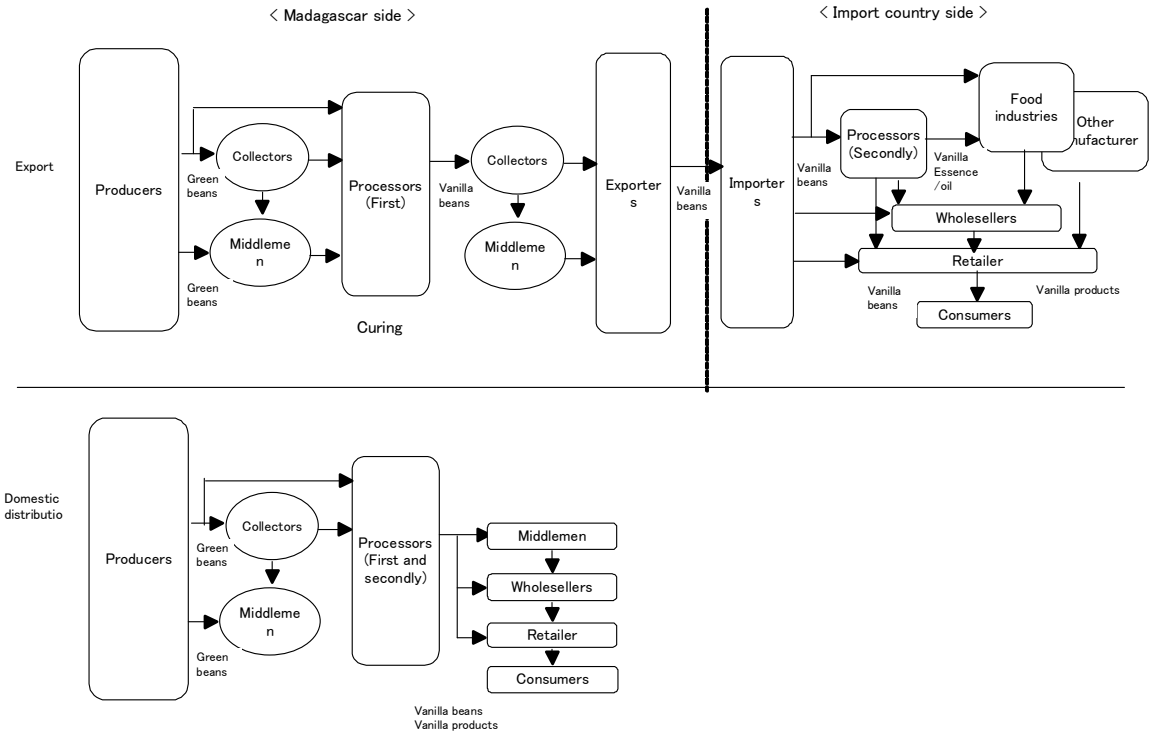
(1) Export Industry

Vanilla is a major export cash crop for Madagascar. More than 90% of the product is exported to Western countries and about 5% is exported to Japan. Much of the exports to Southeast Asia and Japan go through Singapore. Most of the exports to Western countries are for the food industry (raw materials for processing). On the other hand, a large amount of exports to Japan go directly to retailers as food products. Therefore, the exporters have a strong desire to directly export their products to Japan, because there is a large demand for high grade (expensive) vanilla products in Japan.

Table S-1 Export/Import unit price of Vanilla (unit: US$/kg)

	2003	2004	2005	2006
Export unit price from Madagascar	146	164	99	26
Import unit price in Germany	184	150	236	45
Import unit price in Japan	196	226	286	77

Source: FAOSTAT



Source: Study team

Figure S-7 Typical routes for export and domestic distribution of Madagascar's vanilla

In Madagascar, there is an established vanilla (vanilla beans) export industry, because 70-80% of the production is exported. A handful of big exporters, who have their own curing facilities, dominate the market. The leading exporters employ various different methods for material procurement, processing and shipping. The systems established by some of the leading exporters which the study team visited are shown below.

Only a small percentage of producers (groups) work closely with exporters in a variety of ways. Most producers (smallholders) sell green beans which have just been harvested to collecting businesses and brokers who go around the production areas in the harvesting season.

Company P (Exporter: Production, Processing and Exporting)

Company P is one of the leading exporters and handles 20 types of agricultural products. It has in-house curing facilities. Figure S-8 shows the system through which Company P trades with the vanilla producing farmers. Company P has employment contracts with large-scale producers (large-scale farmers). There are small-scale producers (smallholders) groups who trade with the large-scale farmers. Small-scale farmers sell their product to the large-scale farmers. The selling price of green beans between the smallholders and the large-scale farmers is 6,000 Ar/kg which is equivalent to US$3.5/kg (the government's standard price[10]). The large-scale farmers provide support for the smallholders, which includes training, lending equipment and materials as well as providing financial support.

10 It is a standard selling price for vanilla producers set by the government. The price is revised every year. It is not clear if it is compulsory or what kinds of requirements are imposed when they do not comply with the price. In reality, smallholders who do not have a close connection with exporters appear to often sell their product at a lower price than the standard price, to the collecting businesses and brokers who come around to the production areas in the harvesting season, as mentioned below.

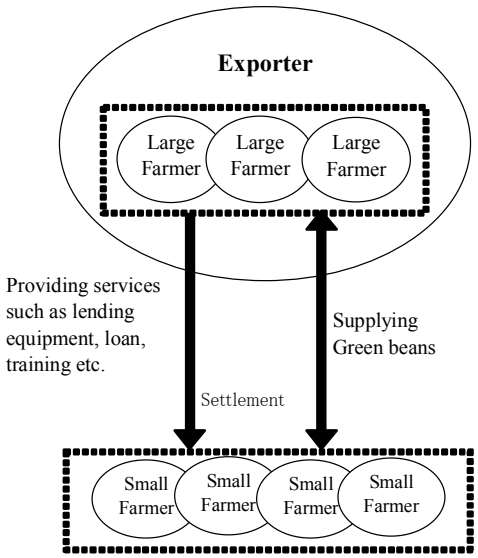


Figure S-8 Image of contract farming
(Source: made by study team based on site-survey)

The Main Information Obtained through Interviews:
There are five grades (A-E) for the quality of vanilla beans. The grades are determined based on the color (the blacker the better), the length (the longer the better), splits (the smaller the better), the moisture content, the flavor, etc. The higher grade product is mainly exported to be sold by retailers as food product. The lower grade product is exported for use in the food industry (as raw materials for processing). The export prices range from US$32-35/kg for A-grade vanilla beans to US$20/kg for E-grade vanilla beans.

The more splits that a vanilla pod has shows that the vanilla is more mature and that it contains more vanillin. Vanilla beans produced in Madagascar have a 2-3% vanillin content, compared to vanilla beans produced in other countries which have a 1-1.5% vanillin content. The company asks a public institute or a private laboratory to conduct quality testing before exports are shipped. The company is interested in the Japanese market and they participate in an international exhibition (FOODEX) held in Japan, with assistance from the International Finance Corporation (IFC).

Company S

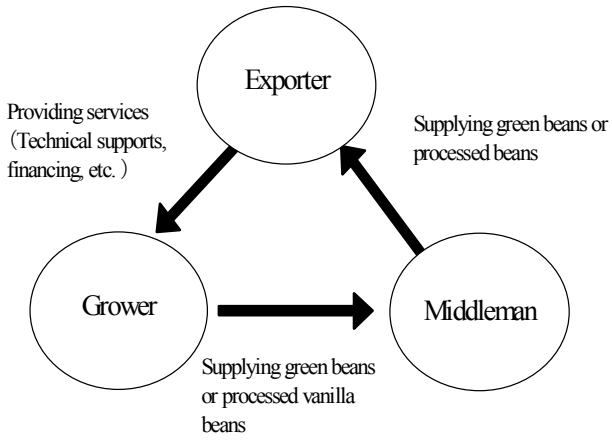


Figure S-9 Image of contract farming
(Source: made by study team based on site-survey)

Company S is one of the leading exporters. It has in-house vanilla curing facilities. Figure S-9 shows the system through which Company S trades with the vanilla producing farmers. It purchases green vanilla beans or processed vanilla beans from producers through brokers. More precisely, the exporter stores the delivered product in their in-house warehouse and obtains consent from the producers on the selling price when it sells the product. The exporter provides technical and financial support to the producers.

The Main Information Obtained through Interviews:
The company exports 75-80% of their vanilla beans to the US (out of which 95% is for the

food industry), 20% to the EU and 5% to Japan (exporting directly to Japan). The company also exports cloves to these countries in almost the same percentages. Most of the exports going to Western countries are transported by sea and most of the exports going to Japan are transported by air. The export of cloves to Southeast Asia is often conducted through Singapore. Importing countries in Southeast Asia have little interest in the country of origin and they are not knowledgeable about the country of origin. Company S wishes to know more about the Japanese market, as well as more about Japanese regulations and standards. They said that Japanese buyers are serious and trustworthy when compared to buyers from other importing countries, but it takes a long time to go through the procedures and to trade. Generally, vanilla beans grown in Tahiti are sold at higher prices than vanilla beans grown in Madagascar. The reason for this is that the seeds inside the pods of Tahitian grown vanilla are less sticky and they are easier to cook. Vanilla beans produced in Madagascar are stickier and they have a higher vanillin content, and so they are more suitable for the food industry. Most vanilla producers in Madagascar do not use fertilizers because they are expensive. 200 kg of vanilla beans can be obtained from one ton of green beans (the process yield rate is 20%).

Company V

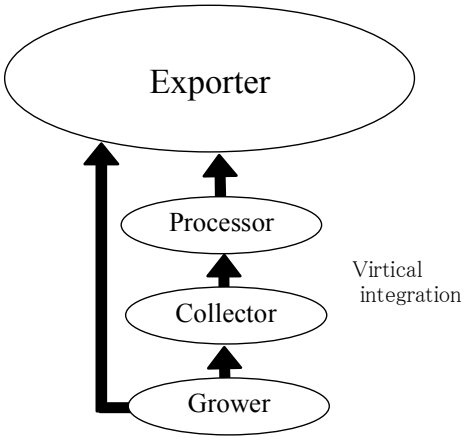


Figure S-10 Image of contract farming
(Source: made by study team based on site-survey)

Company V seems to be the largest exporter of vanilla beans. It owns a farm and conducts processing, packing and storing in-house. It also has its own laboratory (for checking the vanillin content, the moisture content, etc.) Figure S-10 shows the system through which Company V trades with the vanilla producing farmers.
Other than producing green beans on its farm, the company mainly procures raw materials through the following trading channel: vanilla producing farmers → collecting businesses → processors. It seems that the specified actors are involved on a regular basis in this process (vertical integration).

There are six collecting businesses which trade with the company. The collecting businesses and processors are either individuals or companies. Company V also directly trades with vanilla producing farmers in some cases. It concludes contracts with these actors where necessary instead of employing them.

The Main Information Obtained through Interviews:
The company exports 60% of its product to the US (grade D, which has a low moisture content and is exported to be used by the food industry as the raw materials for processing), 30% to the EU (grade D, which has a relatively high moisture content and is exported to be used by the food industry as the raw materials for processing) and 10% to Japan (grade A or B, which is exported to be sold by retailers to consumers as a food product. It is exported through Singapore in many cases). There are five grades for the quality of vanilla beans, namely A (black), B (TK), C (brown), D (red) and E (cut). The criteria for classification are:

the color (the blacker the better); the length (the longer the better); the flavor, splits (the smaller the better); the moisture content; whether or not there is foreign matter (pieces of metal, etc.); and the vanillin content (1.8-2.2%). For example, vanilla beans of different lengths are classified in the following manner: A for 17 cm or longer; B for 14-17 cm; C for 14 cm or less. Among black vanilla beans, glossy black beans are considered to have an even higher grade. The final product is stored in tins (it can be stored for six months). The export shipping methods vary depending on the grade, the amount and the requirements specified by the importer. Typically, vanilla beans are exported to Japan in vacuum packs (transported by sea or by air) and to Western countries in carton boxes (transported by sea). The company reprocesses the product at their in-house facilities when vendors deliver vanilla beans which have not been cured properly.

Based on the three companies' cases mentioned above, the following section analyzes contract farming, the benefits that vanilla producing farmers receive, etc.

(2) Contract Farming and Benefits for Farmers

Based on information about prices at each stage from vanilla producing farmers to export and information about market retail prices in importing countries, this section discusses: the price structure from farmers to the retailers in importing countries; the benefits that farmers receive through contract farming; the correlation between market needs and the price; etc. The results of the analysis do not necessarily reflect the overall picture due to the limited amount of raw data, but they can provide some idea about the current situation.

Price Structure from Farmers to the Retailers in Importing Countries

[Preconditions]
- Subject products: green beans and vanilla beans (A-grade product and products with similar grades) made in Madagascar
- The period when the price information was obtained: June-November 2008 (all the prices used are the market prices for the same period of time)
- The sources of the price information: For the prices from the vanilla producing farmers to exporters, the price information was obtained through an interview with a Madagascan exporter (Company P). For the retail prices in importing countries, the price information was obtained by checking retail market prices in Germany (supermarkets and public marketplaces) and Japan (supermarkets) where field surveys were conducted (the prices for the relevant products in Table S-2 were used in next page).
- Smallholders: They conduct contract farming for exporters. They supply raw materials for processing (green beans) to exporters who employ large-scale farmers. The exporters provide support for smallholders, including training, lending equipment and materials as well as providing financial support.
- The weight of vanilla beans (net weight, average): 5 grams per stick (sample vanilla beans of the same grade were obtained in Madagascar, brought back to Japan and weighed).
- Exchange rates used for conversion (December, 2008)
  US$1 = ¥90.48 = 0.676 Euro = NN 115.00 = Ar 1,700.00
  1 Euro = ¥133.85, NN 1 = 0.787, Ar 1 = 0.053

[Price Estimates at Each Stage]
- Price at which Smallholders Sell
  Green beans: 6,000 Ar/kg (= US$3.50/kg)

When converted to the price for processed vanilla beans (the process yield rate: 20%): US$17.50/kg

- Export price
  Processed vanilla beans: US$35/kg
- Retail prices in importing countries (packed vanilla beans)
  Germany: 2.19, 2.25, 3.20 Euro/stick (= US$3.24, 3.33, 4.73/stick)
  Japan: ¥473 (one stick of vanilla beans) (= US$5.23/stick)
  The average of the above-mentioned four samples: US$4.13/stick (=US$826/kg)
- When simply comparing the above calculation results, the export price is twice the price paid to the vanilla producing farmers (smallholders). The retail prices in the importing countries are about 23.6 times the export price and about 47.2 times the price paid to the vanilla producing farmers in the exporting country.

Table S-2 Price information

	Date / Country name / City name / Collecting point	Commodities	Production country	Packing and apperance	Price	Price US$ conversion
1	November 29, 2008 / Germany /	Vanilla Beans	Madagascar	Plastic package、14cm、black-fine	Euro 2.19 / 1 stick	3.24
	Frankfurt / Supermarket	Vanilla Beans	Madagascar	Plastic package、14cm、black-fine	Euro 4.29 / 1 stick	6.35
	Retail price	Vanilla Zucker (Vanilla suger)	Madagascar	in bag	Euro 1.09 / 8 g x 3bags	6.35
		Vanilla Aroma	No remark	in bag	Euro 1.99 / 20 ml	2.94
		Chillies Gemahlen	No remark	in bag	Euro 3.59 / 45 g	5.31
2	November 29, 2008 / Germany /	Vanilla Beans	Tahiti	Plastic package、17cm、Red-black and thick	Euro 4.50 / 1 stick	6.66
	Frankfurt / Wholesale market	Vanilla Beans	Madagascar	Plastic package、16cm、black-fine	Euro 4.50 / 2 sticks	6.66
	Retail price	Vanilla Powder	Madagascar	in bag	Euro 4.00 / 12 g	5.92
		Cloves Whole	No remark	in bag	Euro 2.50 / 40 g	3.70
		Sesame Seed	No remark	in bag	Euro 2.00 / 200 g	2.96
3	November 25, 2008 / Germany /	Vanilla Beans	Madagascar	Plastic package	Euro 3.20 / 1 stick	4.73
	Bonn / street store	Vanilla Powder	No remark	in bag	Euro 3.00 / 5 g	4.44
	Retail price	Sesame Seed	No remark	Plastic case and polyethylen f	Euro 2.50 / 50g	3.70
4	June 8, 2008 / Japan /	Vanilla Beans	Madagascar	Plastic package、15cm、black-fine	¥ 473.- / 1 stick	5.23
	Tokyo / Supermarket					
	Retail price					

*1) Conversion rate : US$ 1= Euro 0.676 = ¥ 90.68

(Source: made by study team based on site-survey)

Contract Farming and the Benefits that Vanilla Producing Farmers can Receive

Considering the processing costs, it is reasonable that the export price goes up two fold from the selling price of the smallholders. Therefore, exporters are not exploiting smallholders. The smallholders who are involved in contract farming are enjoying a reasonable amount of benefits and it is likely that they have advantages in terms of the benefits they receive when compared to farmers who are not engaged in contract farming. This is backed up by a report which points out that there are income disparities between vanilla cultivation areas and non-vanilla cultivation areas, and between vanilla producing farmers engaged in contract farming and most vanilla producing farmers not engaged in contract farming.[11] As mentioned above, in most cases, collecting businesses and brokers visit the cultivation areas in the harvesting season and purchase green vanillas which most general vanilla producing farmers (smallholders) have just harvested. Since green vanilla beans are perishable, they need to be sold quickly. Therefore, buyers can beat the prices down. There are cases where green beans are sold to buyers at as low as 500-700 Ar/kg, which is much lower than the government-set standard price (see the section on Company P above).

Margin for Distributors in Importing Countries

Even after subtracting the transport costs and distribution costs in importing countries, the fact that the retail price in importing countries is 23.6 times the export price (47.2 times the farmers selling price) shows that a large proportion of the profit is taken by the distributers in importing countries. This could also indicate that there is strong demand for vanilla beans among general consumers. For reference, a similar study conducted in the previous fiscal year (the Basic Study on the Coherence in Policies on ODA and Trade of Agricultural Commodities, Fiscal Year 2007) showed that the retail price in importing countries for vegetables imported from Kenya was 10 times the price paid to farmers.

Market Needs and the Response by Madagascar

Why is the selling price of vanilla beans in the exporting country (Madagascar) so low when compared to the retail price in importing countries? Two reasons can be considered. Firstly, there is export competition due to new participants in the food market (in this case, natural vanilla). One example of a new participant is Tahiti. Typically, vanilla beans made in Tahiti are sold at higher prices than vanilla beans made in Madagascar. In Germany, Tahitian vanilla beans are sold at twice the price of Madagascar's vanilla beans of the same grade (Table S-2). The difference between the two products is that the Tahitian vanilla seeds inside the pods are less sticky and easier to cook, in addition to the fact that it is difficult to cultivate vanilla beans in Tahiti. This factor alone creates the two-fold difference in prices between the Tahitian product and the Madagascar's product. As long as the product is safe and there is no significant difference in flavor, the size and the amount, general consumers of vanilla beans will choose the product which is the easiest to cook. They do not make the decision on which product to buy by comparing the vanillin content.

The second reason for the low price of vanilla beans in Madagascar is increasing demand for artificial vanillin in the processing materials market (which is used in the food industry). The high vanillin content in Madagascar's vanilla beans is a crucial competitive advantage for the food industry (for raw materials for processing). However, as described above, in the food industry sector, demand for artificial vanillin is rapidly growing due to its low price,

11 IFAD Report (Rural Poverty Portal)/2007-2008

stable supply, its stronger flavor than natural vanillin, etc. Declining demand for natural vanilla in the processing materials market is pushing the selling price down.

Therefore, Madagascar will not be able to sustain its competitive position if it relies only on past reputation and the high vanillin content. There will be a need to vigorously promote the development of new varieties and products which can meet diverse market needs, with national-level assistance. When considering the recent trend of increasing awareness about food safety in the consumer market, it may be one idea to conduct research and development for organic vanilla beans which are of a consistent quality and for which stable supplies can be assured, using current cultivation practices which do not use pesticides or fertilizers as their advantage.

Recommendations on the Measures which Farmers (Smallholders) should Take

Naturally, exporters select the producers who have certain capabilities (such as appropriate quality management and scheduled shipping of specific quantities) since the exporters have to invest capital into providing various services for the contract farming partners (producers). It is likely that the producers who are currently involved in contract farming have reached the required levels (or at least those who are expected to reach the required levels). Since the required levels vary depending on different circumstances, they need to be identified on a case-by-case basis, but these levels should be high enough so that the farmers can market themselves at a higher price to the private companies which are directly involved in the exporting industry (such as exporting companies). The majority of farmers have not reached such capability levels.

It will be inefficient and unrealistic for smallholders to immediately work on exporting their products directly. If smallholders can receive more benefits by conducting contract farming for exporters than those who are not involved in contract farming, they should first aim to reach the capability levels needed to begin contract farming.

There are three steps which smallholders can take in order for them to be able to receive more benefits from exporting their products.

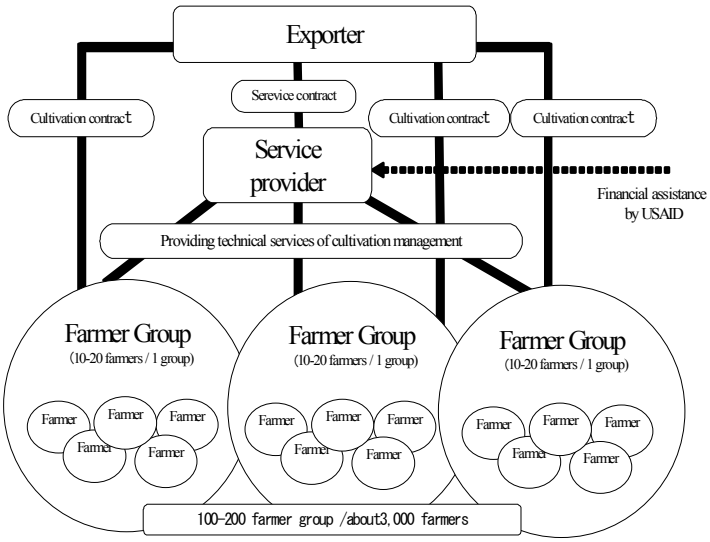
The First Step:
Producers (smallholders) will improve their capability levels, so that they will be able to conduct contract farming for exporters. An effective method to enable such improvements would be to organize themselves into groups. Receiving technical support for the improvement of production processes (cultivation, post-harvest treatment and shipping) would also be effective in achieving the above-mentioned goal. The majority of producers in Madagascar and in Nigeria (as discussed above) have not reached this stage.

The Second Step:
After achieving the goal of the first step, producers should obtain knowledge and know-how about exporting and get market information, as well as cultivating their business sense, by accumulating experience through contract farming. The following assistance can be provided to facilitate the second step: comprehensive support including technology, farming and marketing for organized producers' groups, in cooperation with "service providers" (the private sector) which mediate between producers and exporters. In order to make the assistance more effective, support should also be provided to the

private distribution sectors (exporters and importers, and retailers in importing countries) which actively promote the involvement of smallholders in contract farming.

The Third Step:
Producers' groups will start exporting their products independently. Effective assistance at this stage may include the disclosure of information about market needs and market access (market trends, quality standards, regulations, procedures, partners, exhibitions, etc.).

(3) Contract Farming in Kenya



For reference, this section explains the contract farming system in another African country. Figure S-11 shows the contract farming system for the export of fruits from Kenya. There are three differences between the Kenyan case and the two cases of contract farming mentioned above (vanilla beans in Madagascar and sesame seeds in Nigeria).

Figure S-11 Image of contract farming
Source: Report of the Basic Study on the Coherence in Policies on ODA and Trade of Agricultural commodities, March 2008

Firstly, farmers directly contract with the exporter in the Kenyan system, although brokers are typically involved in the cases of Madagascar and Nigeria. Secondly, the "service provider" who provides various services to farmers on behalf of the exporter is a private third party (who contracts with the exporter) in the Kenyan case. Thirdly, a donor is directly providing assistance to the service provider in the Kenyan case.

It is expected that a direct farming contract (as seen in the Kenyan case) will make the duties and responsibilities clearer than having brokers in between farmers and exporters, and producers can receive more benefits through direct contract. It is also more effective to have a private third-party "service provider" instead of a broker or a contract partner playing this role, in terms of fairness and benefits to producers. Further improvement is expected if public assistance can be provided to this private "service provider" including financial support. This Kenyan system is used for contracts between farmers and a leading exporter of avocados, which is the largest export commodity among fruit crop in Kenya. The exporter is planning to double the number of contract producers in the future, which demonstrates the fact that this system is working effectively.

(4) Regional Platform for Consultation of Vanilla Chains

In 2007, the Regional Platform for Consultation of Vanilla Chains (the "Platform") was established in Sambava District, in order to promote exports. The membership includes the related government agencies, the exporters' organization (national level), the processors' organization (district level) and the producers' organization (district level). Exporters took the initiative in establishing and operating the platform, in order to manage the value chain of vanilla beans from production to export. The current goals of the platform are to establish a value chain for domestically processed vanilla and to eliminate informal trading. The impact of their activities on benefits for farmers (especially smallholders) is not clear at present.

(5) Quality of vanilla beans

As described above, there are five grades for the quality of vanilla beans for export, namely A, B, C, D and E. The criteria for classification are: the color (the blacker the better); the length (the longer the better); the flavor, splits (the smaller the better); the moisture content; whether or not there is any foreign matter (pieces of metal, etc.); the vanillin content; etc. The only difference between lower-grade vanilla beans and higher-grade vanilla beans is that the appearance is different. The lower-grade beans are much cheaper but the quality is the same (in terms of the vanillin content, etc.) as the higher quality beans. Therefore, buyers from Western countries often specify lower-grade product when they purchase vanilla beans, partly because they purchase the product for the food industry. On the other hand, Japanese buyers tend to purchase the highest-grade product regardless of its usage.

Much of the sorting (grading) by exporters and processors relies on people's senses of sight, smell and touch (color, splits, flavor, etc.) This prevents the improvement, consistency and standardization of quality, fair trade and the supply of stable quantity. This also puts producers in a disadvantageous position. In addition, the product is essentially traded by weight and therefore fraud by producers seems to be found occasionally (such as mixing nails into their product in order to increase the weight).

3.3 Potentials and Problems Regarding Vanilla

The following summarizes the currently conceivable potentials and problems.

(1) Potentials

- The world's largest production and export (particularly to Japan and major Western countries)
- A high percentage of exports out of total production (an established export industry and accumulated experience)
- High vanillin content
- Increasing trend of global demand for vanillin
- Potential as a cash crop for the acquisition of foreign currency and for the improvement of farmers' income (poverty reduction)

(2) Problems

- Producers cannot flexibly alter production in order to respond to fluctuations in the international market.
- Standardization of curing systems
- A lack of objective quality standards and quality evaluation systems

- A lack of awareness about quality
- Disease control at the cultivation stage
- A lack of marketing (meeting market needs, market development/expansion and product development)
- A lack of packaging facilities and materials for vanilla beans (particularly vacuum packing facilities)
- Producers' cooperatives which can sell products have not become popular.
- There has only been a limited development effort to produce new varieties.
- It is difficult to obtain inputs, materials and equipment (in terms of price and quantity).
- High transport costs (roads and vehicles)
- Income disparities between farmers in vanilla producing areas and non-vanilla producing areas, as well as income disparities between vanilla-producing smallholders and large-scale farmers
- The high demand for artificial vanillin by the food industry in developed countries
- Emerging new vanilla producing and exporting countries

3.4 Production, Harvesting and Processing of Cloves

(1) Production and Harvest (Manual Work)

In Madagascar, clove production areas are scattered around a region which extends more than 900 km along the east coast. As part of the field survey, the study team visited the east side of the central part of the island (Analanjirofo Region which is 100 km away from Toamasina) where 90% of local farmers produce cloves and 70% of cash incomes come from the production of cloves. The Analanjirofo Region is affected by cyclones almost every year. 60% of clove trees were affected by a direct strike by a cyclone in 2007. This caused prices for the cloves which were not affected or for the cloves which were only slightly affected to fall along with damaged cloves. The producers who need cloves for their own use or for processing sometimes visit other areas which are less susceptible to cyclones in order to purchase cloves. This area is susceptible to cyclones for the following reasons: the clove trees in this area are old (40 years old); the area often experiences direct hits because of its topography; the trees tend to swing violently during cyclones because the roots grow vertically, this loosens the soil around the roots and this causes trees to die; etc.

The main production area for cloves is the Northeastern part of the country (Mananara-Maroantsetra). Due to its topography, the area is sheltered from cyclones and the product is known to be of a high quality. Cloves are planted on the hills and on mountain slopes. It takes two years for clove seeds to grow into seedlings. The plants can be harvested 7-8 years after planting the seedlings. Typically, cloves are harvested in November or December. Buds are hand-picked when the buds mature and just before they flower (they are pulled off by hand, without using equipment). The stalk of a bud contains the spice. The best time for harvesting is when the color of the stalk turns from green to reddish-pink. It is known that some producers harvest them before they mature because the buds are often stolen around harvesting season, since cloves are a cash crop.

(2) Post-Harvest Treatment and Processing

Figure S-12 shows the typical procedures for post-harvest treatment, processing and shipping.

After harvesting, the cloves are sun-dried for 4-5 days. When dried, the stalks of the buds

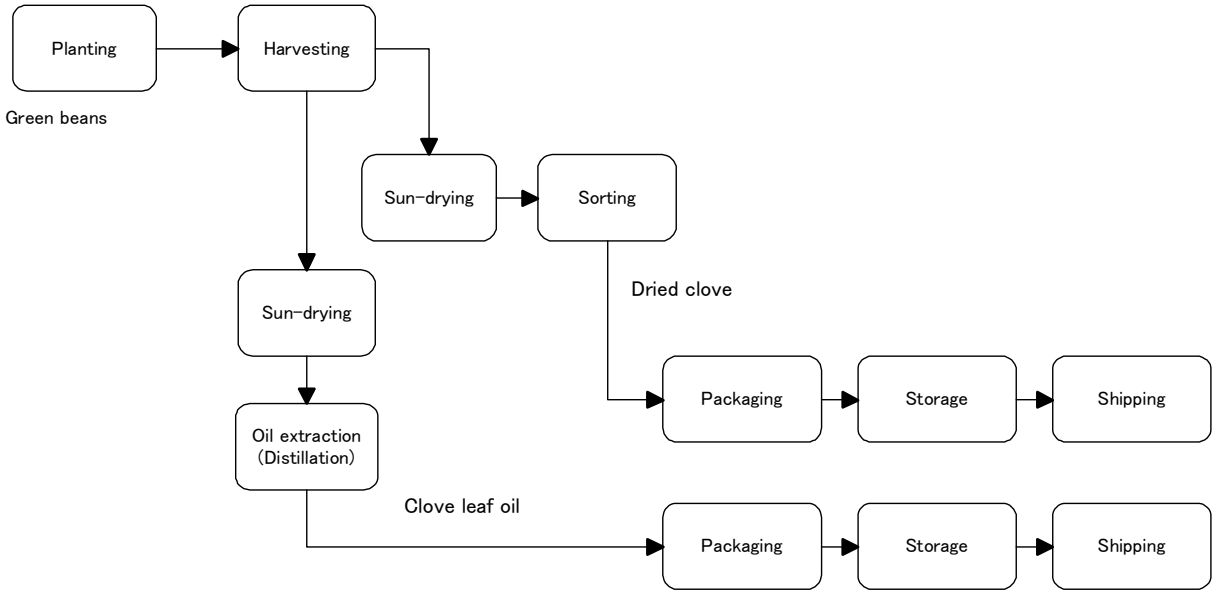
turn brown. The dried cloves are refined, sorted and packed in bags and then stored in a warehouse, before being shipped for export. The main producers and harvesters are smallholders. The product only needs simple drying (sun-drying) and sorting (using the senses of sight and touch) processes, before it is packed and shipped. The current levels of technology are low. Typically, harvesting (hand-picked) and drying (sun-drying) are conducted by producers and sorting is conducted by exporters. Harvesting and post-harvest treatment (drying and sorting) are all performed manually.

Clove leaf oil is widely manufactured by the involved parties including the producers of cloves. Clove leaf oil is extracted from dried clove leaves through distillation. In Analanjirofo Region (situated near Toamasina), 24 producers' cooperatives have been provided with eight oil manufacturing devices through a project,[12] and they have been selling the product to exporters. Apart from sales of the oil, the cooperatives provide a service to process leaves for a fee to producers who are not members of the cooperatives (the processing fee is one tenth of the price of the extracted oil). The oil (crude oil) is mainly exported to the EU. The final goal is for the cooperatives to directly export the product.

Manufacturing and Sale of Clove Leaf Oil by Farmers:

- Clove leaves are placed in water and boiled (using firewood) → Oil is extracted (through distillation. Six liters of oil is extracted after 24 hours).
- Selling price: 8,000 Ar/liter
- Farmers walk to a nearby shop to sell the product. The buyers seem to be the collecting businesses.
- Farmers also sell cloves (buds). The selling price: 3,400 Ar/kg

It is believed that clove leaf oil (crude oil) is sold by collecting businesses to exporters, and then exported to Western countries.



Source: Study team

Figure S-12 Typical procedures for post-harvesting, processing and shipping of Cloves

12 PPRR (Programme de Promotion des Revenus Ruraux: the Programme for the Promotion of Rural Revenue, financially supported by the IFAD). CTHT/CTCP (Centre Technique Horticlole de Tamatave/Centre de Transformation et de Conservation de Produits) are serving as service providers who provide technical support.

3.5 Distribution and Export of Cloves

Figure S-13 shows the typical routes for export and domestic distribution of Madagascar's cloves.

(1) Export Industry

With 60-80% of production being exported, there is an established clove export industry. There are about 20 exporting companies, among which five are major companies. The product is essentially transferred from producers to the collecting businesses and then on to exporters. There are different sizes of collecting businesses depending on the size of the area they cover. Exporters procure the product from relatively large-scale businesses that operate over a wide area. One major exporter sold 40% of their product to Western countries and 50% to Asia in fiscal year 2007. Most of the product exported to Asia went to Singapore. As mentioned above, Singapore is serving as a trading hub. Normally, cloves are exported in the form of raw materials (dried buds) and they are then processed (into clove powder, etc.) within the importing countries.

In the harvesting season, exporters and their agents visit the production areas and purchase cloves directly from farmers. The typical distribution route is: smallholders → local small-scale collecting businesses → large-scale collecting businesses which operate over a wide area → exporters or local markets in the State Capital. Some smallholders sell their product directly to wide-area large-scale collecting businesses. In either case, the trading is conducted in the smallholders' cultivation areas. Smallholders sell their product on the harvesting day or on the following day. They often barter their cloves for other commodities which local collecting businesses offer. This allows the businesses to take the initiative in deciding on the value of the cloves and therefore the smallholders are put in a disadvantageous position.

It is likely that leading exporters have a certain level of linkage with specific wide-area collecting businesses. However, in this field survey, the study team could not identify any "contract farming" or "vertical integration" which was seen in the cases of Madagascan vanilla and Nigerian sesame seeds. This might be because cloves require relatively simple procedures for cultivation, harvesting, post-harvest treatment and processing, unlike vanilla and sesame seeds.

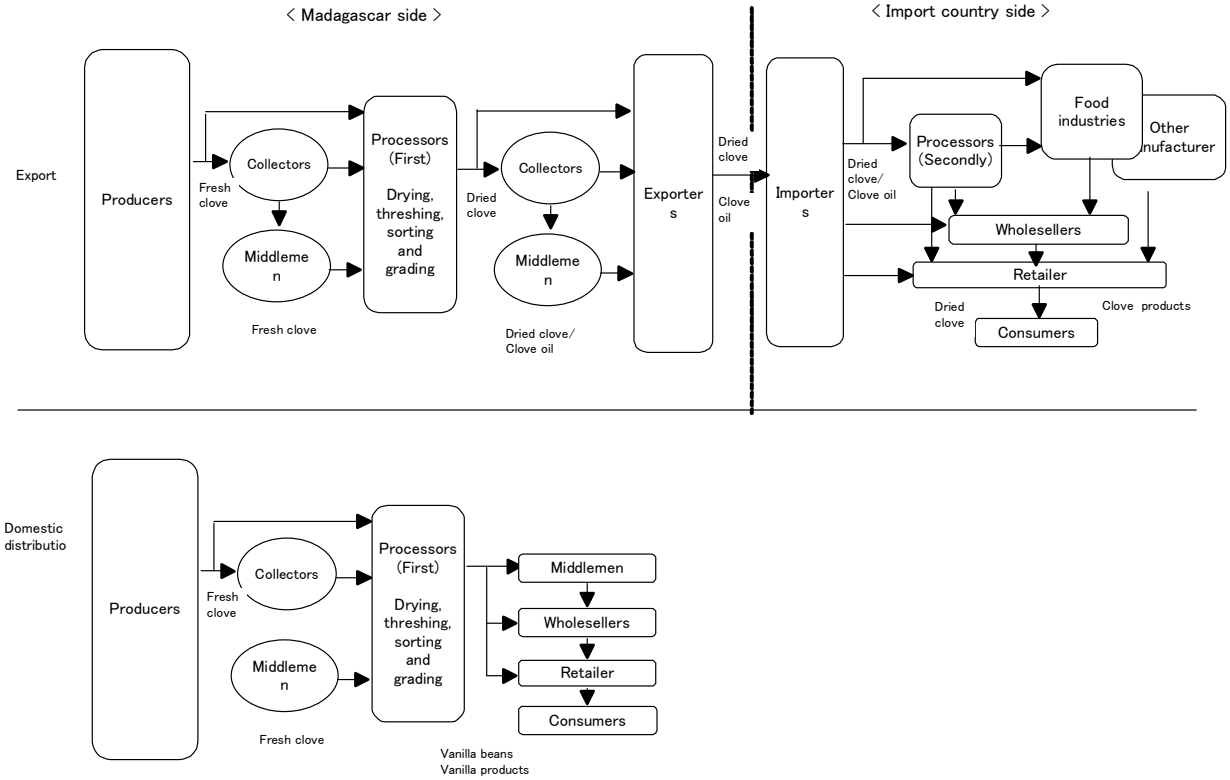
<u>The Main Information Obtained through an Interview with an Exporter (Company S, one of the Five Major Companies)</u>

- Company S exports vanilla, pepper and lychees as well as cloves.
- The company exported cloves to the following destinations in 2007: 300 tons to the EU; 400-500 tons to Asia (among which 300-400 tons went to Singapore, which then re-exported 100-150 tons to Indonesia and India); and 50 tons to the US. No cloves were exported to Japan.
- Export price for cloves: US$2.5-3.0/kg
- There are about 500 small and large collecting businesses in the area, of which the company trades with 14 or 15 businesses.
- Procurement route: producers → collecting businesses (large-scale businesses which operate over a wide area) → the exporter

- There is no platform in place, unlike the trading of vanilla.

- Typically, the producers harvest and sun-dry the cloves, before selling them to collecting businesses. The price is decided based on weight. The majority of the collecting businesses are individuals. Wide-area large-scale collecting businesses own trucks. The exporter conducts refining and sorting of the product. When the delivered cloves are determined to be insufficiently dried, the exporter dries the product once again. The company specifies the maximum moisture content to be 13%. The moisture content is determined by touching the cloves. Cloves are considered to be sufficiently dry when they can be crushed easily between the fingers. Cloves are sold by weight and this leads to fraud. In fact, smallholders often deliberately ship their product while it is not dried enough (still moist) or ship their product mixed with foreign matter.

- At the exporter's sorting workshop, women's groups only remove foreign matter. They do not sort the product based on whether the cloves have heads (buds) or not. This is because the exporter expects the sellers (producers and collecting businesses) to sort their product properly since they are aware that the product will be traded at a low price or trading will be suspended if defective product (with no head) is found during trading.



Source: Study team

Figure S-13 Typical routes for export and domestic distribution of Madagascar's cloves

Marketing Access Centers (Public Marketplaces)

In 2006, eight Marketing Access Centers were established in the Analanjirofo Region (mentioned above) through the PPRR project. The centers' members are producers. The centers offer marketplaces which connect sellers (producers) with buyers (the main target

buyers are the exporters). Various agricultural products are traded at the centers including cloves, rice and mustard. Standard prices and the profit allocation (50% to producers) are determined every year. By 2008, a small amount of products had been traded (including 2.87 tons of cloves sold to two exporters). The producers sun-dry the cloves, sort them (remove foreign matter and select cloves with heads) and pack them before selling them to the centers. The centers only accept product which contains less than 5% of headless cloves and which contains no foreign matter. The actual trading is conducted based on volumes which are measured using a container called "capo."

Although it is a noteworthy effort, the member producers point out the following problems. (1) Strict cultivation management is required (a lack of knowledge). (2) The payment system from the centers to the producers is not working effectively (because the center does not have enough budget to run their advance purchase system). (3) The producers are affected by cyclones almost every year and therefore they need to plant new seedlings[13] every year (which leads to high production costs). (4) There is a shortage of seedlings. (5) Producers wish to sell their product at a minimum of 5,000-6,000 Ar/kg. They cannot make a profit at the standard price that the centers set (3,000-4,000 Ar/kg).

Therefore, the member producers doubt the profitability of using the centers. The standard price is determined every year through consultations with involved sectors including exporters. However, it is difficult to avoid the strong influence of the buyers (exporters). The challenges include how to make the system benefit the smallholders and how to improve the operation of the centers.

(2) Quality of cloves

Several standard parameters for evaluating the quality of cloves for export are shown in the "Market of Cloves in European Union"[14]: (1) appearance (cloves with a closed head (bud), with a brown stalk and a light brown head); (2) the oil content (17% volatile oil content and 5-10% nonvolatile oil content); and (3) the maximum percentage of foreign matter (1% or less). In reality, individual importers set their own quality standards (including the moisture content, etc.), which are more detailed and specific. The importers often assess the quality by checking samples which are sent by exporters before loading the product. The EU specifies the product grades based on the country of origin. Madagascan cloves are specified as CG1 (the highest quality) and CG3 (standard quality).

However, the sorting of the product by the exporters before shipping largely relies on people's senses of sight and touch in Madagascar, as was seen in the case of vanilla. The quality is determined based on whether cloves have a head (bud) or not, the moisture content and whether they contain foreign matter or not. The moisture content is checked by squashing the product between the fingers, as described above. They do not examine individual cloves to see if they have heads.

3.6 Potentials and Problems Regarding Cloves

The following summarizes the currently conceivable potentials and problems.

13 There is a nursery established by the PPRR. The PPRR purchases seedlings from two seed and seedling associations and 12 individuals, which are then distributed to producers. Producers only need to purchase seedlings in the first year unless there are outbreaks of diseases or field expansion plans. However, due to cyclone damage, etc., many producers purchase new seedlings every year.

14 International Trade Centre/UNCTAD/WTO "The Market of Cloves in European Union" (2006)

(1) Potentials

- A large amount of production and export
- Competitive position in the Japanese market (the biggest supplier to the Japanese market)
- A high percentage of exports out of total production (an established export industry and accumulated experience)
- Potential as a cash crop for the acquisition of foreign currency and for the improvement of farmers' income (poverty reduction)

(2) Problems

- The cultivation areas are widely scattered. Many of the clove trees are old.
- The east side of the central part of the island is susceptible to cyclone damage.
- Some areas are excessively reliant on cloves.
- Low quality of the facilities for post-harvest treatment, processing and packing
- A lack of awareness about quality
- Unstable quality and price
- A lack of marketing (meeting market needs, market development/expansion and product development)
- A lack of objective quality standards and quality evaluation systems (trading on a weight basis which leads to fraud)
- Insufficient public-private quality check systems (lacking a system which meets the requirements of importers)
- A lack of access roads from production areas to markets

4. Policy Coherence and Development Cooperation Provided by a Donor: the German Case

4.1 The Framework for Discussion on Policy Coherence in the Study

The study looked into policy coherence from two standpoints: the "coherence of policies on development" and the "consistency between ODA policies and domestic policies." Germany is taking a value chain approach in their aid for trade and it is promoting policy coherence and public private partnership (PPP).

4.2 Activities for "Coherence of Policies on Development" by Germany

After the change of government in 1998, the German government made a clear commitment to development cooperation and announced its commitment to increasing the quantity of ODA as well as improving the quality of aid in compliance with the Paris Declaration on Aid Effectiveness, with the aim of achieving the Millennium Development Goals (MDGs). The government also centralized responsibility for development policy within the Federal Ministry for Economic Cooperation and Development (BMZ) and strengthened the authority of the BMZ. In 2001, the German Cabinet decided on the Action Plan 2015 and the government launched a consistent approach in order to achieve the goal of reducing poverty by half by 2015.

4.3 Value Chain Approach

The German government has been taking the "value chain approach" in their cooperation for agricultural exports. It is a market-oriented approach which is designed to enable the poor to benefit from the globalized economy. GTZ has conducted cooperation based on the value chain approach in about 30 countries. It has achieved a high reputation by conducting activities based on the value chain approach, with the belief that ensuring market access for the poor is a sustainable solution to the poverty problem.

A value chain is a production-related process which includes the provision of production factors, production, processing, marketing, distribution and final consumption. With the progress in economic globalization, the value chain approach is designed to create a competitive value chain for the relevant commodity, so that an industry can participate in the global market. This approach is also designed to allow the poor to participate in the value chain.

There are two problems in implementing the value chain approach. PPP is being introduced and comprehensive and multi-level countermeasures are being taken in order to solve these problems.

Problems in the value chain approach		Countermeasures
(1) It is difficult to reach the stage where the products can be exported through the value chain approach.	→	PPP which helps the value chain approach: A framework for a value chain is created and private exporting enterprises are introduced.
(2) The impact is limited.	→	Instead of only targeting one specific actor, a more comprehensive and multi-level approach is taken. The cooperation then takes measures for the improvement of policies and systems, as well as taking measures for the policies related to the establishment of economic frameworks and improving the business environment.

Regarding the implementation of PPP, there are some questions which need to be answered such as the justification as to why development funds should be used by the private sector and how the private companies should be selected. The responses of the German government to these questions are that ODA funds will be used to promote company activities other than their core business, which contributes to development, and that the chance to participate will be available to a wide range of companies through information disclosure.

In Germany, PPP has been implemented since 1999 in the areas of economic development, water resources, agriculture, the environment, health and energy. More specifically, PPP has been implemented for the improvement of labor conditions through the introduction of environmental and social standards, the introduction of appropriate technologies, HIV/AIDS education, etc.

The German Development Institute conducted an evaluation of PPP in 2002. The positive side of PPP is that it mobilized additional funding for development from the private sector, deepened discussions on development issues with the private sector and promoted the understanding of development by the private sector. The problems with PPP were that the

individual projects had a limited impact and failed to provide structural solutions to the problems that the recipient countries face. In response to this evaluation, the aid organization is taking action to introduce PPP as part of the value chain approach.

For example, GTZ is promoting social and environmental standards through PPP. They utilize the standards as tools to promote socially and environmentally responsible globalization, through the introduction of a voluntary certification system and production code for agricultural products, for example. Through these activities, GTZ is helping private enterprises to participate in local communities, ensuring sustainable trade and promoting the improvement of social and environmental standards.

4.4 Comparison of Cooperation for Agricultural Exports Provided by Germany and Japan

Similarly to Japan, the German government is providing cooperation within the framework of German agricultural policy. Due to the need for compliance with EU policy, the issue of policy coherence has been discussed within the German government. On the other hand, the Japanese government has been integrating the Development Initiative into its development policy since the announcement of the initiative in 2005. With regard to PPP, the Japanese government announced the policy to promote public private partnerships in order to accelerate economic growth in developing countries in April 2008 and the government is currently discussing activities for the implementation of PPP.

The study compared the cooperation activities on agricultural exports from Africa conducted by Germany, the US and Japan. It was discovered that there are significant differences between the approaches taken by the three countries. Germany uses a combination of "the value chain involving PPP" and the "improvement of the policy framework which will enable the participatory bottom-up approach and the scaling up of the cooperation." The US conducts "activities based on market needs which will directly lead to exports" and these activities are led by NGOs and consultants. Japan focuses on support for the recipient country's own efforts, development initiated by the recipient countries and capacity development.

III. The Direction of Japanese Cooperation for Agriculture in Africa

1. Recommendation on the Direction of Cooperation which Enables Mutual Cooperation and the Development of Agriculture in Japan and Africa

1.1 Cooperation which can Contribute to Japanese Policy Goals in Addition to Cooperation Objectives: Towards Policy Coherence

In order to gain public support for ODA, it is necessary to ensure that the implementation of ODA contributes to Japanese policy goals as well as contributing to cooperation objectives. It is also desirable that ODA activities contribute to the resolution of global issues such as problems concerning food and poverty. Therefore, there is a need to consider a cooperation approach which can contribute to both development goals and domestic goals, in order to avoid contradictory policies between development policy and domestic policy.

The study selected shea nuts, sesame seeds, vanilla and cloves as the commodities to be

subject to the study. Japan relies on imports for the supply of these commodities. If assistance is provided for the import of commodities which Japan does not produce or Japan produces only a limited amount, such assistance does not compete with the interest of Japanese agriculture. Therefore, the cooperation provided to promote the import of commodities which do not compete with Japanese agricultural products will enable the development of both Japanese agriculture and agriculture in Africa. This type of cooperation can contribute to the achievement of the "stable supply of safe food" which is a domestic policy goal, and to the achievement of "poverty reduction" which is a development policy goal.

Private companies are involved in the importation of these commodities. Therefore, there should be appropriate reasons for the utilization of ODA funds for these imported commodities. PPP involving importing companies can be considered as a means to provide cooperation for export promotion. In order to utilize ODA funds in the PPP, it is necessary to ensure that the PPP will contribute to the achievement of development policy goals including "poverty reduction," "environmental conservation" and "sustainable growth."

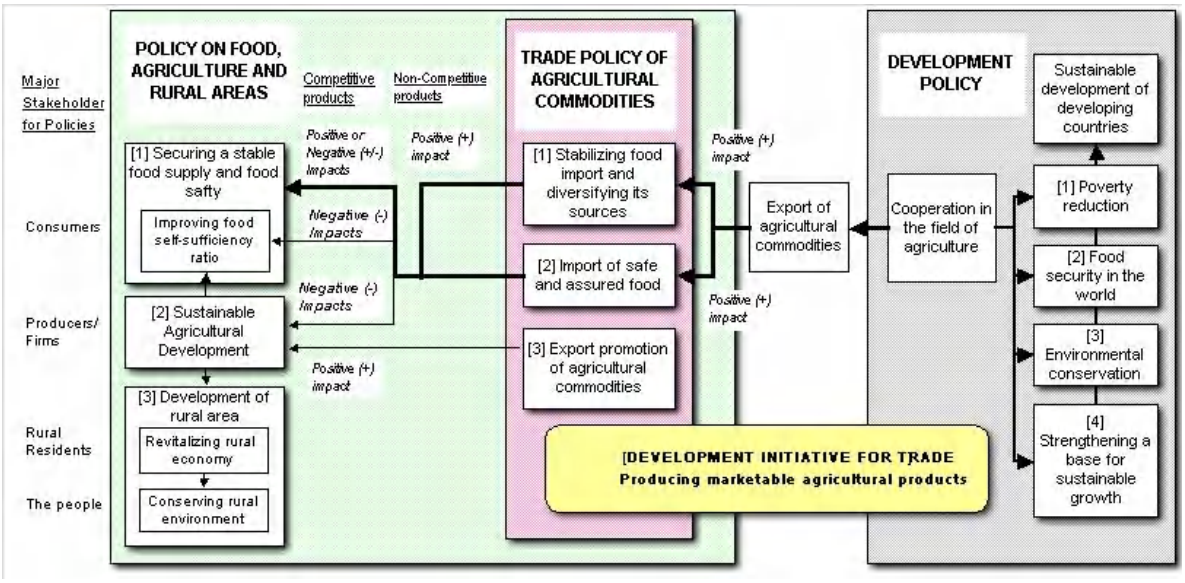


Figure S-14 Framework of discussion on policy coherence: Policy linkage

It is also necessary to inform the public about the effects of this type of cooperation by releasing public information about ODA, etc. in order to gain support from the public and the interested parties. The effects of the cooperation are expected to include: contributing to the achievement of development goals through promoting poverty reduction, environmental conservation, economic growth and food safety in Africa; and contributing to the achievement of global food security and the stable supply of safe food in Japan. More specifically, by supporting export promotion in Africa, the cooperation will contribute to the improvement of producers' income (in the upstream part of the value chain) as well as contributing to the "stable supply of safe food" to consumers in Japan (importing country in the downstream part of the value chain), who are the target population for domestic policy.

1.2 Cooperation for Connecting the Value Chain and the Promotion of PPP

In order to improve farmers' income, it is necessary to study the value chain for each commodity. Unless the structure of the value chain is designed to benefit smallholders, the

cooperation will only benefit the involved companies. There are different types of value chains (from the production stage to the export stage) for different export commodities in Africa. In the case of commodities which were investigated in the study conducted this fiscal year, the further you go upstream in the value chain, the more informal and disorganized the involved parties get. Exporters, who are the most formal party, have the strongest bargaining power. In addition, there is little cooperation between the parties involved in the process from production to export and therefore it is difficult for market needs to be communicated to the upstream parties. The major challenge which needs to be resolved for the expansion of exports is the quality control issue. Therefore, it is necessary for the quality requirements of the market to be transferred from exporters to processors, distributers and producers. It is also important that quality is reflected in the prices paid to all the parties. As part of such a closely-connected value chain, a quality management system should be created in order to meet the market requirements.

Therefore, there is a need for a system through which the requests of the market in the importing countries can be communicated throughout the value chain (from the downstream parties to the upstream parties). One way to achieve this is to combine PPP and the value chain approach which aims for the production of value added products.

1.3 Smallholders' Participation in the Market and Improvements in Market Access

In order for the cooperation for export expansion to contribute to poverty reduction which is a development policy goal, it is necessary to create a system through which value chains can benefit smallholders, who tend to be excluded from value chains. In order for exports to benefit smallholders, it is necessary to create a system where smallholders can cooperate with each other so that they can increase their participation in the market. Smallholders' capacity development is needed in order for them to meet market requirements. The farmers should also be able to receive incentives from the market. One way to achieve market access by the farmers is to organize farmers into groups which can then work to improve quality management and strengthen their bargaining power. The smallholders need to improve their capabilities in product quality management and the scheduled shipment of specific quantities of products. This will enable smallholders to participate in the value chain and benefit from the value chain.

The results of the case studies on contract farming and cooperatives showed that contract farming and cooperatives have a positive effect on farmers, including improvement of their capabilities, participation in value chains and improvement in their income, when compared to other cases where farmers do not participate in these systems. However, most African farmers do not participate in either contract farming or cooperative systems. It would be difficult for farmers to immediately start their own cooperatives. It is more realistic for farmers to work on improving their capabilities (such as quality management and scheduled shipment of specific quantities) which will enable them to participate in contract farming. It is also necessary to create a system of PPP which will ensure that contract farming will benefit smallholders. Farmers should then start to work on creating cooperatives.

Therefore, the study recommends "three steps to achieve contract farming with exporters through smallholder capacity development."

(1) Support should be provided to improve the producers' capabilities in order for them to conduct contract farming for exporters. Producers should be organized into

groups, so that support can be provided at the group level.

(2) Producers should obtain knowledge and know-how about exporting and gain market information, as well as cultivating their business sense, through contract farming as organized producers' groups. As a support tool for the second step, "service providers" should be brought into the system and comprehensive support including technology, farming and marketing should be provided through the service providers.

(3) Producers' groups start exporting their products independently. Effective assistance at this stage will include the provision of Japanese information about market needs and market access.

1.4 Strengthening the Support for Supplementing the Capacity of Market Players

The cooperation may promote exporting by the market players who are subject to the cooperation, but its effects would be limited to specific enterprises or specific areas. The capabilities of the market players are also limited. Therefore, it is important to strengthen support for market players in order to increase the impact of the cooperation. For the cooperation to have a larger impact, it is also necessary to improve the business environment, by establishing restrictions, rules, etc. at the macro-level.

1.5 Improving the Business Environment in Order to Increase the Impact of the Cooperation

In order to increase the impact of the development effort, it is necessary to improve the business environment, by establishing policies, rules, etc. at the macro-level. Public institutions can make the following improvements to the business environment: the establishment of government policies and systems, the establishment of quality management standards, the establishment of rules, improving inspection and certification, improving market access and public services. Cooperation should be provided to these infrastructure developments.

The direction of cooperation described above is shown the diagram below.

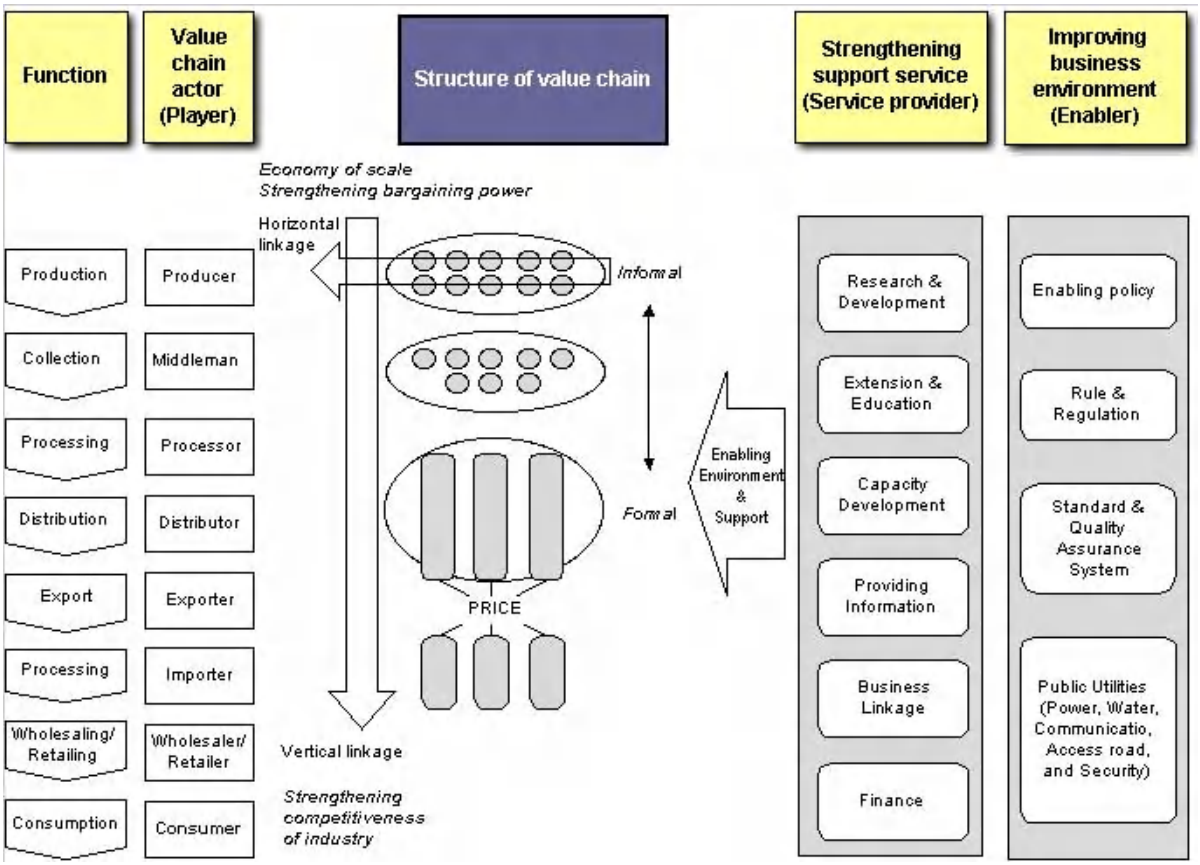


Figure S-15 Value Chain Approach to export agricultural commodities and the Direction of Cooperation

1.6 Promotion for the Production of Processed Food and Cash Crops Focusing on Growing Asian Markets

Asian markets as well as developed countries are becoming important markets for agricultural products. Therefore, the possibilities for future cooperation should be considered in terms of the global trade in agricultural products between Africa and Asian markets as well as the trade between African countries and developed countries. In particular, East Asia has the potential for increased demand for food, as shown in the East Asian Food Industry Revitalization Strategy (2006) and the New Economic Growth Strategy (the revised version, the Ministry of Economy, Trade and Industry, September 2008). The Japanese government has announced its policy to expand food exports to East Asia. Therefore, it is necessary to consider consistency between this policy and ODA.

2. Direction of Cooperation which will Contribute to the Capacity Development of Countries Studied Regarding Agricultural Exports

2.1 Direction of Cooperation which will Contribute to the Capacity Development of Nigerian Agricultural Exports

The main crops in Nigeria are food crops such as cassava and yams. Shea nuts and sesame seeds, which can be used to manufacture vegetable oil/fat, have the potential to serve as the source for a cash income which would supplement the income gained from food crops, as

described in Chapter 2. Cooperation for these crops can lead to poverty reduction for smallholders, women and children who are the main producers of shea nuts, as well as revitalizing the rural economy.

Therefore, it may be desirable to conduct cooperation which supports the diversification of income sources through the production of shea nuts and sesame seeds, based on market needs. When conducting such cooperation, it is necessary to make sure that the cooperation is supplementary to other types of cooperation provided by German or US aid organizations such as their development efforts for the private sector and the strengthening of export capabilities.

(1) Direction of Cooperation for Shea Nut Exports

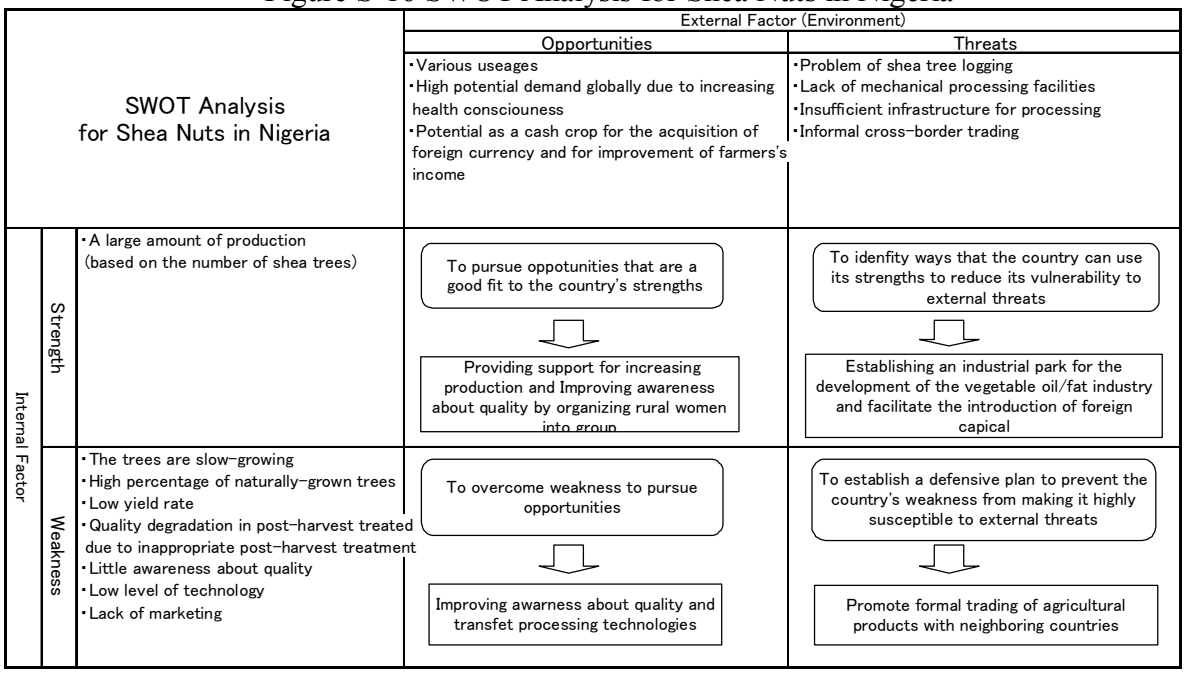
Nigeria has the largest production of shea nuts among the countries which comprise the shea production area in Africa (the "shea belt"). Shea nuts are harvested from the fruits which fall from naturally-growing trees. Rural women conduct this work as secondary work and the yield rate is low. The quality of nuts easily deteriorates because of insufficient post-harvest treatment and inappropriate storage conditions. Shea butter has traditionally been used for cooking and as a skin care cream product in Nigeria. Due to the increasing popularity of shea butter in other countries, many farmers have become interested in the production of shea nuts as an income source, but the majority of the producers are rural women and they are forced to sell their product to brokers.

Nigeria was the largest export country for vegetable oils/fats in the world, but vegetable oils/fats produced in Nigeria are now mostly produced for domestic consumption, as a result of changes to international prices. Similarly to other seeds for oils/fats, shea nuts are exported mostly in the form of seeds and only a few processed products are exported.

By analyzing the current status of shea nuts from production to export, the potentials and problems regarding shea nuts were identified in the report. The study team then considered strategies to promote the export of shea nuts based on these results. The diagram on the SWOT analysis shown below explains possible strategies for the expansion of exports. The following agricultural cooperation should be provided in order to support these strategies.

- Provide support for increasing production and improving awareness about quality by organizing rural women into groups.
- Establish an industrial park for the development of the vegetable oil/fat industry and facilitate the introduction of foreign capital.
- Promote formal trading of agricultural products with neighboring countries and promote cooperation with neighboring countries on processing technology.

Figure S-16 SWOT Analysis for Shea Nuts in Nigeria



Source: Study team

(2) Direction of Cooperation for Sesame Seed Exports

The percentage of exports out of the total production of sesame seeds is 60-80% in Nigeria. Most of the sesame seeds are exported in the form of seeds. Japan is the main export destination.

Some organized producers (15% of the total number of producers) are conducting contract farming for exporters. They receive seeds, fertilizers and training from the exporters. Agents collect the sesame seeds from producers and deliver them to the exporters. When there is a shortage of sesame seeds, agents procure the shortfall from brokers and deliver both products to the exporters.

Recently, aflatoxins have been detected in sesame seeds exported to Japan. They can become contaminated during cultivation, harvesting, sun-drying, storage, or at the transport and packing stages. One cause for the contamination may be a lack of production standards.

By analyzing the current status of sesame seeds from production to export, the potentials and problems regarding sesame seeds were identified in the report. The study team then considered strategies to promote the export of sesame seeds based on these results. The diagram on the SWOT analysis shown below explains possible strategies for the expansion of exports. The following agricultural cooperation should be provided in order to support these strategies.

- Provide techniques/technologies to farmers' groups and provide support for the expansion and the improvement of contract farming.
- Create and disseminate farming standards which will ensure the quality and safety of sesame seeds.
- Improve the infrastructure for post-harvest treatment, drying, storage and distribution of

sesame seeds.

- Introduce new varieties in order to differentiate the Nigerian products from other countries' products. Promote marketing for market expansion.

Figure S-17 SWOT Analysis for Sesame Seeds in Nigeria

SWOT Analysis for Sesame Seeds in Nigeria			External Factor (Environment)	
			Opportunities	Threats
			・High potential demand globally due to increasing health consciouness ・Potential as a cash crop for the acquisition of foreign currency and improvement of farmers' inco	・National Sesame Seed Association is not functioning properly ・Limited potential for exporting sesame seeds ・Theat of emerging competitor countries ・Needs for differentiation by improving quality
Internal Factor	Strength	・Established trade relationship between Nigeria and Japan ・Established system for export which has been developed over a long period	To pursue oppotunities that are a good fit to the country's strength ⇩ Provide technologies to farmers's groups and provide support for the expansion and the improvement of contract farming	To idenfity ways that the country can use its strengths to reduce its vulnerability to external threats ⇩ Introduce new varieties in order to differentiate the Nigerian products from other countries' products. Promote marketing for market expansion.
	Weakness	・Production and quality management ・Lack of objective quality standards ・Inappropriate post-harvest treatment methods ・Lack of refining facilities ・Expensive inputs (fertilizers etc.) ・Insufficient inftastructure ・Smallholders are not in control of cultivation ・There is no assistance available to smallholders	To overcome weakness to pursue opportunities ⇩ Create and disseminate farming standards which will ensure the quality and safty of sesame seeds	To establish a defensive plan to prevent the country's weakness from making it highly susceptible to external threats ⇩ Improve the infrastructure for post-harvest treatment of sesame seeds

Source: Study team

Product quality control is an issue which should be tackled urgently, considering the recent incident of aflatoxin contamination of sesame seeds exported to Japan. Large quantities of sesame seeds are exported around the world and the quality control problem should be tackled by involved businesses. However, the field survey revealed that, in a developing country such as Nigeria, it is extremely difficult for companies alone to ensure the implementation of quality management from the production stage, because the product (such as sesame seeds) is produced by small-scale producers who are scattered around the country. Therefore, an important issue is the method used for public private partnerships, i.e. how public cooperation should be provided to a sector which is already a profitable business. This issue often arises in situations where both ODA and business are involved. There is a need for ODA and business to deepen their understanding of each other and to cooperate with each other.

Therefore, it is necessary to conduct activities which aim for the stable supply of safe food, with cooperation between the private sector (companies) and the government (ODA). More specifically, a study should be conducted through PPP in order to identify where the problems lie and what should be done in order to implement quality control. The countermeasures should then be discussed.

After identifying the problems through such studies, the following measures can be considered in order to ensure quality management: 1) facilitate the creation of farmers' groups and the fostering of entrepreneurs, as well as promoting contract farming, in order to improve quality management; 2) improve the capabilities of public institutions for the implementation of regulations and certification by introducing a quality management system which supports the efforts of farmers and enterprises.

2.2 Direction of Cooperation which will Contribute to the Capacity Development of Madagascan Agricultural Exports

(1) Direction of Agricultural Cooperation with Madagascar

Japan is already conducting agricultural cooperation with Madagascar for rice. In order to supplement this cooperation, it is desirable that Japan should provide cooperation which will contribute to the increased and stable income of smallholders through the diversification and commercialization of their products, while sustainably conserving and utilizing rich natural resources which are Madagascar's strongpoint.

Japan should therefore conduct cooperation which combines the following activities.

1) Sustainable Management using Agro forestry
   Sustainable and disaster-resistant agro forestry systems: Develop agroforestry systems which are suitable for the local conditions and are ecologically stable, by having diverse crops growing together which can also diversify income sources.

2) Management of Resources by Communities
   Promote natural resource management by communities. In order to ensure the sustainable utilization of resources, the communities (who are the users of the resources) themselves should manage and utilize the resources in a sustainable manner.

3) Commercialization of Products through the Capacity Development of Smallholders:
   Utilize the value chain approach, strengthen smallholders' bargaining power, diversify smallholders' products, help producers produce value-added products and connect the production activities to the tourism market (such as supplying souvenir products to the tourism industry).

4) The Production of Value-Added Products by Utilizing the Rich Natural Environment which is the Madagascar's Strongpoint
   Production of a small amount of value-added products instead of bulk products: naturally-grown products, organic products, etc.

5) Improvement in Market Access for the Sale of Value-Added Products: Cooperation with the Private Sector
   The Japanese market tends to look for high-quality products. Therefore, systems which can provide high-quality products should be established, through providing market information, helping private companies to communicate with producers, and by providing support through the value chain approach, etc. Demands for the markets for organic products, sustainable products (such as fair trade), etc. should also be considered.

6) Strengthen standards, quality management, certification systems and traceability systems which help in conducting appropriate quality management. Conduct research and development as well as improving infrastructure in order to enable these systems.

(2) Direction of Cooperation for Vanilla Exports

Vanilla is a major export cash crop for Madagascar. There is increasing global demand for vanillin. Madagascar's Bourbon vanilla is famous for its high vanillin content and high quality, but there are many uncertainties ahead such as increasing cyclone damage, increasing usage of artificial vanillin, the increasing number of new vanilla exporting countries, the declining price and spreading diseases. Therefore, the establishment of strategies which tackle various issues is necessary.

The majority of farmers sell green vanilla beans to brokers in the harvesting season. Although it is an export crop, there are only a few cases of the contract farming system being used by farmers and exporters. The development of a value chain which excludes informal trading has just begun with the establishment of the "platform" which aims to promote exports through public private partnership at the local government level.

The quality standards for vanilla bean exports are not clear and the involved parties' awareness about quality is low. This sometimes puts the producers into a disadvantageous position. There have been cases where vanilla made in another country was sold as Madagascan vanilla and therefore measures should also be taken to protect Madagascar's Bourbon vanilla brand.

By analyzing the current status of vanilla from production to export, the potentials and problems regarding vanilla were identified in Chapter 3. The study team then considered strategies to promote the export of vanilla based on these results. The diagram on the SWOT analysis shown below explains possible strategies for the expansion of exports. The following agricultural cooperation should be provided in order to support these strategies.

- Create and disseminate quality/inspection standards for vanilla, and improve awareness about quality.
- Increase the yield through pest and disease control (it was discovered through on-site interviews that 60% of the crop was lost due to disease).
- Expand the market through the production of organic vanilla (the EU and Japan).
- Introduce a certification system for Madagascar's Bourbon vanilla brand.

Figure S-18　SWOT Analysis for Vanilla in Madagascar

SWOT Analysis for Vanilla in Madagascar			External Factor (Environment)	
			Opportunities	Threats
			・Increasint trend of global demend for vanillin ・Potential as a cash crop for the acquisition of foreign currency and the improvement of farmers' income	・Disease control at cultivation stage ・High transport costs, roads and vehecles ・Income disparities between between vanilla-producing smallholders and large-scale farmers ・The high demand for arttificial vanillin by the food industry in developed countries ・Emerging new vanilla producing and exporting countires
Internal Factor	Strength	・The world's largest production and export ・High percentage of exports ・High vanillin content	To pursue oppotunities that are a good fit to the country's strengt ⇩ Strengthening export promotion organization	To idenfity ways that the country can use its strengths to reduce its vulnerability to external threats ⇩ Expand the market through the production of organic vanilla
	Weakness	・Producer cannot flexibly alter production ・Standardization of curing systems ・Lack of objective quality standards and quality evaluation systems ・Lack of awareness about quality ・Lack of marketing ・Lack of packaging facilities and materials ・Limited development effort to pruduce new varieties	To overcome weakness to pursue opportunities ⇩ Introduce a certification system for Madagascar Boubon vanilla brand	To establish a defensive plan to prevent the country's weakness from making it highly susceptible to external threats ⇩ Create and disseminate quality/inspection standards for vanilla, and improve awareness about quality

Source: Study team

(3)　Direction of Cooperation for Clove Exports

In addition to Vanilla, cloves are a major export cash crop for Madagascar. The main export destination is Singapore, where the cloves are re-packaged, re-processed and re-exported to Southeast Asia. A government agency conducts inspections before shipping, but the standards are not clear.

In 2007, a large cyclone hit the Analanjirofo Region and damaged 60% of the clove trees in the region as well as destroying seed and seedling centers. There are only two government-owned seed and seedling centers and the region is experiencing a shortage of seeds and seedlings.

In 2006, Market Access Centers were established through the IFAD project, which aimed at creating farmers' organizations. The centers mediate trading between producers and exporters. One challenge facing the centers is to improve the operation of the centers in a way that will benefit the smallholders.

By analyzing the current status of cloves from production to export, the potentials and problems regarding cloves were identified in Chapter 3. The study team then considered strategies to promote the export of cloves based on these results. The diagram on the SWOT analysis shown below explains possible strategies for the expansion of exports. The following agricultural cooperation should be provided in order to support these strategies.

- Build additional seed and seedling centers. Provide technical support for countermeasures to cyclones.
- Create standards for cloves and make the inspection system more rigorous.
- Diversify crops in order to avoid monoculture of the spice.

Figure S-19　SWOT Analysis for Cloves in Madagascar

SWOT Analysis for Cloves in Madagascar			External Factor (Environment)	
			Opportunities	Threats
			・Competitive position in the Japanese market ・Potential as a cash crop for the acquisition of foreign currency and for the improvement of farmers' income	・The east side of the central part of island is susceptible to cyclone damage ・Some areas are exessively reliant on cloves ・Unstable price ・Emerging other clove producing and exporting countires
Internal Factor	Strength	・A large amount of production and export ・A high percentage of exports out of production	To pursue oppotunities that are a good fit to the country's strengt ⇩ Export expansion	To idenfity ways that the country can use its strengths to reduce its vulnerability to external threats ⇩ Diversify crops in order to avoid monocolture of the spice
	Weakness	・The cultivation areas are widely scattered ・Many of the clove trees are old ・Low quality of the facilities for post-harvest treatment, processing and packing ・Lack of awareness about quality ・Lack of marketing ・Lack of objective quality standards and quality evaluation systems ・Lack of access roads from production areas to markets	To overcome weakness to pursue opportunities ⇩ Create standards for clove and make the incpection system more rigorous.	To establish a defensive plan to prevent the country's weakness from making it highly susceptible to external threats ⇩ Build additional seedling centers, and provide technical support for counter-measures to cyclones

Source: Study team