

Spice Up the Deal in Maluku: A discussion of the nutmeg sector in the Maluku Province of Indonesia

Executive Summary

While Indonesia and the Maluku province enjoy a strong position in the nutmeg market, the industry faces many constraints. Nutmeg, produced mainly by small-scale farmers, is scarce relevant to the demand. This encourages hedging by actors who take their profit cut from the sector's earnings, but do not offer any positive contribution. Storage in inadequate warehouses often damages the quality of the nutmeg. Farmers receive low prices at the farm gate despite vast global demand, and consequently have little incentive to improve production quality and output, limiting supply and sales. In addition, value-addition is limited and done only by a small number of firms. As a result of these constraints, Indonesia exports low-value nutmeg to other Asian countries (e.g. China, India and Thailand), which is then re-exported to higher paying markets. In short, Indonesia's nutmeg sector is under-performing relative to its potential.

Despite the many challenges, there is an opportunity for growth in the Malukan nutmeg industry. The global market demand is vast, and forecast to continue. A number of value-added industries use nutmeg's by-products as raw material inputs (e.g., Chinese medicine, nutmeg oil, spices, Coca-Cola). Consequently, the entire commodity is suitable for export and there is room for local added value. The industry has a bright future, should buyers implement appropriate policies and practices.

Maluku's soil is uniquely suited to produce high quality nutmeg, but poor harvesting and post-harvest practices are damaging the end-product. Closer cooperation between key players in the value chain¹ would provide farmers clear profit incentives to increase production and improve quality. Closer vertical cooperation² in the value chain would also eliminate hedgers. The promise of sustainable earnings should be an incentive for firms to make the investments required to maintain and expand Malukan nutmeg's brand. This paper argues that adoption of a new set of business practices that are mutually beneficial to all players and inclusive of farmers, although requiring initial higher investment, would yield higher profits in the long run and benefit all actors in the sector. The paper will provide a set of related policy recommendations for lead-firms (nutmeg exporters and large traders).

1. Background

Maluku Province is an archipelago of 1,000 islands located in Eastern Indonesia with a population of over 1.5 million. Civil conflict displaced 750,000 people between 1999 and 2002, and the ongoing economic repercussions have been severe for the population. Today, Maluku is the third poorest province in Indonesia - with 34 percent of the population living in poverty compared to the national average of 14 percent. A 2009 baseline survey carried out by Mercy Corps indicates that in Tehorou and Amahai districts of Seram island in Central Maluku Province, an average household of five people earns under 55 USD per month, equivalent to 36 cents/person/day. Predictably, food security rates are low.

¹ A value chain is defined as "The process by which technology is combined with material and labor inputs, and then processed inputs are assembled, marketed, and distributed." (Kogut, B. (1985). Designing global strategies: comparative and competitive value—added chains', *Sloan Management Review* 26(4): 15—28.

² Between suppliers and buyers

Indonesia is one of the largest exporters of spices in the world, ranking third after China and India. Maluku's soil is rich, and when nutmeg is harvested at the right time and undergoes appropriate post-harvest treatment, the quality outranks its competitors (e.g., Grenada and Guatemala), according to industry experts.¹ However, farmers have little knowledge or incentive to invest in increased production and maintaining the nutmeg quality. They cannot access the inputs (e.g., finance, business services, agricultural extension, mobile services) needed to improve yields and quality. Even if farmers have the ability to improve production, the system is such that they have no clear price incentives to invest in improved practices, as buyers do not offer price premium for quality nutmeg at the farm-gate level. Lack of incentives for improved production coupled with farmers' lack of capacity results in lower quality product and directly prevents exports' entrance to higher paying markets,³ which require higher quality produce. These factors hinder the Maluku spice market system at all levels and translate into lower profits for all stakeholders, risking the sustainability of a potentially highly profitable sector. A closer look reveals that constraints are rooted in farmers' and buyers' lack of cooperation and exclusive focus on short-term profits. Adoption of a new set of business practices that are mutually beneficial to all players and inclusive of farmers, although requiring initial higher investment, would yield higher profits in the long run and benefit all actors in the sector.

Malukan Nutmeg Market Analysis

Small-scale farmers, who generally work with less than 1.5 hectares of land, in Seram and Ambon Islands sell their nutmeg to village collectors (independent community level traders) who then transport it to the nearest collection center. From Seram and Ambon Islands, collection centers send the spices to Surabaya, the regional hub for spice exports from Indonesia. Occasionally, village collectors are able to put together a large enough volume to ship directly to Masohi (the capital of Seram), Ambon, or Surabaya.

Collection centers act as an intermediary between farmers and exporters. They are able to negotiate slightly different prices for different qualities with their buyers, who in Maluku are mostly exporters and some intermediary traders and hedgers.⁴ But the collection centers do not offer these price differentials to farmers, and collection centers pay roughly the same price to farmers and traders regardless of quality. To widen their supply, collection centers do provide farmers a number of services including credit at no interest,⁵ quick payments, and transportation to the collection center if farmers can gather a minimum volume of nutmeg at the community.

Once in Surabaya, the nutmeg may go through other traders and hedgers before actually reaching a final buyer/exporter. Hedgers hold the commodities in warehouses until the value increases, but tend to damage the quality of the commodity as the storage facilities are inadequate, leaving the nutmeg at risk for the for the growth of fungus and for pest attacks. Further, hedgers tighten profit margins for others as each actor in the value chain takes a profit share. The bulk of the Malukan nutmeg exported from Surabaya is of low quality and unsuitable for European or

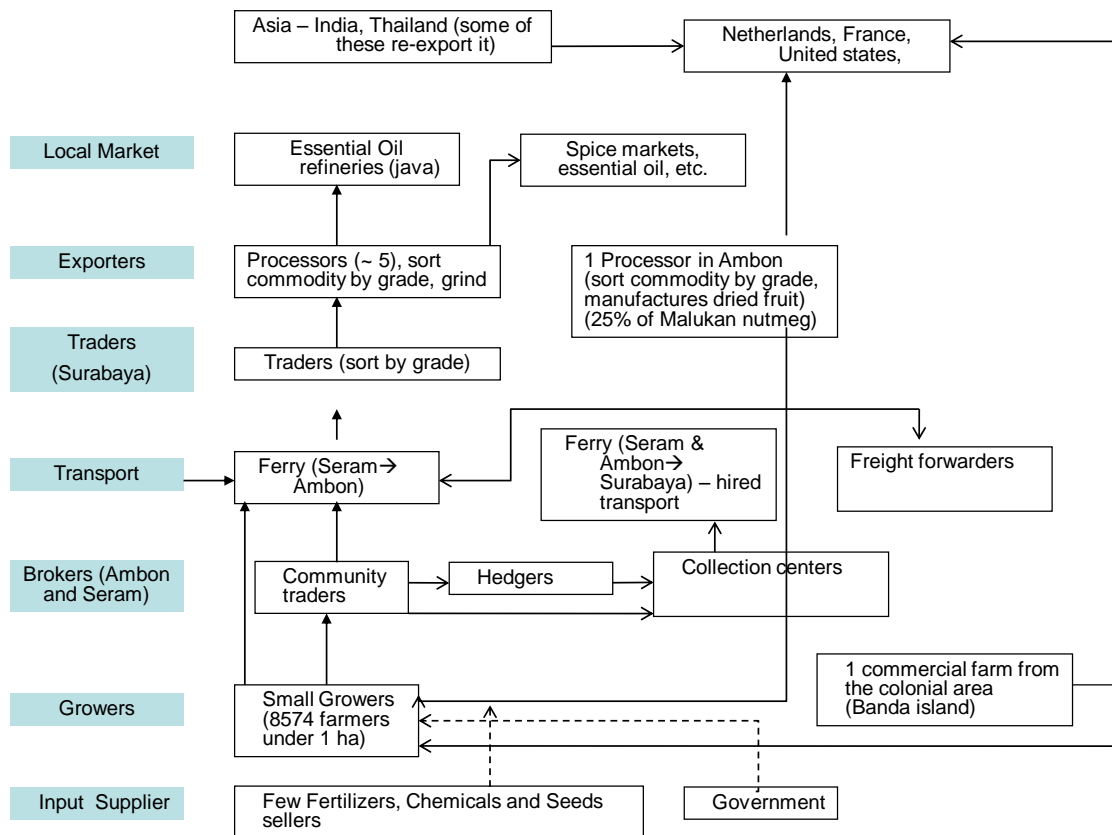
³ Garam Kincaca is able to export to the United States, but quality is questionable, thus hampering sustainability of exports to this market due to risks of quality.

⁴ Only exporters grade the nutmeg according to quality and sell each grade for a different price.

⁵ This is to pressure farmers to sell their supply in the coming seasons, since farmers re-pay in nutmeg.

American markets.⁶ Most is sold to lower-paying markets (China, India and Thailand), where it is processed and re-exported. This drives down earnings for all actors in Indonesia.

Figure 1 - Value Chain Diagramⁱⁱ



Sector Opportunities and Constraints

The spice sector is critical to Indonesia and to the livelihoods of Malukan farmers. In 2008, Maluku Province produced 2,374 metric tons (MT) of nutmeg cultivated by 17,000 households on 36,042 hectares (Ha) of land. Market demand is vast and, according to forecasts by Indonesian spice exporters and traders, nutmeg will continue to enjoy strong demand.⁷ Maluku’s rich soil is capable of producing high quality nutmeg, and some buyers in the Netherlands claim that, when harvested appropriately (e.g. harvested at the right time, dried and stored adequately), its quality is the world’s best.

Nevertheless, exporters identify poor quality as a top constraint to a thriving industry. Factors contributing to poor quality include:⁸

⁷ Nutmeg and relevant by-products are used in a number of value added industries (e.g. nutmeg oil, spices). Nutmeg oil has enjoyed stable world demand, and Indonesia exports 80% of the world nutmeg oil requirements. Sandeep Tekriwal, president of PT Van Aroma, a lead exporter of essential oils based in Aceh, expects nutmeg prices to continue to increase due to decreasing yields related to disease and pest.

⁸ Constraints listed in Mercy Corps Spice Sector Assessment. November 2010.

- **Lack of technical knowledge:** Spice farmers in Maluku Province lack a wide range of technical knowledge including how to rehabilitate lower-producing trees or differentiate between male and female trees.⁹ Maluku Province's small public budget is not sufficient to service a significant number of farmers with extension. In Central Maluku Province; for example, there are only 33 extension officers to cover 8,000 nutmeg farmers. The University of Pattimura, Maluku's primary agricultural research and education institution does not conduct outreach training. The private sector has not identified any incentive to invest in developing farmer technical capacities. The perception that Maluku is socially volatile and a lack of trust between farmers and buyers contribute to low incentives for knowledge investment.
- **Lack of access to inputs and services:** Farmers in remote communities cannot access needed inputs and services for basic production and post-harvest handling of products. Consequently, farmers are unable to rehabilitate crops, withstand pest attacks, and maintain trees. Warehouses, drying structures and seedlings are equally unavailable. Lack of access to finance pressures farmers to sell nutmeg early, before it is mature or dry, which further compromises quality.
- **Low quality and diminishing production:** Low technical capacity and limited access to inputs and services inhibit farmers' ability to increase production. Low returns for the commodity have also contributed to diminishing production of nutmeg. Nutmeg trees are most productive from age eight to 20, and farmers do not see a value in investing to rehabilitate trees that have passed their production prime. Instead, some farmers are shifting to cultivating higher paying products, like clove.
- **Limited export markets:** At the wholesale level, many sellers lack the technology needed to package and process spices. Some exporters also lack knowledge of export requirements, and processes to treat spices for Aflatoxins and Salmonella, which is required to export to some countries.

The common root cause of these constraints is the lack of cooperation between sector actors. As stated above, price at the farm-gate level is relatively low and not differentiated by quality. Thus, farmers do not have the incentives to invest time and financial resources in improved production. Even if farmers had the incentives, they lack access to inputs and services, including knowledge, and unlike other sectors (e.g., cocoa in Sulawesi¹⁰) the private sector is not active in ensuring farmers can access these. On the other hand, anecdotal evidence suggests that farmers do not always keep their commitments to contracts,¹¹ which drives out investment from buyers.

⁹ Nutmeg trees can be male or female, in a 50-50 ratio, yet it is extremely difficult to tell the difference until flowering, 5-8 years after planting. Only female trees produce a useable commodity and can do so even if no males are nearby.⁹ A simple grafting technique would enable farmers to rehabilitate trees, and ensure that the new productive tree is a female tree. This practice is not known or practiced by farmers in the Maluku province. There are no information/ knowledge transfer systems in place.

¹⁰ The private sector in Sulawesi district of Indonesia invests heavily in farmers' access to needed inputs and services, setting up farmer schools for knowledge, and Cocoa Clinics that supply improved cocoa breeds and technical support to farmers.

¹¹ A nutmeg oil refinery was interested in setting up a business with manufactures of oil in Seram and paying farmers ahead of time, but then never received the order.

3. Recommendations

The current system in the short run will continue to yield low, if steady, income. However, this system inhibits sustainable long-term profits: it diminishes quality, which risks discontinued production of nutmeg and lowers profits. Exporters obviously stand to lose from an extension of the status quo; their sales and profits would be compromised if nutmeg production fell off. To offset this risk, lead firms should adopt business practices that are mutually beneficial to all players and inclusive of farmers. While these policies come at a cost, the potential gains are higher profits in the longer term at all levels of the value chain. The dynamics between sector actors with a vertical relationship¹² in the value chain would be of cooperation with a common goal of improved quality and increased outputs, and directly contribute towards a more sustainable and profitable nutmeg sector for Indonesia.

Change should start from the lead firm, (exporters and collection centers), through increased investment in farmers' capacities via information and business services. With the right incentives (e.g. price premium for higher quality) in place, farmers would likely adopt the specifications set by the lead firm given they would now have the capacity to do so. Farmers would gain not only a premium price but also access to information that would help them to increase production, which small-scale farmers in Indonesia often report as important in helping them overcome the common problems they face.

The role of village collectors could also change. A village collector with enough leverage in the community could serve as a transmitter of information between the lead firm and the farmer, informing farmers of buyer specifications and informing the firm of the situation on the ground. Giving buyers a better understanding of the underlying constraints farmers face in their production would enable them to alleviate these by engaging service providers in the market, providing inputs/services themselves or perhaps leveraging a credit system. Moreover, the village collector may have a clear incentive to pay a price premium for better quality if (s)he sees a direct relationship to the value of his/her sales to the lead firm.

One lead-firm in Maluku provides a useful case study. PT Ollopp, a nutmeg exporting firm owned and managed by a Malukan-Dutch family with stated social commitment to their community, ensures farmers receive the information they need to provide quality products and that they are aware of the desired product specifications. It is the only company that has invested in researchers to assess the main constraints on nutmeg production and pest control. PT Ollopp works with a few farmer groups and provides capacity building to each of them. The company provides incentives for farmer groups to supply according to desired specifications through a payment system that rewards farmers by investing in the farmers' capacity, the community and the farmer cooperative. Quality is tightly controlled once products arrive at the warehouse in the town of Hila, on the Ambon Island of Maluku. PT Ollopp also provides frequent financial reports on the transactions between the cooperative and the firm. This adds an additional layer of transparency, which the company sees as instrumental to maintaining its relationship with the farmers. Finally, the company is also the only one in the Maluku Province investing in organic certification for nutmeg producers. Once the small-holder farms are certified, the value of the

¹² The nature of vertical relationships is usually between actors at different level so the value chain (buyers and sellers), as described in microlinks wiki. Horizontal relationships are between suppliers or between buyers.

nutmeg will increase significantly.¹³ While PT Olopp has not quantified the benefits from the investments made, the company believes that it is the only way to ensure quality products and compliance with organic certification requirements.

Unfortunately, PT Olopp is the only firm working with suppliers in this way. Nonetheless, it is a powerful demonstration that through coordination, other exporters could also devise mechanisms that provide the capacity and right incentives to farmers to improve quality and increase production. These mechanisms could include:

- Implementing price differentiation for higher-graded nutmeg at the farm gate so that farmers have a concrete incentive to apply good post-harvest practices;
- Devising price dissemination systems to enable farmers to make informed decisions on when to sell crops;
- Generating farmer group formation which can enable direct dealing between lead firm and farmers, improving the quality of communication between parties;
- Investing in farmers' education through means like extension services, mobile phone services, embedded services with input sales, etc.;
- Facilitating access to needed inputs, equipment and services; and
- Facilitating access to adequate storage at the community level, which would reduce supply fluctuations and consequently discourage hedgers.

Should companies invest in new practices, gains could be substantial. Increasing productivity through grafting techniques has the potential to increase nutmeg production by 100 percent in the next ten years, should it be widely adopted. Quality improvements are likely to show immediate profit benefits. Furthermore, deeper relationships between suppliers and buyers enable producers to meet changes in product specifications. This is key since the demand is currently favoring organic certification. But organic certification requires rigid compliance and surveillance, and buyers will need to work more closely with farmers if they want to tap into this potential.

4. Proven examples

There are numerous practical examples that clearly show how the governance structure in a value chain determines the competitiveness of the sector. In Sulawesi, Indonesia, PT Mars Symbioscience¹⁴ (representing Mars Chocolates, a global chocolate industry leader) has invested heavily in farmers' capacity through farmer education in an attempt to improve quality and production and ensure long-term viability for the business. The company established farmer schools and cocoa clinics, developed and strengthened farmer groups to enable economies of scale, and established buying stations to give farmers easy access to their purchasing units/agents. These investments, at every level of the value chain, have been an explicit recognition that long-term profits depend on the sustainability of the industry: "The Mars

¹³ Nutmeg if exported as organic is +€.30 per ounce higher in price, as found in Mercy Corps assessment.

¹⁴ Mars Symbioscience is the global health & life sciences segment of Mars, Incorporated focused on delivering evidence-based science. An idea incubator, Mars Symbioscience is headquartered in Rockville, Maryland, U.S.A., and through its business units, Mars Botanical, Mars Veterinary and Mars Plantcare, produces brands including WISDOM PANEL[™], SERAMIS[®], COCOAVIA[™] and CIRKU. <http://www.marssymbioscience.com/>

family¹⁵ recognizes that without a sustainable future, they won't have a business for their great grandchildren.”ⁱⁱⁱ

While there are as of yet no studies that quantify the impact of these investments on the profits of the company or farmers' livelihoods, qualitative evidence suggests the gains are multiple. Other cocoa lead firms (e.g., PT Armajaro and PT Olam) have followed the Mars' lead, signaling that the Mars strategy benefitted the business. PT Armajaro currently employs its own extension agents to service farmers. Most important, cocoa lead firms in Sulawesi now cooperate in the movement towards ensuring protection of the environment and the farmer, both crucial factors in sustainable cocoa production^{iv}. Simultaneously, farmers have a source of technical support and troubleshooting.

There are many examples of successes from positive vertical cooperation along the value chain. Inter-firm cooperation is not a new concept in development and has been applied by development organizations to reduce poverty through improved profits and incomes for the past two decades. Market development industry leaders like USAID, ACDI/VOCA and the Action for Enterprise (AFE) have led the discussion on this topic.¹⁶ Successful development projects involving improved vertical cooperation through the value chain include the 'Spice Up the Deal' project in Nepal, implemented by Mercy Corps, which succeeded in persuading buyers to implement a price differential system for quality cardamom and working with farmers to supply higher quality cardamom. The USAID-funded Production, Finance and Technology (PROFIT) project in Zambia successfully worked with horticulture lead firms to increase farmers' capacity and industry competitiveness. Outgrower schemes¹⁷ aiming at improving the cohesiveness in a value chain are commonly used in agricultural development projects. USAID in partnership with AFE developed *A Manual for Facilitating the Development of Outgrower Operations*^v to guide “development organizations with knowledge and tools that can assist them build the capacity of companies (buyers) to develop and operate mutually beneficial outgrowing operations with farmers.”^{vi} This document provides tools and case studies to equip lead firms in determining an appropriate structure and relationship with their suppliers.

5. Risks related to closer integration

5.1 Risks to the Lead firm

At this stage, firms may be reluctant to invest in farmers. Investing in farmers' capacity does not prevent farmers from supplying higher quality nutmeg to a competitor buyer. To lower this risk, firms could engage in contractual arrangements with farmers. Engaging the lead farmer and community leadership to support these contracts would lower the risks of individual farmers defaulting. Lead firms could also involve non-governmental organizations in educating farmers about the importance of abiding by contractual arrangements to ensure continued lead-firm

¹⁵ Including siblings and retired company CEO Forrest Mars Jr., chairman John Franklyn Mars, and VP Jacqueline Badger Mars.

¹⁶ Some individuals leading the work at these organizations are Jeanne Downing (USAID), Eric Derks, Michael Field, Olaf Kulaf (ACDI/VOCA), and Frank Lusby (Action for Enterprise)

¹⁷ The FAO defines out-grower schemes as contractual – usually formal – arrangement between growers and a lead firm/buyer for the production of agricultural/forestry products. These partnerships vary in terms of which inputs, costs, risks and benefits are shared between the parties. Producers may act individually or collectively. <http://www.fao.org/docrep/004/ac131e/ac131e03.htm>

investment in their lands. In the case of Maluku, Mercy Corps has been working with farmers in the area for nearly ten years and could play a valuable role in building trust between farmers and buyers.

Firms could leverage varying degrees of investments that would yield increases in quality and production at different levels but involve lower risk. A firm should select the level of investment based on its own context. PT Ollop's model, for example, requires significant investment beyond farmer trainings, including financing costly organic certification. The model works well because of the trusting relationship PT Ollop has developed with farmers: the owners are Malukan, the company is based where farmers are, and company staff are available to support farmers on the spot. While other lead firms may not enjoy such strong relationships with farmers, working toward a more integrated model does not necessarily require large investment at an early stage:

- A firm could invest in a single extension agent (salary and transport costs) to train lead farmers on improved technologies and required specifications in exchange for farmers' supply of product at a competitive price.
- Providing needed inputs and services to farmers and discounting them upon delivery of the produce to buyers may be risky to a lead firm. Thus, at this stage, a more advisable system may include facilitating third party delivery of inputs and services, where lead firms would be merely exchanging information with agro-retailers as to what agricultural products are in demand by farmers.
- Price dissemination does not require a high degree of investment, but would potentially capture higher supply from farmers. In places where mobile services are available, a company could launch a low-cost dissemination system, which would also enable them to transfer other information to farmers (e.g., quality tips, specifications, announcements that certain commodities, such as clove, are in demand).

There are other activities with potential for significant returns, though they require a higher investment:

- Investing in buying stations would greatly enhance a company's ability to purchase its desired supply of nutmeg. The high cost of transportation is a serious constraint for farmers. Mobile buying stations would enable farmers have direct access to buyers and also higher paying markets.
- Implementing price differentiation systems for improved quality would also require investment in manpower resources to check the quality of the produce. Firms are already investing in this step in Surabaya. While bringing this step of the chain in-house may require additional investment, it would also mean firms can sell the product at a higher price.

5.2 Risks to farmers

For the farmer, most of the risk would stem from being locked into a buyer and a price for a given crop year. This might require forgoing a buyer offering higher prices once it sees improved quality. It is important to note, however, that a cost analysis would probably indicate that the firm investing in the farmer's capacity and access to inputs and services, and with whom the farmer had contracted, actually paid a higher price for the nutmeg. To maintain the system, farmers must value the relationship and investment that the lead firm made to improve production and quality, and abide by the contract. Should the farmer default on the supply contract, the lead firm would likely stop investments in that community to the long-term detriment of all actors.

6. The role of government

The governments of Indonesia and Maluku Province have an important role in ensuring a policy environment conducive to the competitiveness of the industry and the benefit of all players in the sector. A thorough discussion of the role of the government is beyond the scope of this paper. However, an assessment by Mercy Corps identified the following actions it could take, though further dialogue would be needed to better understand these solutions:

- Building the infrastructure and services Maluku needs, and currently lacks, to enable companies to be able to export directly from Maluku (e.g. laboratory testing and processing of export paperwork). The lack of these services increases the cost of exports, not only for nutmeg but other key sectors (fisheries and cocoa) as well.
- A cost-benefit analysis of government extension services (their role and impact) versus embedded services¹⁸ and whether it would be worthwhile specializing their skills and services.
- Co-investing with lead firms to attend international exhibitions and trade expeditions where exporters can pursue new business deals.
- Co-investing with lead firms in new technologies or processes that increase trade and GDP. For example, the use of a satellite-based technologies would ease the traceability¹⁹ process required in organic certification, but this technology is costly and outside the exporter's current expense priorities. A government co-investment would encourage more companies to invest in organic production and ensuring Maluku is able to export to key European buyers by 2015, when organic certified nutmeg will become a requirement for these buyers.

Conclusion

¹⁸ Services are "embedded" when a buyer of an enterprise's products or a seller of inputs to an enterprise also provides "free" services or products as part of the transactional relationship.^[1] In these scenarios, the enterprise does not pay direct fees for the services or products; service providers (e.g., the input suppliers or buyers) cover the costs -- although, of course, the enterprise may pay for the product or service *indirectly* through higher input costs or lower prices received from buyers." Microlinks Wiki. USAID.
http://apps.develebridge.net/amap/index.php/Embedded_Services

¹⁹ The Codex Alimentarius Commission defines traceability as "the ability to follow the movement of a food through specified stage(s) of production, processing and distribution". Traceability guarantees that that a product is authentically organic.

The nutmeg sector in Maluku has tremendous potential to provide profits—and incomes—for low-income farmers and the sector as a whole. There are key constraints that hamper the industry, damaging its sustainability. Overcoming these constraints will require nutmeg industry lead firms to adopt a strategic focus on increasing their involvement with small-scale producers by building capacity and setting the right incentives for farmers. Such strategy would enable firms to buy the quality they seek, increase their supply, enter higher paying markets, and increase profits to the mutual gain of these firms and the farmers they purchase from.

ⁱ Mercy Corps. SPICE SECTOR ASSESSMENT REPORT. Maluku Province, Indonesia. 2011. Annex I

ⁱⁱ Mercy Corps. SPICE SECTOR ASSESSMENT REPORT. Maluku Province, Indonesia. 2011. Annex I

ⁱⁱⁱ Jerry Lewis. Mars tests “sustainable” chocolate in Boulder. Apr 25, 2010 <http://boulderreporter.com/mars-test-markets-sustainable-chocolate-product-in-boulder/>

^{iv} Mercy Corps. COCOA SECTOR BRIEF. Central Maluku District. Indonesia. 2011. P6.

^v USAID/ Action for Enterprise. Facilitating the Development of Outgrower Operations: A Manual. The FIELD-Support LWA. Cooperative Agreement No. EEM-A-00-06-00001-00. 2009. www.actionforenterprise.org/paper-usaid.pdf

^{vi} USAID/ Action for Enterprise. Facilitating the Development of Outgrower Operations: A Manual. The FIELD-Support LWA. Cooperative Agreement No. EEM-A-00-06-00001-00. 2009. P1. www.actionforenterprise.org/paper-usaid.pdf