

# PATHWAYS TOWARDS SUSTAINABILITY: Private Sector in the driver's seat.

Although in the past development actors have been the main promoters of more sustainable practice in agriculture and chain development, current practice of sustainable agricultural chain development shows that the initiative of converting chains towards sustainability is owned by a variety of chain actors and chain supporters.

In some cases, private companies, like processors, face increasing challenges of securing their supply (when world population and demand are growing). They start up long-term relationships with producers and their organizations. In these relationships support to secure quality and quantity of supply over longer periods is central.

In the case described below, we see how cocoa traders and manufacturers invest in producer organizations to ensure quality and future supply.

## Case: cocoa chain in Indonesia (Island of Flores)

### 1. Cocoa subsector in Indonesia

The Indonesian cocoa sector has experienced tremendous growth during the last 25 years. Indonesia is now the third biggest cocoa producer (712,620 tons per year) after Ivory Coast and Ghana with about a 15% share of the total world cocoa bean production. Cocoa is cultivated in Indonesia on over 1.5 million hectares, providing the main source of income for over 1,400,000 smallholder farmers, generating over USD 1.2 billion in exports annually. The country's cocoa plantations are ranked among the most productive in the world, with each hectare able to produce between 400 and 800 kilograms of cocoa (USAID, 2006). Up to now, smallholders contributed 93% of national production; the remainder comes from state plantations and private estates. Indonesia consists of 6,000 populated islands (17,508 islands in total), which makes it the world's biggest island estate. 71% of the Indonesian cocoa production comes from Sulawesi, one of the 5 biggest Indonesian islands. The remaining cocoa production areas are situated in North Sumatra, West Java, and Papua, with some small production areas in Bali, Flores, and other islands. (VECO, 2011).



Despite the importance of cocoa cultivation in Indonesia's economy, productivity, bean quality and farm profitability have declined in recent decennia due to aging of tree stocks and farming practices such as inadequate use of fertilizers or premature pod harvesting that led to declining soil fertility, pest and disease pressure and poor product quality. This declining trend is being reversed the last few years with on-farm investments in tree rejuvenation, replanting and sustainable farming practices. Such investment did not happen earlier due to the limited access to credit, to knowledge on sustainable farming practices and due to poor transmission of quality

price signals to farmers. This latter failure is due to the fragmentation in Indonesia's cocoa supply chain, with over 90% of the cocoa production on smallholder farms that sell into poorly regulated and highly competitive marketing chains. The global concern of consumers that cocoa is not produced sustainably, has become an important consideration for all cocoa producing countries, including Indonesia. It is of critical importance that strategic steps are taken now to ensure the long term sustainability and international competitiveness of the Indonesian cocoa subsector. (CSP, 2011)

## 2. Cocoa cultivation

Cocoa is one of the most attractive crops for farmers around the equator because of the specific climate and the certainty of income in the long term that perennial crops provide. Cocoa cultivation can also have a positive impact on the environment since cocoa is produced by trees that are mostly integrated in a farming system with other crops and shade trees. The cocoa tree, *Theobroma cacao* (which means 'food of the gods'), is a small (4 to 8 meters high) evergreen tree of the family *Sterculiaceae*. It is an understory tree, which means that it grows best under shade trees. Furthermore, it is a delicate and demanding tree, requiring next to the specific tropical climate, a soil rich in potassium, nitrogen and trace elements. Young trees are vulnerable to direct sunlight and wind; they need to develop initially in the protective shade of other trees, like banana or rubber trees. Shade grown cocoa can also provide food, shelter, and material resources for local human needs. (PRI, 2011)

### 2.1. Production

A cocoa tree normally has a life cycle of 30 to 40 years, but in most plantations, new cocoa trees replace older ones at 25 year intervals. Big cocoa plantations generally have a density of 1,000 to 1,200 cocoa trees per hectare, but the plantations of the small family farmers in the Ende and Flores Timur districts contain on average only less than 500 trees per hectare. The cocoa trees begin to produce flowers when they are 4 to 5 years old. Millions of flowers grow throughout the year, but in the wild, only 5 to 10% are fertilized because the flowers are pollinated by tiny flies, *Forcipomyia* midges, instead of by bees, butterflies or moths. After the pollination, it takes 5 months for a fruit (pod) to appear. A mature tree may have 20 pods per year and a cocoa pod contains about 40 white pulp-covered seeds: the cocoa beans. Once their color changes from yellow to orange, the pods can be harvested. Smallholders do this still by hand, with a machete, over a period of 6 months. After 7 to 10 days, the pods are opened and the beans are scooped out of the pods and piled into heaps to ferment. Sometimes the pods are transported to a fermentation station before splitting, but if they are opened in the planting area, the discarded husks can be distributed throughout the field to return nutrients to the soil. (PRI, 2011)

Cocoa is affected by a range of pests and diseases, with some estimates putting losses as high as 30 to 40% of global production. Resistant planting material can greatly reduce crop losses, as can best practice in farming techniques. Special efforts appear to be essential in order to prevent and contain the global spread of cocoa pests and diseases. (ICCO, 2011) One problem in the control of diseases in Indonesia is that the government does not take comprehensive action to eradicate diseases that have ravaged cocoa crops for years, such as the cocoa pod borer and the vascular streak dieback. But this has somewhat changed the last years, with an improved intervention of the government. (Ekawati, 2010).

### 2.2. Processing

The fermentation process is vital to the flavor and aroma development of chocolate. The longer the fermentation process, the less the bitterness and astringency. The fermented beans are subsequently dried, preferably in the sun, a process which is again important to flavor development. The husks of the beans are then removed and the insides or nibs are roasted and ground into a liquid cocoa mass, called cocoa liquor. This is pressed to separate the cocoa butter from the cocoa cake, which is milled into cocoa powder. The manufacturer of the final chocolate product uses different proportions of cocoa powder or cocoa liquor and cocoa butter, different blending techniques, added ingredients such as milk and sugar, and further processing, depending on the type of chocolate (milk or dark) and its intended use. (ICCO, 2011)

### **3. The cocoa supply chain on Flores**

#### **3.1. Location**

Indonesia consists of 33 provinces, spread over the 6,000 populated islands. Flores is one of the biggest islands of the Indonesian province East-Nusa Tenggara, which consists of 42 populated islands. The estimated area of the island is 14,300 km<sup>2</sup> and in 2010, the population was estimated at 1.8 million inhabitants. Flores is split into 8 local government districts. The landscape of Flores is dominated by volcanoes, but also lakes, savannah areas and forests are present. The steep slopes of the island make it really difficult to develop a good agricultural sector. The main cash crops of Flores are coffee, coconut, candle nut and cashew. Cocoa is not a part of these crops, but it is often integrated in all these cultivation systems. The cocoa chain supported by VECO Indonesia is situated in the Ende and Flores Timur districts in the Eastern part of Flores island. (

#### **3.2. Chain related data.**

Production: Cocoa production in the Ende district is estimated at 3,358 tons per year.

Yield: 350 kilograms of dry beans per hectare

Average price/kg dry beans: USD 2.3 (IDR 20,000)

Average price/hectare dry beans: USD 815 (IDR 7,000,000)

Average farm size: 1.23 hectares, with 532 trees per farm area.

Number of beneficiaries in 2011: are the members of farmer-organizations:

JANTAN 630 = Male : 441, Female :189

SIKAP : 147= Male: 132, Female: 15,

plus 2,037 farmers that also benefit indirect. (VECO, 2011)

#### **3.3. Chain actors**

##### **3.3.1 Producers**

###### **➤ Description of the producers**

The population of Ende and Flores Timur is growing. The majority of the population in this area is Catholic and a small minority is Muslim (mostly in coastal areas). In Flores Timur, 1 household is occupied by 2 to 3 families. As a consequence, farmers are owning increasingly smaller plots of farmland, incomes are steady while costs are increasing. The cocoa farmers of these regions depend intensively on the success of the cocoa harvest. If the harvest fails, a growing number of farmers will migrate to look for work because they cannot pay their children's school fees anymore. Although many children attend primary to senior secondary school, in general the dropout rate is high because of this disability to pay school fees. There is actually no local

knowledge about cocoa farming in East Flores or Ende because cocoa is not endemic to this region, but was introduced from outside. Poor families tend to have many children. Because the births are not properly planned, children's health and education are often neglected. However, Ende is a centre for education in Flores and there are many educational institutes, including 7 colleges, to which all people in Flores have access. Also, the access to health services is improving thanks to the presence of sub-district primary health centres and integrated health posts and village health posts. Moreover, there is enough food (rice and corn) in these regions, assuming that there is sufficient rainfall, but not enough if there is drought, as in 2010. A last element of the living conditions of the farmers of Ende and Flores Timur is that they have excellent access to information sources by mobile phones, television and radio; good access to transport and roads and also a fair access to electricity and water. (VECO, 2011b)

During three distinguished periods household expenditures are high: the traditional rituals and social events, the religious festivals and the school fees payable in July, April, December and February. In those periods, families that do not have money will sell cattle and borrow from credit cooperatives or often also from their children's savings club. In times of festivals and rituals it is also very difficult to get any productive work done because of the social responsibilities the villagers have towards each other (communal work, etc.). Job opportunities in the cocoa subsector arise during the times of land preparation, weeding and harvesting. In the period from June until September, there is generally no work on the fields yet, but there are work opportunities as laborers or workers on projects in Ende. (VECO, 2011b)

Income from cocoa tends to be managed by men. Women are given the opportunity to save money, but they do not have full authority over how it is spent. Usually, these matters are discussed first with the husband, and in many cases it is the husband who has the final say. It is interesting to note that women have a strategic position in household food management, because women tend to take day to day responsibility for managing the family's food and food storage. Furthermore, women are learning about quality control within the cocoa chain, because even cocoa farmers themselves admit that women do this more carefully and precisely than men. (VECO, 2011b)

### ➤ **Organisations of producers**

The farmers of the Ende and Flores Timur districts (as in the rest of the island of Flores) have organized themselves throughout the years in small farmer organizations. They had no legal status, but were informal groups of farmers, setting up save/credit systems for their members, having a rotation system for working in each other garden etc...

In Flores Timur district and Ende district, these farmer groups organized themselves in a registered farmer organization, with the aim of creating better opportunities for the farmers as actor in the chain, dealing with the market. The farmer organizations function as facilitators and motivators of the cocoa cultivation (and in some cases other commodities) by helping their members gain access to information about prices, quality, volume, traders, etc. These farmer organizations also provide small amounts of working capital, which are nevertheless very helpful to support marketing activities.

### **The farmer organisations involved in the cocoa chain are:**

**JANTAN** (Jaringan Tani Wulang Gitang – Wulang Gitan Farmer Network) is a business-oriented farmer organization in Eastern Flores, arisen in 2007. They focus their activities on the cocoa and copra commodities. The overall aim of the organization is the realization of a good

(economical) quality of life for the communities of East Flores district, through the development of collective marketing of potential commodities, backed by a strong and independent organization. Together with SIKAP (see further), JANTAN is a key player in the cocoa development that implements innovative and ecological sustainable farming practices, especially in the post-harvesting activities of cocoa. In 2008, JANTAN decided to focus on collective marketing, and after one year of trying out the system, they started building partnerships with cocoa traders (such as PT. Mars) and copra (dried coconut) traders (such as CV Bumi Persada). Recently (2011) they signed the official papers for being recognized as a Multi-Purpose Cooperative. Receiving this status makes it easier to start business activities and to make investments. It gives the farmer organization also the possibility to accumulate some capital through incomes from shares and member fees and access to credits will be easier. Also the government is more supportive to cooperatives. JANTAN receives intensive support from the NGO Ayu Tani and from the local government.

**SIKAP** (Asosiasi Petani Kakao Nangapenda – Nangapenda Cocoa Farmer Association) is a newly established (2011) farmer organization founded by 9 village heads for the same number of villages, in Ende district (Central Flores). The idea of a farmer association took shape in 2007, when cocoa farmers realized that the only way to improve their position as cocoa farmer was to organize collective marketing and to improve cultivation/processing techniques. Both issues were easier to tackle when farmers are organized, so they decided to start the process of establishing an organization of cocoa farmers. March 2010 they had their first general assembly, and SIKAP was born. The overall aim of SIKAP is the achievement of a fair and sustainable welfare of cocoa farmers by strengthening the bargaining position of farmers receiving a fair price, taking into account the local culture. They cover 18 villages of the Nangapanda sub-district, with members of 66 farmer groups. From the start they had good relations with the local government and were able to secure support from the government in the form of a warehouse and a drying facility of Cocoa managed by the new Processing Unit (UPH). SIKAP also has a legal status since 2011. The Farmer Organization has a strong network and has been able to work in partnership with PT. Mars. SIKAP receives also support from the NGO Tana Nua.

### 3.3.2 Collectors

In 2008, JANTAN started to build a collective marketing network so that farmers no longer had to sell their commodities individually. Since then, they only need to take their products to the Village Marketing Team, which is controlled by the JANTAN secretariat. In 2009, JANTAN, with the help of Ayu Tani and VECO, constructed one weighing post and a quality controlling system per 3 Marketing Teams. They also distribute equipment and tools for cocoa trading, such as scales, sacks, and organize transportation. The central secretariat of JANTAN started in the same year price negotiations with buyers. Their biggest buyer was PT. Mars until 2010. (VECO, 2011).

In 2011, so far JANTAN was not able to deliver the usual amount of cocoa beans to PT Mars. This was mainly caused by the large amounts of rain during the flowering season of Cocoa which has affected fruit development. Less cocoa beans were available. Another issue is that the peak harvest is also delayed this year (climate factor) and has only started recently (August). Also in 2011, PT Mars changed its policy, and does not accept wet beans anymore from the farmers. The farmer organizations have found new **traders/processors** wanting to buy wet beans, like Mayora in East-Flores and Bumi Tangerang in Ende. (VECO Indonesia, 2011b) These traders have no direct connections with PT Mars.

PT Mars now buys from Inter Island traders instead of FO's because the costs of processing/purchasing cocoa beans were high and possibilities to purchase viable volumes of Cocoa

beans from FO's were not sufficient. PT Mars has looked for these traders willing to buy the cacao from the FO's, and connected them with the FO's. SIKAP is connected with UD Dawn in Maumere (Geliting) and JANTAN with UD Gonzalu in Boru. They are now the direct business partners of the FO's..

### 3.3.3 Processors

**Mars Inc.** has grown into a company of global scope and scale, working in approximately 68 countries worldwide, generating annual revenues of USD 30 billion, but still family-owned for nearly a century. Mars Inc., headquartered in Virginia, operates in 6 business segments: chocolate, pet care, Wrigley Gum and Confections, Food, Drinks and Symbioscience. It is the world's third largest food manufacturer and the world's leading confectionery and pet care company. The billion-dollar brands include M&M'S, SNICKERS, DOVE, MARS, TWIX, EXTRA, ORBIT, UNCLE BEN'S, PEDIGREE, ROYAL CANIN and WHISKAS. Mars Symbioscience is the global health and life sciences segment of Mars Inc., focused on delivering evidence-based science and an idea incubator.

PT. Mars Symbioscience Indonesia (PT. Mars) is a part of Mars Symbioscience (PT. Mars, 2010).

Until 2010, PT. Mars buys most of the cocoa beans from the farmers of JANTAN and SIKAP. Until the end of 2010 they bought wet beans, directly from the farmer organizations, but for 2011 they only buy dry beans (VECO Indonesia, 2011b).

Until 2010, PT. Mars had her own buying and fermenting station in Eastern Flores. Because of low volumes delivered by FO's and high costs (processing, transport etc...), they have now local business partners (see 3.3.2.) buying from the farmers and their organizations. Processing facilities are in Makassar, the largest port of Sulawesi, the gateway to Eastern Indonesia. This factory was the first cocoa grinding plant to be established in Sulawesi. Mars started with the production of cocoa butter and cocoa powder in this factory in 1996 to supply Mars' internal needs. The Makassar factory continues to supply this cocoa butter and powder to other factories of the Mars company around the world, as well as supplying many other customers. This butter and powder can then be processed further into chocolate or candy or it can be sold directly.

(CSP, 2011) PT. Mars does not only process the cocoa, they also play an important role in helping to improve the cocoa farmer livelihood through field research, farmer trainings and funding. Today, they have over 25 local associates working in the field as trainers and they are supporting many governmental and private initiatives. PT. Mars directly supports over 30 demonstration plots and 6 so-called cocoa clinics. (PT. Mars, 2010)

Other processors, active in the region: Bumi Tanggerang, one of the largest processors in Indonesia and competitor of PT Mars. They have a collection point in the district of Ende.

### 3.3.4. Consumers

Consumers around the world are becoming increasingly concerned about the origin of their food and about the fact that the cocoa they consume is produced with little consideration for the economic well being of cocoa farmers and the environment. This requires an extensive traceability of cocoa to make sure that it is safe. This is the reason why Mars Inc. demands traceability of the cocoa beans from the farmer organizations. To produce traceable products, farmers need to organize themselves into farmer organizations with good collecting, quality controlling and labeling systems so that the cocoa becomes fully traceable and can be sold to Mars Inc. and subsequently to these demanding consumers. (CSP, 2011)

## 3.4. Chain Supporters

- **Ayu Tani** is a professional service NGO, arisen in 1998, committed to the development and implementation of innovative and sustainable farming practices, taking into account environmental issues in East Flores. The focus of their work is improving the livelihood of small-holder farmers. It strengthens JANTAN as a farmer organization and provides professional services to other farmer organizations in the district or province. Ayu Tani has professional staff with expertise in cocoa development. (VECO, 2011)
- **Tana Nua**: is a professional service NGO, being a partner of VECO Indonesia since 1998. The specific objective of the organization is to improve the capacity of (Cocoa) farmers communities in improving their livelihoods through low external input cocoa sector. They do not directly receive funds anymore from VECO Indonesia, but they are delivering support to SIKAP with one full time dedicated staff .
- **VECO Indonesia** is the Indonesian branch of the Belgian NGO Vredeseilanden working on Sustainable Agriculture Chain Development (SACD). Its mission is to enhance the position of the organized family farmers. VECO has developed relationships with organized smallholder farmers, NGO's, research institutes and governmental bodies. The experiences over the last 5 years, have shown how important it is to invest in skills, structures etc...of farmers, enabling farmers getting access to markets. The private sector brings in the commercial experience on the quality and quantities demanded by the market, and in the best conditions can be an active player in co-investing in the supply chain and with the farmers. VECO Indonesia started in 2001 with the cooperation with Ayu Tani, in 2009 with the funding and strengthening of the organizational capacity of JANTAN and in 2010 with the partnership with PT. Mars. The results of this latter partnership illustrate how working together with the private sector can create new opportunities and resources for farmers. VECO Indonesia is now in the process of developing modules and training manuals for the strengthening and capacity building of farmer organizations in Indonesia. (VECO, 2011)
- **CSP (Cocoa Sustainability Partnership)** is founded in January 2006, when cocoa stakeholders, including PT. Mars, met in Makassar to study the importance of building mutual partnerships. As a result, they agreed to establish a coordination forum for cocoa development wherein its membership was open for government and the private sector. The forum was called 'Cocoa Sustainability Partnership' because the aim is to preserve the sustainability of Indonesian cocoa by arranging programs and field activities either directly or by providing funds or human resources. The CSP consists of 3 sub committees, namely Technology Development, Technology Transfer and Farmer Empowerment. PT. Mars is included in the first two and VECO Indonesia in the last one. (CSP, 2011)

Besides the 4 organizations described above, there are also plenty of financial institutions in the Ende and Flores Timur districts, where farmers can save or borrow money. These institutions include credit cooperatives (groups); banks (BRI, BDP, BPR); credit collectives and District PNPM. Furthermore there are some insurance companies in Ende and Flores Timur, namely Jiwa Sraya, Bumi Putera, Prudential and Bumi Asih. However, not many farmers access these institutions because they know little about them and the institutions do little to promote their services locally. The model of social protection that flourishes in rural communities is cash and in-kind (building materials, rice) savings clubs. This model does help members who are in need or who have an emergency, and it is a part of a way of saving. The drawback is there is no interest. (VECO, 2011b).

### 3.5. Chain Influencers

In mid-2008, **the Indonesian government** announced a large national program for the revitalization of the cocoa industry, known as 'Gernas Pro Kakao'. The aim of the program is to turn Indonesia into the largest cocoa producing country, by replacing up to 70,000 hectares of cocoa trees, rehabilitate another 140,000 and intensify farming on 300,000 hectares, bringing the total planted area around 900,000 hectares of productive cocoa trees. The program especially wants to improve the quality of the cocoa beans. Since April 2010, the Indonesian government imposed a 10% tax on the cocoa bean export in order to boost the local processing industry. As a consequence, the farm gate price for cocoa beans directly dropped with 10%. Cocoa farmers in Flores still get around 75% of the price Freight On Board (FOB) in New York, which is a very high percentage compared to i.e. 65 to 70% in Ghana. This means that only 15% of the price FOB is for the trader and transport to the ports in New York or Amsterdam (and the other 10% is payment for the 10% export tax for Indonesian cocoa beans, which is directly deducted from the farm gate price). This percentage corresponds to 900 to 1,850 USD per ha for farmers' cocoa, which is a good income for an average Indonesian farmer. (Antara News, 2011) The support of the government is increasing the last years. They facilitated the access to credit for SIKAP and they provided fermentation facilities for JANTAN. (VECO Indonesia, 2011b)

### 3.6. Main bottlenecks/problems faced by the cocoa farmers in the chain.

Cocoa farmers on Flores are facing a lot of problems, that are obstacles for a .

**First** there is the problem of poor **quality** of beans and low **productivity** of the trees.

- Low productivity is mainly caused by limited micro-credit (for buying inputs like pesticides, organic fertilizer, good seedlings) and very little knowledge on improved technologies such as fertilizer use, pruning, plant rehabilitation and pest management. An example of the latter is the cocoa pod borer, an insect that caused a lot of trouble in the cocoa cultivation of Flores and made the yields decrease enormously. As a consequence, the farmers sprayed more and more pesticides, which made the condition of the soils and the beans worse. Farmers have very little knowledge and guidance towards sustainable farming.
- Related to quality, farmers have very little knowledge of the right processing techniques, like fermentation of the beans, conditions for storage of beans etc.... This results in low quality of the beans.

**The second** problem is the very weak **bargaining position** of the farmer in the chain. This is caused by the limited capacity of farmers groups (small groups that exist in most of the villages) to organize collective marketing. Another reason is that farmers are not informed about the prices, so they are not in the position to bargain the price when selling the beans. Before the cooperation with PT Mars, farmers were manipulated by middleman buying their cocoa for low prices. Generally, there is a limited participation of women in the cocoa chain because cash crops are mainly dealt with by men. (VECO, 2011).

## 4 P.T. Mars and their pathways towards sustainability.

### 4.1 Underlying motives of P. T. Mars for investing in sustainability

Private companies, like Mars, are confronted with an end-market increasingly more traceability and quality of the cocoa. Another challenge for these companies is how to secure the supply



over longer periods, knowing that there is an increasing demand all over the world (increasing population, growing markets - China,....- ) and a decreasing cocoa production due to declining soil fertility and neglected genetic resources (trees). Long term relationships with producers and their organizations, and investing in them (farmer organisations) to ensure quality, sustainability claims and sufficient supply in the future, is crucial for their own survival.

At Mars, sustainability of the cocoa industry is part of the strategy and business practices, with focus on the viability of smallholder cocoa production systems and the needs of cocoa communities. Many issues threaten the sustainability and the livelihoods of the eight million smallholder cocoa farmers worldwide that can only be addressed through large programs in which industry collaborates with governments of producing and consuming countries and with national and international institutes, as well as with NGO's and the cocoa farmers (Mars – New food Magazine 6/2010).

In April 2010, Mars Inc. announced that by 2020, all of their cocoa beans would be from sources certified as sustainable. They have already partnered with Rainforest Alliance (an international non-profit organization dedicated to the conservation of tropical forests) and UTZ Good Inside (one of the worlds largest sustainability certification systems for coffee, cocoa and tea) to meet 200,000 tons of the projected annual cocoa bean supply by that time. Andrew Harner, Global Cocoa Director for Mars Chocolate, said: "Currently, we are on track to buy 10% certified cocoa in 2011, but the available supply of certified cocoa is still constrained." "Our real interest in certification is to motivate an industry-wide adoption of sourcing criteria that will drive concrete benefits for farmers, first and foremost of which must be increased productivity and income," Harner said. For its part as an industry leader, Mars has been at the forefront of cocoa science related to plant breeding and pest and disease control programs. The company describes the sustainability of the Indonesian cocoa chain as a combination of: environmental sustainability (seeking to achieve production in concert with environment), economic sustainability (seeking to enable a profitable supply chain such that farmers' efforts are compensated fairly) and social sustainability (seeking to benefit cocoa-growing communities with responsible labor practices and skills enhancement as a key focus). (PT. Mars, 2010)

### **Conditions that need to be fulfilled in order to achieve that target:**

If these voluntary targets are met, then it is estimated that over 25% of Sulawesi's cocoa crop, or about 100,000 tons, will need to be traceable and certified as sustainable by 2020. This represents a new and growing market opportunity for farmers. VECO, Mars Inc. and other stakeholders in the cocoa chain share a common interest in assisting Indonesian farmers to reach this goal.

On farmer level: In order to make certification and traceability feasible, farmers will need to **organize themselves** into farmer organizations, since certification of small individual farmers is not cost efficient. (Mars Incorporated, 2011)

In collective marketing, **availability of working capital** at level of the farmer organization, is crucial to buy cocoa from farmer members.

Improving the members' **skills and knowledge** in good cultivation techniques, on collective marketing and post-harvest processing of cocoa is very important. (VECO, 2011b)

## **4.2 Approach and actions of PT Mars**

### **4.2.1 On the national level**

PT. Mars, along with Business Watch Indonesia (BWI), Armajaro, VECO Indonesia, Cocoa Sustainability Partnership (CSP), the Rainforest Alliance and UTZ Certified, announced in May 2010 the launch of the national indicators for the certification criteria of sustainable cocoa production. “These important tools are expected to help the Indonesian cocoa industry to satisfy the growing global demand for high quality products that are produced in an environmentally and socially responsible manner and to ensure long term prosperity of the industry” says Janetski, the President-Director of PT. Mars. The national indicators have been developed with consideration toward Indonesian cultural practices and with appreciation of the current cocoa farming system applied by local farming communities. They set out the criteria to be used for certification of sustainable cocoa, enabling farmers, trainers and auditors to follow a uniform set of criteria for growing and certifying this crop. Most importantly, the adoption of certification standards for cocoa will have a positive impact on cocoa farmers, increasing their productivity and profitability. (PT. Mars, 2010) Rainforest Alliance official Peter Sprang said that the national indicators still needed modification because some of the draft guidelines were difficult for farmers to understand and implement. He added that by following good agricultural practices, average yields would likely be increased from the current average of 700 kilograms to 1,000 kilograms per hectare. He added that if Indonesia wanted the national indicators to be implemented fully, there would be an urgent need for the government and concerned companies to support cocoa farmers. (Jakarta Post, 2011)

#### **4.2.2 On the research level**

For decades, PT. Mars helped to bring the cocoa industry together with leaders in related fields to create and fund beneficial research programs related to plant breeding, pest and disease control programs and sustainability. Amongst others, they developed cocoa varieties via breeding programs that are resistant to certain pests and diseases and they studied ways, like bio-control, to stop the spread of these diseases. PT. Mars is also one of the leaders in the research concerning cocoa sustainability. (Mars Incorporated, 2011). The CSP-forum is thereto an important tool of PT. Mars and other stakeholders of the cocoa industry to share their knowledge and research results with farmers. The main subject of the forum is to preserve the sustainability of the cocoa cultivation through programs of the 3 sub committees. In the 2 technological sub committees where PT. Mars is involved, the topic is particularly the environmental sustainability. The Technology Development sub committee agreed to share information, collaborate and coordinate on technology development activities in the cocoa subsector. The activities involved mainly integrated pest management and waste use. The Technology Transfer sub committee agreed to provide 1 field facilitator per 1,000 hectares, who needs to coordinate and strengthen the stakeholders and farmers, collect data and make reports of its work area and train the best practices to the farmers. The reports are in standard form and involve PsPSP (or also known as P3S), techniques concerning pruning, fertilising, frequent and complete harvesting and sanitation. (CSP, 2011)

#### **4.2.3 On the farmers level**

It is important for PT Mars, to get good quality and sufficient volume of cocoa beans from the farmers. Therefore they have to invest in both on the level of the farmers.

PT. Mars sets up pilots to train cocoa farmers in Indonesia from own means. Farmers are being trained to improve soil nutrient supplies, trim tree canopies to manage light and nutrients, rehabilitate and rejuvenate older trees, reduce post-harvest losses through processing and storage

improvements, and diversify their farms to include other crops such as coconut, rubber, oil palm, coffee and fruit. This diversification is important in times of cocoa crises, after changes in demand, climate or other production factors. By reducing production costs, raising productivity, and removing market and policy inefficiencies, farmers are able to substantially increase their income. (Mars Incorporated, 2011)

### **Actions to organize farmers:**

PT. Mars is working especially on the traceability because this is an item that consumers are demanding today. Consumers want to know where their food comes from, so buying cocoa from individual unorganized farmers is not advantageous for Mars. Hereby it is important for Mars that they can cooperate with organized farmers that are assembled in groups.. However, organizing farmers, is something that PT. Mars cannot accomplish on its own. They needed the support of VECO Indonesia, Tana Nua and Ayu Tani to improve the organizational capacity of the farmers.

- The last two years, **VECO Indonesia** played an important facilitation role in making the cocoa farmers of the Flores Timur and Ende districts more organized and business minded, by transforming small farmer groups (25 to 50 members) into large farmer organizations with around 500 to 2,000 members. These farmer organizations need additional capacity building and organizational strengthening. (CSP, 2011). In the beginning of 2011, PT. Mars and VECO Indonesia signed a Memorandum Of Understanding (MOU) that will last for 1 year and may be extended upon written mutual agreement. VECO Indonesia has agreed on focusing on the increase of cocoa production, the increase of capacities of the farmer organizations as business organization and will facilitate the contacts between farmers and private actors with relation to the marketing of cocoa. VECO Indonesia has a facilitator role, and ensures the support of other service delivering organizations, like local ngo's etc.... The previous years, VECO also facilitated the cooperation with PT. Mars for the implementation of cocoa farmer field schools (FFS) and worked with them to train farmers to sort fruit and seeds properly by organizing study visits to PT. Mars' factory in Makassar. There is still space for improvements of VECO Indonesia towards their marketing management and quality control training for village collection point team leaders, which would make it easier for SIKAP and JANTAN to reach the quality goals set by PT. Mars. (VECO Indonesia, 2010).
- **Ayu Tani** also made a big effort towards making farmers more organized. They made a commitment to build technical cooperation with PT. Mars. They played a role in the organization of the cocoa Farmer Field School, working in partnership with JANTAN. They built competent cadres as facilitators of the FFS, based on innovative and sustainable farming practices, taking into account environmental issues. Ayu Tani has good relationships with the East Flores government, as a result, the impact in the field is larger. An important shortcoming is however that Ayu Tani has limited resources, including staff to provide the technical training needed by JANTAN farmer members. (VECO Indonesia, 2010)
- **Tana Nua:** Facilitate knowledge of cocoa farmers in Nangapanda (SIKAP) on cocoa, leading to increased production. Income increase as well as food security aspects are seen as important aspects by Tana Nua. They facilitate farmers in improving the internal coordination of farmer organization leading to stronger organization, that are independent and have advocacy capacity towards the government and the private sector. They facilitate cooperation of the farmer organization with several actors: government and private sector in order to strengthen their position in the cocoa chain. They play a facili-

tation role in administration, management and membership administration for Farmer organization in Nangapanda. Provide free training for cocoa farmers.

### **Actions to increase quality and quantity: Cocoa Farmer Field Schools (FFS)**

The farmers of JANTAN and SIKAP participated in cocoa Farmer Field Schools (FFS) organised by VECO Indonesia and PT. Mars (financing), in cooperation with Swiss Contact (a Swiss NGO). They conducted 5 series of FFS in 2010 and 1 in 2011. In 2011 they also organised a training for preparation of a business plan.

PT. Mars partially paid JANTAN and SIKAP to let their farmers participate in the FFS and they also sent cocoa experts to the field schools to share their knowledge by giving lectures in the training programs. This field school covered harvesting, post harvest management, fermentation, drying and quality control of wet and dry cocoa seeds. Furthermore, they gave lessons about collective marketing. (VECO, 2011)

### **Actions to create good marketing conditions for the farmers:**

- ✓ In 2009, PT Mars opened a **buying/fermentation station** in Central Flores, as a pilot program. The aim was to buy wet beans of the farmers (individual but also through FO's like JANTAN and SIKAP) and to ferment it by themselves, so that they are sure of the quality of the fermented beans (which is not the case if they buy dried/fermented beans from the farmers.). The farmer organizations had an agreement with PT Mars on the quantity that needs to be delivered in order to have a cost effective buying/fermentation station. This pilot program was quite successful since farmers sold large quantities of wet cocoa beans, but on the other side farmers could not deliver the total amount requested-, and the station was considered as not cost effective by PT. Mars. (see further)
- ✓ **Premium prices for good quality cocoa:** To improve the quality of the farmers' cocoa, PT. Mars offers premium prices for good quality. For example, if the waste content is less than 2.5%, the farmers get a quality fee of USD 0.024 (IDR 200) per kilogram. The target for PT. Mars for the year 2010 was to purchase 60 tons of wet cocoa from JANTAN. Sales criteria for quality have not been met, at around 8% humidity, with 2.6% waste, which are above the PT. Mars standards. This is due to insufficient quality control at the villages' cocoa collection point level and the work systems in JANTAN and SIKAP. As a result, the sales target has not been met. JANTAN sold 50.3 tons of wet cocoa beans (to PT. Mars) in 2010, while SIKAP was able to sell 60.2 tons (all production). (VECO, 2011)
- ✓ **Purchase policy:** Until 2010, PT Mars bought wet beans, directly from Farmer Organizations. JANTAN and SIKAP organized the purchase of wet cocoa beans from farmers, funds for buying were provided by PT MARS. However, this year (2011), PT Mars has changed its policy of buying wet cocoa directly from farmer organisations towards buying dry cocoa through local traders designated by PT Mars (UD Fajar Gelitin and Ibu Selly). SIKAP is working with UD Fajar in Maumere and Jantan with UD Gonzalo in Boru, both new business partners of the Farmer Organisations. PT Mars has indicated that they are willing to buy directly from FO's (Including JANTAN and SIKAP) when they are able to provide them with dried/fermented cocoa beans of a good quality (waste, mould). A minimum shipment of 8-10 MT dried Cocoa beans is needed and shipment has to be organized by the FO's. For comparison PT Mars normally buys from the Inter Island traders larger volume units per container (25 MT) The International Mars company is committed to Sustainable and Traceable Cocoa sourcing and Certification of production (also in Flores) and therefore will continue to look for possibilities to work directly with FO's since it is an important factor to ensure both.

- ✓ **Presence in the field** : After changing the purchase policy, PT MARS is continuously present in Flores with 2 staff members based on the island. They have several tasks to do:
- 1) Implement a system (called IDP) for local Traceability of Cocoa beans (which geographical area, which farmer)
  - 2) Check business partners (collectors) of PT Mars whether the price setting for purchasing cocoa beans from the farmers through weighing, moisture content, mould and waste determination is transparent and honest. This is a condition from PT Mars to be able to sell Cocoa beans to them and is monitored regularly. Farmers should benefit from this condition set by PT Mars.
  - 3) Provide JANTAN and SIKAP with technical assistance/training especially on drying and fermentation techniques (partly in collaboration with VECO-Indonesia)
  - 4) Internal Auditing process of Cocoa beans bought from business partners.

## **4.4 Sustainable Impact of the Chain interventions (until end of 2010)**

### **4.4.1 Economical sustainability**

#### **Farmers get better prices**

The farmers now receive a better price for their product. Before the cooperation farmers got USD 0.92 (IDR 7,800) per kilogram of wet beans and this has now become USD 1.13 (IDR 9,600). (VECO Indonesia, 2011) The partnership between JANTAN and PT. Mars is unwritten, because the price of cocoa fluctuates with the dollar exchange rate. Since the new system of 2011, the farmers have to negotiate with the middlemen about the prices of their beans, instead of with PT. Mars. Besides these better prices, farmers can get large quality fees if they are able to meet PT. Mars' production and quality standards. (VECO, 2011). The farmers have gained skills to negotiate and they are able to deal with different buyers. This and the fact that they are able to deliver higher volumes, and better quality of the beans are supporting issues that ensure a good/better price on the long term.

#### **Farmers get a more secure income**

The intercropping, introduced by the trainings and FFS, yields in a more secure income for farmers because when the cocoa harvest is poor, due to climate or diseases as the cocoa stem borer infestation, the farmers still have an income from the other crops (VECO Indonesia, 2011).

#### **Farmers' yields increased**

Before the participation in the farmer field schools, the production was only 30 fruits per tree. After the training this became 40 fruits per tree because of the implementation of the P3S's technique. Also the trainings, furnished by PT. Mars, helped to reduce the losses and improve the yields. (VECO Indonesia, 2011). Farmers have gained more knowledge on the cultivation techniques of cocoa tree, and they are implementing these advanced techniques in their fields. When applied well, better yields for the coming years are ensured.

### **4.4.2 Ecological Sustainability**

#### **Sound environmental management**

The national sustainability criteria encourage future cocoa production that rehabilitates agricultural lands and forms part of a strategy to preserve remnant forests and develop habitat corridors. (Mars Incorporated, 2011) The CSP Technology Transfer sub committee furthermore

guides the cocoa collectors, traders and exporters to apply best practice storage, pest management, quality control, product segregation and internal control systems that allow traceability back to the producers, that minimizes the negative impact on the environment and preserve natural resources for future generations. There should be no cocoa grown in protected areas or areas declared to be natural preserves and priority should be given to the maximization of productivity of existing farms rather than the development of new areas. The future expansion of cocoa farming area should not involve the destruction of any protected wildlife or plants. (CSP, 2011)

### **Less use of agrochemicals**

The production of cocoa has to obey the national criteria, which PT. Mars helped to develop, to get a sustainability certificate. Consequently, farmers have to obey to criteria that minimize the use of agrochemicals as insecticides, herbicides, fungicides and chemical fertilizers. PT. Mars also did a lot of research on pests and diseases of cocoa and on the use of biological control techniques for integrated management of pests, diseases, and other low input management systems. The CSP-forum helps subsequently to transfer this research, together with others, to the farmers. The Technology Transfer sub committee furthermore demands reports about the activities of the farmer organizations concerning rational pesticide use, fertilization and biological control. The field facilitator moreover monitors the growth of pest and disease attacks on cocoa tree and determines control steps together with the farmers, supported by consultants provided by the CSP. In addition, also the trainings and FFS helped the farmers to handle pests and diseases in a sustainable way, with the use of a minimal quantity of agrochemicals.

### **Farmers increased the biodiversity on their farms**

Both at the FFS and trainings as well at the CSP-forum, the farmers learn that biodiversity on their farms is necessary and need to be preserved. They are encouraged and reviewed by the CSP-forum to cultivate value added native shade trees as well as nitrogen-fixing and other crops to add to the biodiversity of the farms. Shade trees in agroforestry enhance functional biodiversity, carbon sequestration, soil fertility, drought resistance as well as weed and biological pest control. Moreover, shade is needed for young cacao trees and is less important in older cacao plantations. (CSP, 2011) The multicultural systems that are applied by the farmers consist mostly of intercropping cocoa with seasonal and long-term plants, such as corn, and annuals such as coconut and candlenuts. The only negative effect is that the cocoa yields per hectare is lower. (VECO Indonesia, 2011).

### **Farmers take water saving into account**

Again, in all 3 learning institutions (FFS, trainings and CSP-forum) the farmers get lessons in how to use the best drainage systems, when to irrigate and how they can best save water. The field facilitator of the Technology Transfer CSP sub committee also reports about this activities. (CSP, 2011)

## **4.4.3 Social/cultural Sustainability**

### **Farmers work in a safer environment**

At the trainings of PT. Mars, farmers learn how they can get a safer farming environment with respect to exposure risks to pesticides and other risks that come with the production of cocoa. (Mars Incorporated, 2011) The CSP-forum, partially organized by PT. Mars, also advises farmers on how to work in a safe way, like a responsible application of agrochemicals. (CSP, 2011)

### **The living standard of the farming families improved**

Mars has also worked with other industry leaders to develop integrated holistic programs that seek to raise the overall standard of living of rural cocoa farming families and communities. PT. Mars always tries to use constructive partnerships that involve all stakeholders with a special emphasis on small farmers. They involve the farmers of JANTAN and SIKAP in the processes as much as possible and they listen carefully to the needs of small farmers (Mars Incorporated, 2011)

### **The role of women improved**

Women are starting to play a clearer role in JANTAN, above all in marketing. This is partially because of the sustainability criteria that PT. Mars helped to develop and partially because of the program that VECO developed with the farmer organizations. They reached the aim that in 2010, 22% women joined the cocoa trainings at PT. Mars' factory. However, the role of women in the cocoa production stays more centered around the initial stages, while men have the control over farm planning, selling and decisions concerning new technologies. (VECO Indonesia, 2011)

### **Consumer's demand is better satisfied**

PT. Mars is of course not only looking to the Indonesian farmer families, they also want to improve the social sustainability of the consumer. Mars Incorporated's business value is to consistently deliver quality and value for money that customers want with efficient and reliable service. They try to do this by satisfying the consumer's demand for chocolate and chocolate products and by predicting this demand in the future. (CSP, 2011)

## **5 IMPACT of INTERVENTIONS OF PT MARS TOWARDS INSTITUTIONALISING SUSTAINABILITY**

The perspectives of moving towards sustainability of chain actors differ and often are an expression of own survival in the long run. In that sense, the efforts of PT Mars of securing their supply of cocoa, has resulted in sustainable changes in the cocoa chains on Flores, on level of the target group and **their organizations**.

### **1. Farmers' organizational and marketing abilities improved**

- a. **Formalization of FO's:** to do business, both FO's realized that registration is a basic requirement if you want establish a sustainable trading relationship with buyers. The opportunity of selling Wet Cocoa Beans to PT Mars, gave a boost to JANTAN as a business organization. Later in 2010 also SIKAP entered this field facilitated by VECO-Indonesia. SIKAP has applied and received the status of association, and JANTAN is recognized as Multi-Purpose Cooperative. Being a Multi-Purpose Cooperative now makes it easier to start business activities and to make investments as it is able to accumulate some capital through shares buying, member fees and easier access to credits. Also the government tends to be more supportive to cooperatives. This however still has to be further proven in practice for JANTAN.
- b. The **negotiation** position of farmer families improved a lot. A good example is the negotiation of the farmer organizations with the government to obtain a cocoa seedling nursery. They also obtained land use rights to build a cocoa processing unit in Nangapanda district. In East Flores, through JANTAN, farmer families

successfully negotiated a price with local traders of USD 1.18 to 1.42 (IDR 10,000 to 12,000) per kilogram dried beans.

- c. The farmer organizations ability to **attract support from local government** (forestry and plantations), with a processing unit and capital for SIKAP and fermentation boxes for 6 villages where JANTAN is active. JANTAN is currently negotiating with the village heads to ask for permission to manage these processing units for its members.

## **2. Farmers' organisations resilience for coping and adapting to new situations has increased.**

- a. For JANTAN it takes some time to adjust to the new situation (no more wet beans) but they should be able to sell dried beans during 2011 as they did before also. The changes in PT MARS policy to buy dry beans has motivated SIKAP to process its own beans more systematically with the needed moisture content. (they have their own processing unit) The fermentation is another possibility but takes some more time to be organized both for SIKAP and JANTAN. The fermentation boxes (JANTAN) are only covering part of the capacity needed for members of JANTAN but serve as a model to introduce this technology in the area. These boxes are easy to construct and materials are cheap.
- b. With the new situation, the farmers are facing changes that need to be tackled very fast. PT Mars change of policy has encouraged them **to train the farmers** to do their own processing. This has resulted in processed, better quality Cocoa beans for which a better price will be paid.
- c. Farmers' organizations have the capacity to attract **new business partners**. Through this development they are able to sell larger volumes of Cocoa beans to different buyers. This certainly offers clear business opportunities for FO's.
- d. As a result of the change in PT MARS purchasing policy, JANTAN and SIKAP do not have sufficient funds to purchase wet cocoa beans from farmers, the funds which were previously provided by PT MARS. The number of farmer members paying membership fees is still low because the JANTAN and SIKAP administration systems are still inefficient. However, thanks to the collaboration and negotiation with the new traders, the collective marketing activity of the organisation continued.

## **3. - The skills of farmers are strengthened (technical, economical, organizational)**

Farmers of JANTAN and SIKAP have been trained on different issues. This has resulted in changes at the farmer level:

- ✓ more frequent harvesting, pruning, fertilizing and sanitation activities as a result of the dissemination of last year's farmer field school results. Two women cadres in JANTAN are earning an income from selling side-grafting services, one woman earns income from selling cocoa clones developed in the seedling nursery.
- ✓ At the processing level: at SIKAP processing units are used to process the cocoa, while at Jantan the processing is done by the farmers. This means their knowledge and skills in processing quality cocoa is growing.
- ✓ At the marketing level: Several members of farmer groups that are members of SIKAP and JANTAN are able to negotiate prices for SNI (Indonesian National Standard) quality cocoa with local traders.



✓ At Organizational level: farmer involvement and women's participation is growing. Improved Quality control of the beans by village market teams. 12 of the 45 members of the Village Market Team are **women**

4. Collaboration and coordination among economical actors (**horizontal integration**) is possible. Their relationship with PT Mars, has opened a lot of possibilities. Both organisations (SIKAP and JANTAN) have the possibilities to exchange a lot with each other, organizing trainings together etc.... Other important contacts: CSP.
5. Farmer Organizations are pushed to look for new solutions. There is potential for more value adding activities (**vertical integration**) by processing (drying/fermentation) the cocoa beans at farmer/organization level.

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