



**Study on Suitability,
Feasibility, and Socioeconomic
Benefits of Cocoa Production
in Viet Nam**

Inception Report

prepared for

**Ministry of Agriculture and Rural
Development (MARD) – Government of
Viet Nam**

by



**Agrifood Consulting
International, INC**

Contact Person:

Francesco Goletti

Contact Details:

Agrifood Consulting International
8311 Wisconsin Avenue, Suite B-11
Bethesda, MD 20814, USA
Fax: +1 301 6545159
Email: f.goletti@agrifoodconsulting.com

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LIST OF ABBREVIATIONS AND NAMES

ACIAR	Australian Centre for International Agricultural Research
ACDI/VOCA	American Non – Government Organisation
CARD	The Collaboration for Agriculture and Rural Development program
Cargill	International provider of food, agricultural and risk management www.cargill.com
DANIDA	Danish International Development Agency
DCP	Department of Crop Production
DOSTE	Department of Science & Technology
ED&F MAN	Provider of agricultural commodities: www.edfman.com
FAO	Food and Agriculture Organisation of the United Nations
FFS	Farmer Field School
FSSIV	Forest Science sub-Instituted South Viet Nam
GTZ	Gesellschaft fur Technische Zusammenarbeit
MARD	Ministry of Agriculture and Rural Development (Vietnam)
NAFEC	National Agriculture and Fishery Extension Center
NLU	Nong Lam University in Ho Chi Minh City
OLAM	Global commodity trading company: www.olamonline.com
SNV	Dutch Non – Government Organisation
Sub-NIAPP	National Instituted of Agricultural Plans and Projection – southern Instituted in HCMC
SUCCESS	Sustainable CoCea Enterprise Solutions for Smallholders
TF	Training Facilitator
TOUTON	French Trade Company in Coffee and Cocoa: www.touton.fr
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VAC	Vuon Ao Chuong (Garden - Fish pond – Livestock system)
WCF	World Cocoa Foundation
WHO	World Health Organisation of the United Nations
WWF	World Wildlife Fund

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1 INTRODUCTION

1. The cocoa sector in Viet Nam is in an ebullient stage of development, showing promise of rapid growth. An increasing number of farmers are starting to grow cocoa attracted by high and increasing prices. A number of initiatives by government and donors are focused on the sector and there is a general optimism that cocoa might be the next success story of agriculture in Viet Nam. The current situation is the result of the combination of several interrelated factors briefly described in the following section.

1.1 Factors Contributing to the Current Positive Outlook for Cocoa in Viet Nam

2. **The interest of key actors in international cocoa and chocolate industry,** spurred by the initial delegation of Mars to Viet Nam in 1993 suggesting to MARD that the cocoa sector had a considerable potential in Viet Nam. Mars facilitated the introduction of new clones into Viet Nam from Costa Rica. This was followed by the support to research (particularly to the Nong Lam University in HCMC) which started demonstration during the period 1997-2003. In 2003-2004 ED&F MAN started distribution of seedling to farmers and became the first international buyer to provide a market for cocoa produced by farmers. Other companies followed suit. Cargill invested in buying stations in Ben Tre and Dak Lac since 2005 and is currently the largest buyer of cocoa beans in Viet Nam. Other international buyers including Olam, Amajaro, and Mitsubishi are already buying cocoa beans or planning to do soon. Cargill and Mars (through Masterfoods) have provided support to extension, research activities, and dissemination activities.

3. **The positive response of the Government.** In March 2005, MARD established the Viet Nam Cocoa Coordination Committee to facilitate formulation of policies related to cocoa sector. Participants in the VCCC include key agencies at MARD, the private sector, and research organizations. The Committee helped formulate the MARD Decision 2678/2007/QĐ-BNN-KH of 14 September 2007 that indicated the objective of 60,000 ha by 2015 and 80,000 ha by 2020. At the local level, the provinces in the cocoa producing areas are also establishing plans and provide support to farmers for the cultivation of cocoa. Standards for cocoa were established in 2006 and 8 clones (TD1, TD2, TD3, TD5, TD6, TD8, TD10 and TD14) were approved in 2005.

4. **The enthusiastic and dedicated effort of the research organizations,** most notably Nong Lam University which was engaged since 1997 in applied research in several dimensions including germplasm and clones experiments, cultivation methods, farming systems, pests and diseases, and fermentation. The university established demonstrations in several provinces, trained farmers, monitored their performance, and provided advisory services.

5. **The continued and increasing interest and support by donors.** Both DANIDA (during 1998-2000) and GTZ (during 2001-2003) provided support in the early stages of cocoa development. In 2004 the Success Alliance (funded by USDA-

WCF-Mars initially and subsequently by USAID) established a comprehensive technical assistance program that helped training 20,000 farmers, develop a nursery system, and disseminate information about cocoa in various provinces. WWF is engaging in an interesting model of agroforestry in Lam Dong. Winrock (funded by USAID) has also started a cocoa project within the biodiversity program that is currently implementing in South Viet Nam. Helvetas has just completed a feasibility study for organic and fair trade cocoa production and is planning to start a 5-year program in this area. The Dutch Government has committed to contribute the coming 3 years to the Public Private Partnership for Sustainable Cocoa Development in Viet Nam. Other donors might soon be interested in supporting the sector to promote biodiversity, poverty reduction, and private enterprise.

6. **The high and increasing world market prices for cocoa.** Since its low levels of the late 1990s, when prices reached an historical low of USD 804/tonne in December 2000 (equivalent to VND 12,000/kg), prices are currently (May 2008) at USD 2,690/tonne (equivalent to over VND 43,000/kg). During the exploratory mission in Ben Tre, the Consultant observed prices of VND 42,000-43,000/kg paid at the buying stations of Cargill and ED&F MAN. The prices and the presence of buyers provide strong incentives to farmers, particularly given at a time when alternative crops such as pepper and cashews are less attractive.

7. **The suitability of agroecological conditions to cocoa cultivation in Viet Nam.** Since 1997, research and extension efforts have shown that a broad range of agroecological conditions exist in Viet Nam to grow cacao under different farming systems. The most successful methods of cocoa cultivation seem to be intercropping methods with a variety of trees, most notably coconut (in the MRD), and cashew nuts (in the CH). Intercropping with other plants (fruit trees such as durian, longan, and), cash crops (such as pepper and coffee) have been shown to be viable. Monoculture has been tried in the CH. Agroforestry demonstrations (in Lam Dong) are under implementation and show promising results. A study by Helvetas has shown the feasibility of organic cocoa, but actual demonstrations have not yet been established. Almost 9,000 ha of cocoa are currently cultivated to cocoa and yields performance is quite satisfactory.

8. The combination of these factors suggest that the cocoa sector in Viet Nam might be on the verge of a major take-off growth stage, which, if appropriately planned and implemented, could take Viet Nam from the current insignificant position in world market to be among the first 7 exporters over the next 10 years.

9. This positive outlook however needs to be balanced against a series of other factors that moderate the current optimism.

1.2 Factors Moderating the Current Optimism for Cocoa in Viet Nam

10. **A history of failures in the cocoa sector in Viet Nam.** Cocoa was first introduced into Vietnam by the French but never reached commercially viable production levels. In the 1960s, it was reintroduced by the Americans into the South of Vietnam. During that period, the ongoing war and insecurity in the countryside undermined the commercial viability of the infant cocoa industry. During 1980s, the Vietnamese government tried to reintroduce cocoa with support from several State-

Owned Enterprises (SOEs). As part of this effort, thousands of farmers planted *Theobroma cocoa* throughout several dozen provinces ranging from Quang Ngai in central Vietnam to Can Tho in the Mekong Delta. In Quang Ngai alone, the cocoa penetration reached approximately 3,000 hectares (ha) during that period. A cocoa grinding factory equipped with high and modern technique was also built up in the mid 1990s. Farmers succeeded in growing cocoa and producing fruits, but the SOEs were unable to establish a market. Without an available local buyer for their beans and no access to the international markets, with the exception of a few farmers who used cocoa primarily for home consumption in such forms as cocoa wine, most farmers exited cocoa production. The cocoa grinding factory subsequently closed¹. When in the early 2000, researchers from NLU tried to re-introduce cocoa, they met with extreme reluctance from farmers and provincial leader to engage in cocoa. Currently, the acceptability of cocoa by both farmers and provincial leaders is increasing, as a result of the factors discussed in the previous section. There should be however a note of caution related to the possibility that another failure of cocoa sector (originating from factors such as market, diseases and pests, etc) might block again the development of the sector for a considerable lag of time.

11. World price trends and variability. Commodity prices are notoriously highly variable and this is no exception for cocoa. Current price trends for cocoa put into an historical perspective are not particularly high and the current outlook for continued increase in price might not be lasting over the long term. Spurred by the current high prices and increasing demand for dark chocolate in US and Europe which requires higher content of cocoa, the major producing countries (Ivory Coast, Ghana, and Indonesia) might expand their production capacity and over the medium period (5-10 years) generate a surplus situation as it has already occurred in the past. As a cocoa producer still in its infancy, Viet Nam needs to prepare strategies to deal with highly variable prices in world market and the possibility of reversing current increasing trends.

12. Competing crops. While the price of cocoa is currently high and increasing, the same occurs with coffee. Particularly in the major producing areas of the CH, the incentives for farmers to shift out of coffee or even intercrop cocoa with coffee are low. At current prices coffee brings about higher income; harvest time is concentrated whereas harvest time for cocoa lasts over a period of several months. In addition, most farmers are already familiar with coffee whereas cocoa is a relatively new crop. Rubber might be an alternative crop to cocoa. There are several aspects that might favour cocoa given the opportunity that cocoa offers for risk minimization, lower use of chemicals and water, lower and smother labor requirements, lower initial capital investment, biodiversity benefits, and a greater flexibility to adapt to a broader range of agroecological conditions than coffee or rubber. The government has a program to provide concessionary loans for rubber plantation whereas there is not such a program for cocoa. The evidence for the advantages of cocoa relatively to competing crops has to be demonstrated and disseminated among farmers. Unless a sustained effort in this direction is undertaken, the development of the cocoa sector might be slowed down.

13. Diseases and pests. So far, diseases and pests affecting cocoa have been contained. Phytophthora and helopeltis are the two main dangers for cocoa in Viet

¹ See WWF (2007), Overview of the cocoa sector in Viet Nam.

Nam. However, intensification of cocoa and the expansion to larger areas might create the conditions for a proliferation of diseases and pest, as in other producing countries. The losses to the industry could be considerable and a brake to development unless investments in monitoring, research, and extension are expanded with the development of the sector. Estimates of losses to the world cocoa industry due to pests and diseases are huge and vary between 30 and 50% of total production. In the year 2000 the occurrence of moniliasis in Peru led to the abandonment of over 50% of all cocoa.

14. **Labor costs.** Even though labor requirements of cocoa are less than coffee, rubber, pepper, and cashews labor costs in Viet Nam are increasing both in urban and rural areas. As the country moves toward mid-income country status (to be achieved by 2010) and further on will move toward industrialized country status, labor costs will increase as the result of labor migration from rural to urban areas and, within rural areas, from agriculture to non-farm activities. Cocoa is a crop that does not lend itself easily to mechanization (except in the fermentation and drying stages). Labor costs will remain a considerable part of the costs of production and are going to increase.

15. **Declining yields.** Whereas declining yields can often be attributed to the build-up of diseases and pests, in many areas the early promise of sustained yields from improved varieties is not realized. For no apparent reason trees become reluctant to flower and yield under the traditional management of the crop. Research into environmental physiology must be intensified to understand the reasons for yield decline, and thus to suggest the agronomic means to prevent it. Nevertheless, the regularity of observations about declining yield, particularly in intensive monoculture systems is a sober reminder against the over-optimism of some observations in Viet Nam where yields of 3 to 4 tonnes/ha have occurred. Even the assumptions of 1.5-1.8 tonnes/ha in the current action plan of MARD might be considered quite optimistic by world standards.

16. **Sustainability and biodiversity.** Models of cocoa in agroforestry systems are currently undertaken by three independent projects in Viet Nam (carried by WWF with Netherlands funding, Winrock International with USAID funding, and by FSSIV with Masterfood/Mars funding). The development of the sector in Viet Nam could occur through intensification of monoculture or intercropping. Monoculture could lead to deforestation, loss of biodiversity, and environmental problems linked to use of chemicals and water. The trade-offs between biodiversity-benefits and agricultural productivity enhancement of intensive systems need to be carefully assessed.

17. **Climate change.** Climate change is expected to affect the cocoa sector through declining rainfalls, increasing temperature, and salinity intrusion in the Mekong River Delta. While a lengthening of the dry season might endanger the production of cocoa in the CH, the intrusion of salinity and flood might endanger the production of cocoa in the MRD.

1.3 Rationale of the Study

18. Given the infancy of the cocoa sector in Viet Nam, the Study on Suitability, Feasibility, and Socioeconomic Benefits of Cocoa in Viet Nam provides an opportunity to take stock of what the current situation is, identify the constraints and opportunities to development, and suggest strategies, policies, and investment for the sector.

19. The Study is funded by the Dutch Government. The Ministry of Agriculture, Nature, and Food Quality of the Netherlands has initiated a number of PPPs with developing countries including Viet Nam as a result of the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002. These initiative aims at enhancing the collaboration between public and private partners, civil society organizations and intergovernmental organizations in order to contribute to sustainable development and poverty alleviation taking into consideration the aspects of social, economic, and ecological sustainability.

1.4 Objectives of the Study

20. The objective of the study is to produce a socio-economic and environmental analysis for policy makers to understand the economic and financial benefit and costs of cocoa in Vietnam compared to alternative cash crops. The study will address the following issues:

1. Assess the current status of development of the cocoa sector in Vietnam;
2. Determine the competitiveness of the Vietnamese cocoa farmer vis-à-vis other crops in Vietnam and versus other cocoa producers world-wide, now and in the future
3. Perform an agro-ecological analysis of typical existing and potential production areas. This would include a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the industry at this stage to identify constraints and opportunities for current and future growth.
4. Identify the key areas of further investment and policies based upon this analysis.

21. The outcome of the study will form the basis of a roadmap to direct investment from donors and the Vietnamese government. The roadmap will take into consideration stakeholders' interests, from farmer to processor, and will also take policy issues into account.

22. Further details are provided in the TOR of the Study (see section 8.1).

1.5 Objectives of the Inception Report

23. The objectives of the Inception Report are:

1. To briefly review the key features and issues in the world cocoa market
2. To provide an overview of the cocoa sector in Viet Nam
3. To identify the key issues for the cocoa sector development in Viet Nam

4. To present the approach and methodology of the study
5. To present the detailed work plan for the completion of the study
6. To update on progress during Phase 1

1.6 Organization of the Report

24. The Inception Report is organized into 7 chapters as follows:

- Chapter 1 is the Introduction
- Chapter 2 provides a brief review of the key features and issues in the world cocoa market
- Chapter 3 is an overview of the cocoa sector in Viet Nam
- Chapter 4 identifies the key issues for the development of the cocoa sector in Viet Nam that will be addressed by the Study
- Chapter 5 presents the approach and methodology of the Study
- Chapter 6 provides the organization, deliverables, and work plan of the Study
- Chapter 7 gives the progress report during the Inception Phase (Phase 1) of the Study

2 THE WORLD COCOA MARKET

2.1 Key Features of World Cocoa Market

25. The key features of production in world cocoa production are listed below:
- Predominantly grown by smallholders
 - Highly concentrated - 3 major producing countries
 - Low average yields
 - Significant expansion limited to same 3 major producers and continued concentration therefore likely
 - Increasing vulnerability of supply to a production shock in a major producing country
 - Increasing losses and threats from pests and diseases
 - Recent liberalization of marketing in major producing countries has led to lower quality and increased exposure of growers to price changes
 - Political instability in some producing countries
 - Ageing farmers and plant stock in West Africa
 - Quality problems
 - Labor supply issues in some countries
 - Production can't be "wound-up" quickly
 - Low prices in the past have led to reduced inputs and lower productivity on many farms.
26. The key features of production in world cocoa consumption are listed below:
- Sustained consumption growth throughout the 20th century
 - Traditional major markets of Western Europe and North America remain important - industry advertising is high
 - Significant emerging markets in Asia, Eastern Europe and Latin America
 - Growth in China limited over the next decade
 - Large potential in Russia but uncertain due to economic situation
 - High prices/supply shortages may risk market potential due to establishment of consumption patterns that do not include chocolate or at best include chocolate with a low cocoa content (particularly in China)
 - Positive health aspects (antioxidant flavinoids) and negative health aspects (mainly from fat and sugar content of chocolate) may influence consumption
 - Growing use of alternatives to cocoa butter (since the year 2000, the European Union has decided to accept a 5% content of vegetable fats in chocolate products) a threat to demand growth.

2.2 Varieties

27. There are three main varieties of cacao: Forastero, Criollo, and Trinitario. The first comprises 95% of the world production of cacao, and is the most widely used. Overall, the highest quality cocoa beans come from the Criollo variety, which is considered a delicacy. Criollo plantations have lower yields than those of Forastero,

and also tend to be less resistant to several diseases that attack the cocoa plant, hence very few countries still produce it. One of the largest producer of Criollo beans is Venezuela (Chuao and Porcelana). Trinitario is a hybrid between Criollo and Forastero varieties. It is considered of much higher quality than the latter, but has higher yields and is more resistant to disease than the former.

2.3 Production

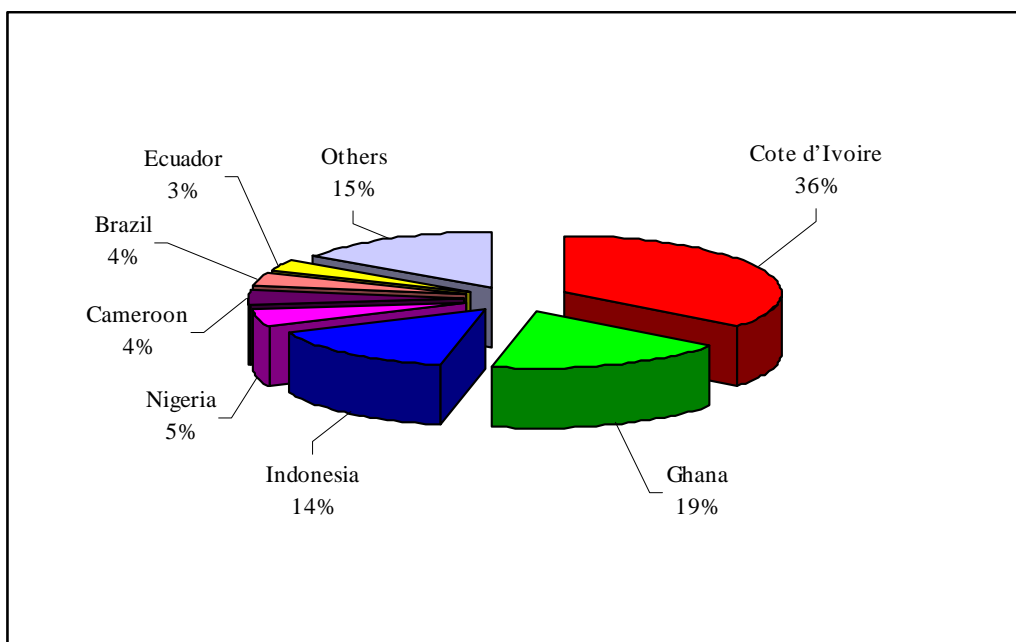
28. West Africa supplies about 70% of the world's Cocoa production (see Table 1). This is led by four countries made up of Côte d'Ivoire, Ghana, Nigeria and Cameroon. The Americas produce about 12% of the annual global cocoa output. This is led by Brazil and Ecuador. Asia and Oceania produces about 18% of the annual global cocoa output. Indonesia is the major producer of cocoa in this region followed by Papua New Guinea and Malaysia respectively.

Table 1 World Production of Cocoa (thousand tonnes)

	2005/06		2006/07		2007/08 (forecasts)	
Africa	2643	70.3%	2334	69.1%	2578	69.4%
Cameroon	166		166		185	
Cote d'Ivoire	1408		1229		1370	
Ghana	740		615		675	
Nigeria	200		190		210	
Others	129		133		138	
America	446	11.9%	415	12.3%	445	12%
Brazil	162		126		160	
Ecuador	114		115		115	
Others	170		175		171	
Asia and Oceania	670	17.8%	627	18.6%	690	18.6%
Indonesia	560		520		580	
Others	110		107		110	
World Total	3759	100%	3376	100%	3713	100%

Source: ICCO Quarterly Bulletin of Cocoa Statistics, Vol. XXXIV, No. 1, Cocoa Year 2008/08.

Note: Total may differ from sum of constituents due to rounding



Source: Based on the data from International Cocoa Organization. Data are average of 2005/2006 and 2006/2007 crop years.

Figure 1 Share of major producers in total cocoa beans production

29. The major producers with more than 100,000 tonnes include 7 countries: Côte d'Ivoire, Ghana, Indonesia, Nigeria, Cameroon, Brazil, and Ecuador (see Table 2)

Table 2 The 7 Major Producers of Cocoa Bean

	Average Production 2005/2007 ('1000 tonnes)	Percentage of World Production	Average Yield in 2005/2006 (kg/ha)
Côte d'Ivoire	1319	37.0%	757
Ghana	678	19.0%	400
Indonesia	540	15.1%	1184
Nigeria	195	5.5%	439
Cameroon	166	4.7%	445
Brazil	144	4.0%	318
Ecuador	115	3.2%	262
Others	578	11.5%	417

Source. Based on average of production data from ICCO; yields are computed from FAOSTAT.

30. Average yields across all producers is 536 kg/ha and only a few countries reach average yields above 1000 kg/ha. Among major producer countries only Indonesia is in this position.

31. Production trends in all the seven major producers are on the rise, with exception of Brazil (see Figure 2 to Figure 8).

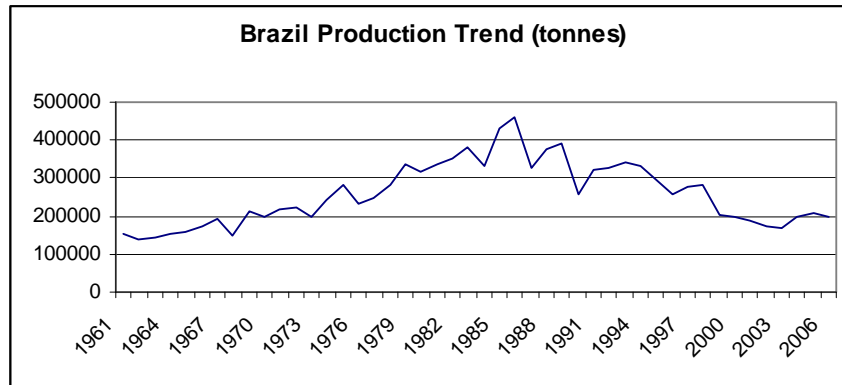


Figure 2 Production trend in Brazil

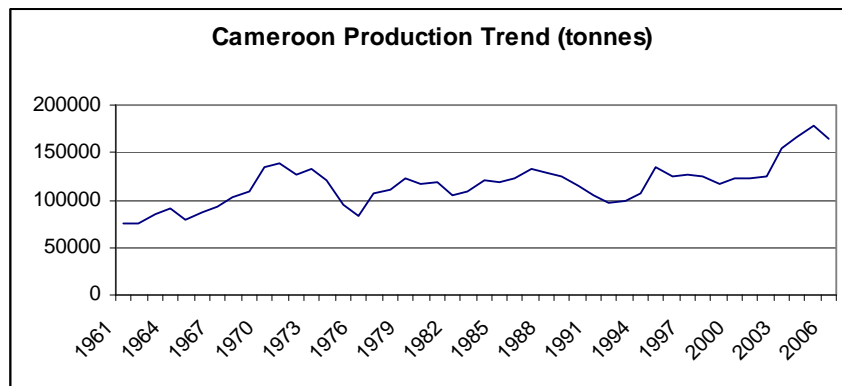


Figure 3 Production trend in Cameroon

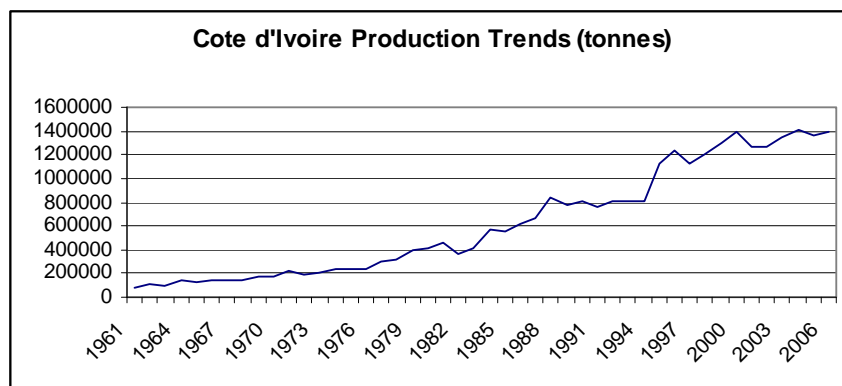


Figure 4 Production trend in Cote d'Ivoire

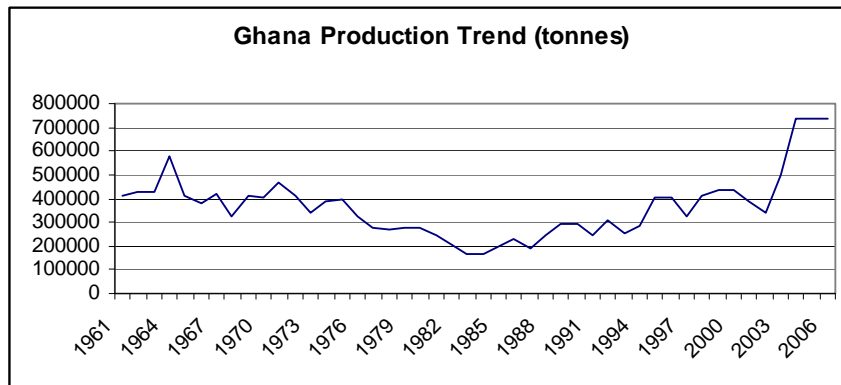


Figure 5 Production trend in Ghana

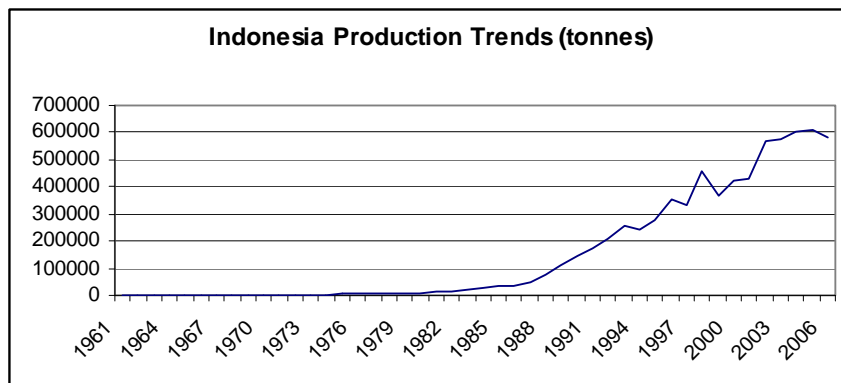


Figure 6 Production trend in Indonesia

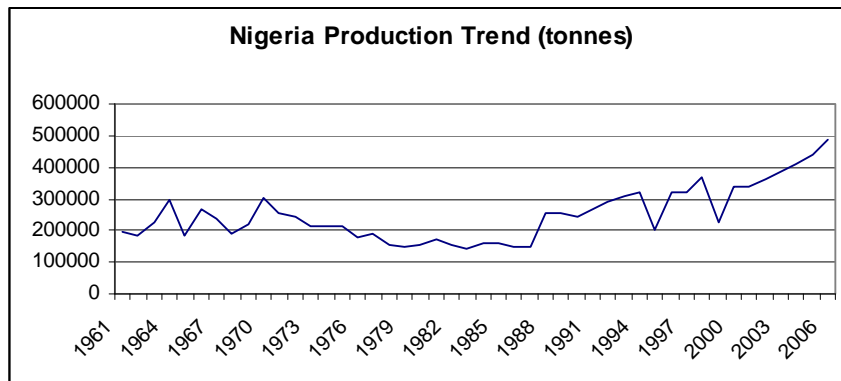


Figure 7 Production trend in Nigeria

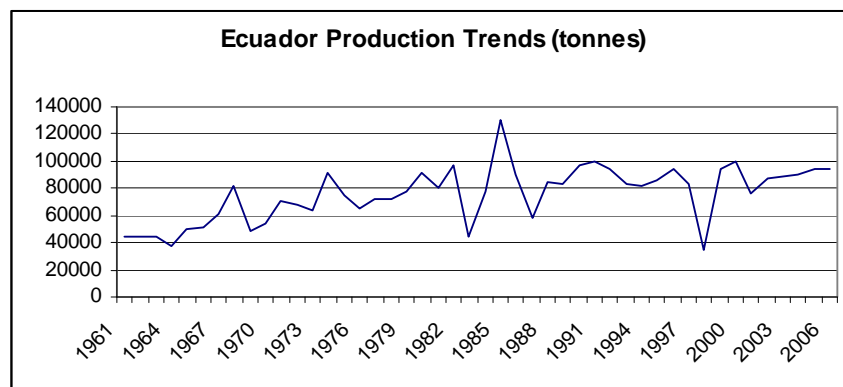
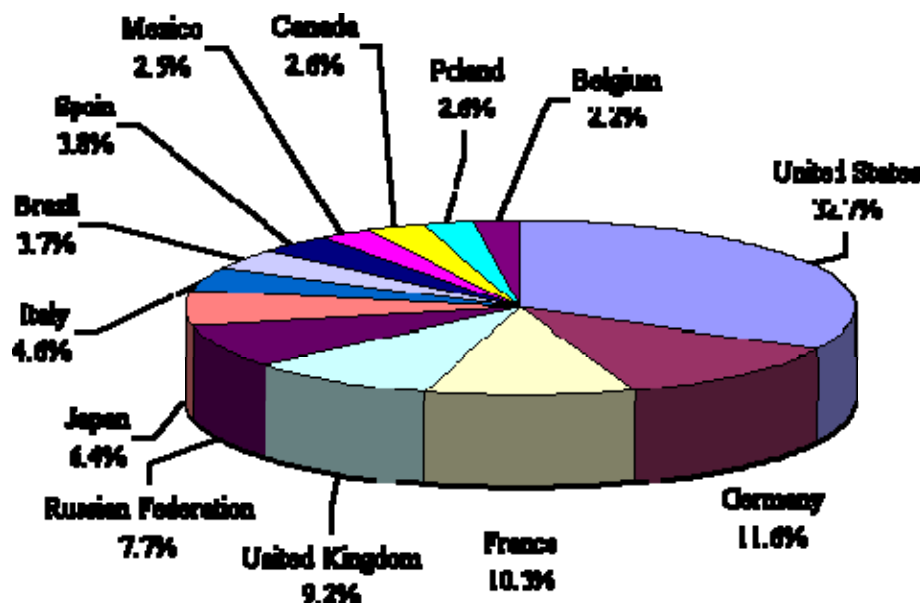


Figure 8 Production trend in Ecuador

Source: FAOSTAT.

2.4 Consumption

32. Although cocoa is largely produced in developing countries, it is mostly consumed in industrialized countries. For cocoa, the buyers in the consuming countries are the processors and the chocolate manufacturers. A few multinational companies dominate both processing and chocolate manufacturing. The following graph represents the main consumers of cocoa, based on the apparent domestic cocoa consumption, which is calculated as grindings plus net imports of cocoa products and of chocolate products in beans equivalent.

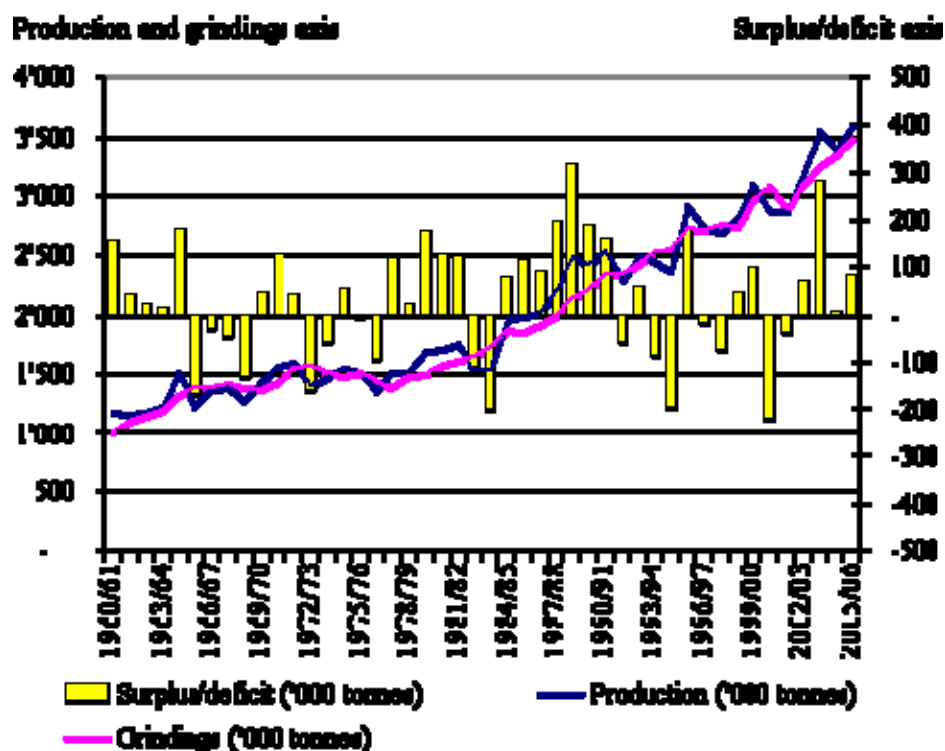


Source: UNCTAD based on the data from International Cocoa Organization, quarterly bulletin of cocoa statistics

Figure 9 Share of main consuming countries in 2004/05

33. Taking into account the data for the last 30 years it is possible to see that with the exception of eight years, there has always been a surplus of production. The

following graph presents the supply and demand balance for the last thirty years, considering grindings as primary demand of cocoa beans.



Source: UNCTAD based on the data from International Cocoa Organization, quarterly bulletin of cocoa statistics

Figure 10 World cocoa bean production, grindings and supply/demand balance

2.5 Trade

34. Most of the main exporters are also the main producers of cocoa beans. Although countries like Brazil and Malaysia are main producers, they are not large exporters due to the size of their processing industry, which absorbs local production. In Latin America for example, the Dominican Republic exports more cocoa beans than Brazil.

35. The value of the world exports of cocoa beans was about USD 4.6 billion in 2006 (see Table 3). Total quantity of cocoa beans exported in 2006 amounted to 3.5 million tonnes with an average unit export value of USD 1311/tonne. Annual growth in export value between 2002 and 2006 was 8% while during the same period export quantities grew at an annual average of 17%.

Table 3 The First 10 Exporters of Cocoa Beans

Exporters	Value exported in 2006, in USD thousand	Quantity exported in 2006 (tonnes)	Unit value (USD/tonne)	Annual growth in value between 2002-2006, %	Annual growth in quantity between 2002-2006, %	Annual growth in value between 2005-2006, %	Share in world exports, %
'World	4,594,062	3,504,461	1,311	8	17	16	100
'Côte d'Ivoire	1,422,913	925,129	1,538			-3	30.97
'Ghana	1,096,322	685,482	1,599	13	21	38	23.86
'Indonesia	619,017	490,778	1,261	5	10	32	13.47
'Nigeria	299,536	184,571	1,623	-1	1	-27	6.52
'Cameroon	221,863	168,159	1,319	4	8	6	4.83
'Ecuador	143,288	89,342	1,604	10	12	26	3.12
'Togo	114,185	69,082	1,653	86	83	39	2.49
'PNG	77,338	47,963	1,612	5	8	-20	1.68
'Dominican Republic	72,028	39,468	1,825	-2	-3	41	1.57
'Guinea	23,150	16,391	1,412	64	49	-9	0.5

Sources : ITC calculations based on COMTRADE statistics.

Product: 1801 Cocoa beans, whole or broken, raw or roasted.

36. The unit value of imports was USD 1,655/tonnes in 2006 (see Table 4). The largest importers of cocoa beans are the US, Netherlands, Malaysia, Germany, and Belgium, where the largest grinding plants are located. Together the five countries import more than 60% of world market.

Table 4 The First 10 Importers of Cocoa Beans

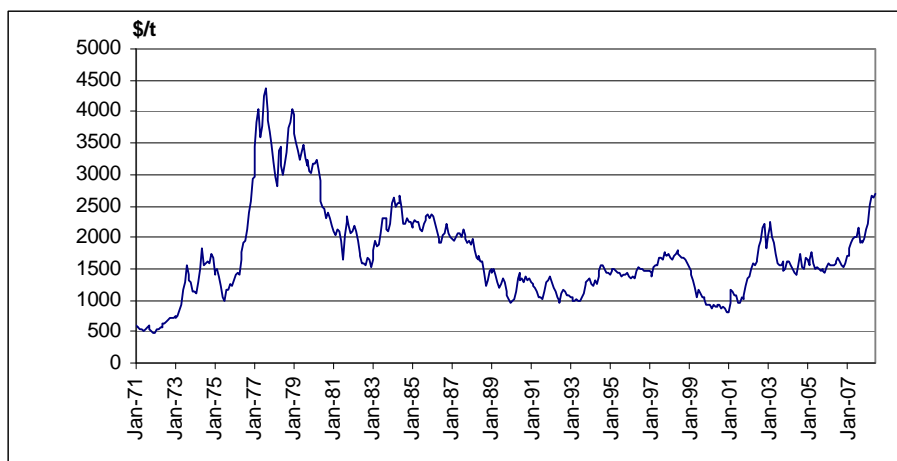
Importers	Value imported in 2006, in USD thousand	Quantity imported in 2006 (tonnes)	Unit value (USD/tonne)	Annual growth in value between 2002-2006, %	Annual growth in quantity between 2002-2006, %	Annual growth in value between 2005-2006, %	Share in world imports, %
'World	4,874,867	2,944,739	1,655	6	11	3	100
'USA	779,620	473,645	1,646	11	12	-18	15.99
'Netherlands	690,875	433,659	1,593	1	20	-17	14.17
'Malaysia	671,187	454,238	1,478	41	48	71	13.77
'Germany	490,661	290,957	1,686	9	10	6	10.07
'Belgium	351,934	198,886	1,770	14	15	11	7.22
'France	274,320	159,092	1,724	0	2	11	5.63
'United Kingdom	222,938	130,621	1,707	-5	-2	28	4.57
'Canada	132,007	78,115	1,690	9	8	48	2.71
'Spain	126,678	74,669	1,697	3	6	3	2.6
'Italy	125,828	66,123	1,903	2	0	-2	2.58

Sources : ITC calculations based on COMTRADE statistics.

Product : 1801 Cocoa beans, whole or broken, raw or roasted

2.6 Prices

37. Historical prices of cocoa have been highly variable. After the cocoa booms of the late 1970s to mid 1980s, prices have been declining throughout the 1990s, to reach a historical minimum (in real terms) in December 2000, when the nominal price reached USD 801/tonne equivalent to a real price (US dollar deflated by the US CPI) of USD 462/tonne. Since 2001 prices have recovered and they are currently reaching a new peak level of USD 2,690/tonne (May 2008), equivalent to a real price of USD 1,223/tonne. The current price is 80% higher than the 20-year average of nominal prices and 34% above the 20 year average of real prices (June 1988 to May 2008). There is no any trend over the past 20 years (June 1988 to May 2008).



Source: ICCO

Figure 11 World Price of Cocoa Beans (US \$/tonne), Nominal Prices



Source: Based on prices from ICCO and CPI index for US from Bureau of Labor Statistics with base 100=1982-84

Figure 12 World Price of Cocoa Beans (US \$/tonne), Real Prices

2.7 Challenges at the Global level²

2.7.1 Meeting the New Demand of Consumers

38. In the mature markets of US and Europe recent trends see the increasing demand for dark chocolate (chocolate with a higher content of cocoa). Moreover, consumers are increasingly demanding chocolate which is produced in certain ways: organic, Fair Trade, single origin, environmentally sound. A number of initiatives and partnerships among farmers, public sector, buyers, processors is underway to meet the challenges of the emerging market trend. In Viet Nam Helvetas³ is trying to meet this challenge with the launching of a new program to produce certified organic and Fair Trade cocoa. Richter, a major German chocolate producer is interested in establishing long-term relations with Viet Nam to assure supplies of organic chocolate.

2.7.2 Increasing Farmers' Income

39. Most of cocoa production in the world is carried out by smallholding farmers cultivating 2 to 5 ha. With low productivity of farms, typically around 500 kg/ha, the income from cocoa cultivation barely meet the requirements of a poverty line put at \$2/day/person. Improved productivity and value added at the farm level could promise a higher income of the farmers through initiatives such as extension of good agricultural practices, involvement in fermentation at the farm level, certification for organic and Fair Trade, and production of superior quality cocoa.

2.7.3 Working toward a Sustainable World Economy

40. Sustainable development is defined by the Brundtland Commission as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The International Cocoa Agreement entered into force on 1 October 2003 gives the International Cocoa Organization (ICCO) an explicit mandate in the area of sustainability. The International Cocoa Agreement established a Consultative Board on the World Cocoa Economy and planned a Roundtable on a Sustainable Cocoa Economy (RSCE). The concept of sustainability in cocoa has to take into account the economic, social, and environmental pillars of sustainable development. The challenge is how to translate the principles of sustainable development into policies, strategies, and practices that are acceptable by farmers and enterprises.

² This section is based upon the Annual Report of ICCO, 2007 (see http://www.icco.org/pdf/An_report/anrep0607english.pdf)

³ Helvetas Viet Nam, Feasibility Report Organic and Fair Trade Cocoa in Viet Nam, March 2008

2.7.4 Consumption of Premium Chocolate

41. Recent research findings have shown that flavanoids in chocolate may decrease low-density-lipoprotein (LDL or “bad” cholesterol) oxidation, helping to prevent cardiovascular diseases. In addition, cocoa’s high content in antioxidants has been proven to reduce the risk of cancer. The demand for dark and high cocoa content chocolate has surged in response to these positive findings. Datamonitor reported that 33% of all chocolate candies launched in 2006 were dark chocolate products. ACNielsen highlighted an increase in sales of dark chocolate in the US by 9% on average between 2001 and 2005, with sales of high cocoa content dark chocolate increases of 25% during the same period. The global chocolate market is now estimated to represent between 5% and 10% of the total market for chocolate tablets (the others being plain milk, plain white, and filled chocolate tablets) with a higher share in continental Europe than in the US or UK. The increase in consumption of dark chocolate impacted on the cocoa market in two ways. First, it translated into a higher demand for cocoa, since dark chocolate uses a higher percentage of cocoa content. Second, there has been an increase in the demand for cocoa beans with a higher liquor quality as compared to those beans for pressing into butter and powder. These changes have led to an increasing segmentation of the cocoa market according to the origin of the cocoa beans. 14 countries, mostly in Latin America have been recognized by the International Cocoa Council as exporters of fine or flavour cocoa: Colombia, Costa Rica, Dominica, Ecuador, Grenada, Indonesia, Jamaica, Madagascar, PNG, Peru, Santa Lucia, São Tomé and Príncipe, Trinidad and Tobago, and Venezuela.

2.7.5 Supply Chain Management for Total Quality Cocoa

42. In 1998, the Association of the Chocolate, Biscuit and Confectionery Industries of the European Union (CAOBISCO) expressed its deep concerns over the physical quality of cocoa beans supplied to the industry. The Association had observed that farmers were not consistently harvesting, fermenting and drying their cocoa in line with recommended practices. This was due to farmers’ lack of knowledge of best known agronomic practices and, in particular, to the inefficient supply chains in producing countries. Cocoa of widely different qualities and bean size were often blended to the limits which contracts allowed. In 2003 CAOBISCO established quality criteria that include both physical criteria and other criteria such as food safety, ethical considerations (including the absence of forced child labor cocoa production), and environmentally-friendly production methods. The concept of “total quality” was born. Key to the implementation of the concept is the establishment of a traceability system that ensures the integrity of the cocoa. This requires improvement in supply chain management directly linking buyers with farmers.

2.7.6 Action Plan on Pesticide Residues

43. Up to 2005, procedures in the European Community (EC) allowed Member States to set and maintain national Maximum Residue Levels (MRLs) as applied to crops that were grown within the EU. However, in February 2005, the European Union introduced a new harmonized pesticide residue legislation on MRLs. For the

first time, the legislation (EC No. 396/2005) applies to imported foods, including cocoa beans as well as to domestic produce. It had been adopted by the Council of the European Union and was expected to come into effect in early 2008. Under the legislation, tolerances would be established for pesticides which have not been approved for use in the EU or where GAP differs from that established in the EU. Similar legislation on MRLs was introduced in Japan in May 2006. Until the new legislation comes into force, temporary EU MRLs will be set, based on existing EU Member State national and/or CODEX MRLs. Hence imports into the EU will be judged against this provisional list. Where there are no national or CODEX MRLs in place, the EU MRL will be set at the Limit of Detection (LOD), i.e. 0.01mg/kg - effectively zero tolerance. This means that pesticides used on products destined for the EU must be approved by the EU. Otherwise, they could face rejection at the point of entry. The prospect of such a situation raised concerns in the cocoa sector, as it could disrupt cocoa trade.

3 THE COCOA SECTOR IN VIET NAM

3.1 Production

44. Currently area under cocoa production in Vietnam reaches almost 9,000 ha (see Table 5) of which 1,533 ha are cultivated under monoculture, 7,439 ha are intercropped, and about 60 are under agroforestry. Taking an average of 600 trees/ha for monoculture and 600 trees/ha for intercropping, the total area cultivated is equivalent to 10,250 ha of intercropped area.

45. Cocoa is often intercropped with coconuts and fruit trees in MRD; with industrial perennial crops such as coffee, pepper, and cashew nuts in the SE and CH. Cocoa is grown as a monoculture mainly in the CH. There are 3,627 ha intercropped with coconuts distributed mainly in Ben Tre, Tien Giang and Vinh Long; 2,916 ha intercropped with cashew nut or pepper or coffee distributed mainly in Baria Vung Tau, Binh Phuoc, etc. and 995 ha intercropped with longan, durian or mango distributed mainly in Ben Tre, Tien Giang.

46. Cocoa agroforestry is being tested in Da Huoi and Da Teh districts in Lam Dong, and in Binh Phuoc.

47. Until now there are 15 provinces growing cocoa (see Table 5). The province with largest areas under cocoa is Ben Tre with 2,922 ha, followed by Tien Giang with 1,300 ha.

Table 5 Cocoa cultivated areas in 2007 by province (ha)

#	Province	Areas	#	Province	Areas
1	Ben Tre	2,922	9	An Giang	104
2	Tien Giang	1,300	10	Binh Dinh	63
3	Binh Phuoc	1,200	11	Lam Dong	55
4	Ba ria-Vung tau	1,119	12	Quang Ngai	25
5	Dak Lak	1,111	13	Binh Thuan	20
6	Dak Nong	468	14	Phu Yen	2.5
7	Vinh Long	300	15	Can Tho	0.6
8	Dong Nai	200		Total	8,972

Source: DCP, cited from Southern Sub NIAPP, 2008

48. The cultivated area started from virtually zero in year 2000. By 2007 it has reached almost 9,000 ha (see Table 6).

Table 6 Area under cocoa between 2000-2007 (ha)

2000	2001	2002	2003	2004	2005	2006	2007
12	27	255	535	1,527	4,545	8,590	8,972

Source: DCP, cited from Southern Sub NIAPP, 2008

49. Harvested areas are estimated by sub-NIAPP at 1801ha with average yield of 0.45 tonnes/ha. The yield is low due to the fact that majority of cocoa areas is at the

first stage production. During the last crop year of 2006/07, production reached 360 tonnes of dry beans (see Table 7) of which 240 tonnes were exported.

50. Conversion ratio is 10-12 kg of pods per a kg of dry beans depending on varieties of seedlings, input use, and cultivation methods.

Table 7 Areas under harvest, yield and production, 2002-2007

Year	Area (ha)	Yield (tonne dry bean/ha)	Production (tonne dry bean)
2002	3	0.10	0.3
2003	6	0.15	0.9
2004	118	0.20	23.6
2005	293	0.35	102.6
2006	521	0.40	208.4
2007	801	0.45	360.5

Source: Southern sub-NIAPP, 2008

51. The difficulties in expanding area reported by the provinces (in a survey recently undertaken by sub-NIAPP) include lack of promotion of cocoa production; lack of confidence of the farmers in market for the output, especially for the newly developed areas (this is because farmers used to experience market failure during the collapse of the Soviet Union); lack of information; lack of capital; low level of competitiveness, lack of scale economies due to small scale production; and lack of extension workers with knowledge in cocoa.

3.2 Trade

52. The major buyers include international buyers Cargill and ED&F MAN. Other international buyers like Amajaro, Olam, and Mitsubishi are either already buying or planning to buy in the short term. A number of local companies are also increasingly interested in cocoa buying. The major companies have established buying points or stations in the provinces. There are some buying stations established by Cargill and ED&F MAN in Ben Tre and Dak Lak, but buying points are numerous. Prices are displayed daily in the buying stations and purchase points. Prices are also available in the media (Daklak TV, Ben Tre TV, Cho Gao Radio in Tien Giang province) and in the websites <http://www.daktra.com.vn/>. In Ben Tre alone there are 103 buying points. The two companies have their own ID code on each cocoa bag to ensure produce traceability. Dry beans are classified into different grades and packed in jute bags with the common weight of 62.5kgs/bag. So far, there has been no local cocoa exporter. Stakeholders meeting have confirmed that there is an active market for cocoa beans in all producing areas of Viet Nam.

53. Collectors at the buying points buy both pods and fermented beans from the growers. They have received training on how to ferment the beans, how to check the bean quality to ensure standardized outputs for export. Cargill is the most demanding in term of quality. Cargill does not buy unfermented beans, however other buyers seem less strict in this respect. Some buyers apparently buy all kinds of beans regardless of whether they are unfermented or fermented beans. There is concern that

this kind of competition might lead to a degradation of quality over time. The field work of the Consultant must address this issue and provide evidence as to the extent that competition and buying habits could affect quality.

54. Cocoa beans are bought mainly for export. Last year 240 tonnes of cocoa beans were exported, mainly by Cargill to supply its manufacturing plants.

55. The price for dry beans has increased sharply from VND25,000-30,000/kg only two years ago to the current levels of VND 41,000-44,000/kg, stimulated by increasing world prices for cocoa.

56. Farmer price for a kg of fresh pod currently is in the range VND 3000-3200. Using a conversion rate of 10-12 kg of pods for one kg of beans, the equivalent price of beans (without fermentation) would be in the range of VND 30,000-38,000/kg. This suggests that the gross margin (without taking into account losses and cost of fermentation) would be in the range of VND 3,000-14,000. As the fermentation techniques improve and the market develops, there will be an increasing interest of farmers to be directly involved in fermentation.

57. The price is quoted daily by the buyers through display in the buying stations and purchase point. There is an incentive for the collectors who supply the companies with good quality beans. The level of incentive is 1,600 dong/kg and depends on various parameters such as bean count, moisture, etc.

3.3 Processing

58. The majority of the cocoa beans produced in Vietnam is fermented with more than 90% meeting Vietnamese standard requirements specified under grade A1. Small beans that are not meeting export requirement account for about 10% of the total. According to Cargill Vietnamese cocoa beans are comparable to those in the main producer countries.

59. Until now there are no processing facilities in Vietnam since the production is still on small scale. Farmers just ferment the beans and sell the buyers either directly or through collectors/middlemen. Farmers can also sell fresh pods to the collectors for fermentation.

60. Some small enterprises have started to produce cocoa wine, cocoa powder, and chocolate for local consumption using low quality beans.

3.4 Research and Extension

61. So far three research institutions have been involved in study and research on cocoa (NLU, WASI and FSSIV). These organizations have conducted studies on a project basis funded by foreign organizations. Among these organizations NLU has been the most active in cocoa research. NAFEC also has a program to fund for some demonstration models in some provinces.

3.4.1 Clonal Research

62. In 1997, a cocoa development project was planned in collaboration between American Cocoa Research Institute (now World Cocoa Foundation) and Nong Lam University at HCMC. The main objectives of the project were:

- Introducing cocoa clones to Vietnam for commercial planting and for future breeding programs.
- Establishing cocoa demonstration farms in different agroecosystems to test the adaptation of this new crop.
- Promoting cocoa as a good new perennial crop that is suitable for small household and environmental sound.
- Doing research and transferring technology to local officials and interested farmers.
- Collaborating with local and international institutions to develop cocoa in Vietnam.

63. In 1993 seven progenies were imported from Costa Rica. Three trials were set up at Can Tho, Nong Lam University and Lam Ha District of Lam Dong. Due to different reasons, Lam Ha and NLU trials failed. Only Can Tho trials at Cai Rang district left. In 2006, this trial was destroyed because it is in the area to build Can Tho Bridge. From this trial, NLU selected 30 good individuals for further observation and put them in the germplasm bank.

64. In 1997 – 2000 cocoa 38 clones were imported from Malaysia. In 2002, 22 clones were imported from Reading University, UK. In 2006, 17 clones imported from Reading University. In 2007, 4 clones imported from Puerto Rico (USA). In 2007, seeds of 4 crosses (described below) imported from Malaysia in the form of “Regional Breeding Program”. In this program, member countries exchange good hybrid seeds or clones to set up trials in each country. Member countries in this research program include: Vietnam, Malaysia, Indonesia, India, Papua New Guinea and the Philippines. 50 good cocoa trees were selected in Ben Tre, Can Tho, Quang Ngai for further observation. In 2005, a clonal trial with 64 entries has been established in 5 ha at Dong Nai province to find out possible new clones adapted well in local environment. 64 entries were designed in RCBD, 4 replications, 16 trees in each experimental unit. In 2008 imported CCN 51 from Reading University (via WASI). All above mentioned clones are included in the cocoa germplasm bank of Nong Lam University. Out of them, 8 commercial clones were officially approved by Ministry of Agriculture and Rural Development to be used in the whole country. They are: TD1, TD2, TD3, TD5, TD6, TD8, TD10, and TD14.

3.4.2 Identify Cocoa Clones by Microsatellite

65. The research is supported by NLU-WCF project, conducted at biotechnology lab of Nong Lam University in 2004 with the supervision of Dr. Juan Carlos Motamayor of MasterFoods USA. A set of 21 accessions was first screened with 5 pairs of SSR primers, and later identified for fingerprinting purposes. Good result was obtained by using microsatellites to identify 13 commercial clones and 8 local cocoa clones. A grant funded by MasterFoods allowed Ms. Nguyen Phuong Dung of NLU cocoa team

to go to Miami for 6 months training. She was trained in extraction DNA, PCR, analysis of molecular genetic data on ABI3700. She was able to identify 88 entries of NLU cocoa germplasm with the use of 13 pairs of SSR primers.

3.4.3 Black Ant

66. So far, helopeltis is the main pest in the highland, Dak Lak, Dak Nong and Lam Dong provinces. Pods at all stage, from cherule to ripe one are heavily attacked by this insect. Furthermore, young shoots are also their favorite target and in severe cases the shoots dried out in large scale. Controlling this pest is difficult for farmers. Usual method is to spray insecticide. However, this is not environmentally sound, it is costly and not so effective. Using black ant to control Helopeltis is successful in one of the NLU cocoa demonstration farm in Ben Tre. This has been done by trapping the black ant from the nearby province where there are cocoa farms that are free from Helopeltis and have plenty of black ants. A survey was conducted by NLU cocoa team in the highland and found out that some cocoa farms are in the same situation: no helopeltis and plenty of black ants. Currently, plastic bags filled with cocoa leaves are used to trap the black ants. Preliminary observation showed that this kind of trap has not worked well since only few ants have been captured. Experiments are being carried out to collect further data.

3.4.4 Quality

67. NLU conducted many experiments related to fermentation such as:
- Volume of wet bean from 5 kg – 100kg. Conclusions: good fermentation when wet volume bigger than 50kg.
 - Type of containers for wet beans during fermentation: wooden boxes, bamboo basket, polysterene box, wooden box isolated by polysterene.
 - Duration of fermentation: 0 – 10 days.
 - Pod storage
 - Sun dried wet bean before fermentation

68. In addition to fermentation, drying is main factor affecting bean quality. In CARD project, solar dryer modeled after the ones developed in Papua New Guinea has been produced and tested. This kind of dryer worked very well in Mekong Delta, Ben Tre province but not in Dak Lak province where there are strong wind and low ambient temperature. Pod storage is highly recommended to improve the bean quality. However, in practice farmers find difficulty to apply. The difficulty can be low volume in each harvest, or no room for storing pods, or it seems complicated but there is no difference in bean price.

3.4.5 Demonstrations

69. There are demonstration farms in 11 provinces and all those showing that cocoa can be planted in the South of the country. The purpose of the demonstration plots is for training, testing suitability of different cocoa clones and to demonstrate

economic viability of cocoa cultivation. Cocoa is planted on its own or under different farming systems such as:

- Cocoa - coconut: Binh Dinh, Ben Tre, Tien Giang
- Cocoa - cashew nut: Dak Lak, Binh Phuoc
- Cocoa - longan: Ben Tre
- Cocoa in home garden: Long An, Tien Giang
- Cocoa in monoculture: Lam Dong, Binh Phuoc, Dak Lak, Dong Nai

70. In monoculture, temporary and permanent shade trees are used:

- Temporary shade trees: Crotalaria, banana
- Permanent shade trees: Durian, Gliricidia, Leucena, Hopea odorata

3.4.6 Plant propagation

71. Many technique of grafting have been researched: batch budding, top grafting, side grafting. The grafting has been done on root stock of 3 weeks old – 2 month old.

3.4.7 Training

72. The cocoa team at NLU trained over 3100 farmers and local officials. At the same time NLU cocoa team collaborate with SUCCESS ALLIANCE project in training 480 trainers who, in turn, trained 18,180 cocoa farmers in 5 provinces of Ben Tre, Tien Giang, Baria-Vung Tau, Binh Phuoc and Dak Lak.

73. The NLU cocoa project has established two Centers of Excellence in Nong Lam University and Dak Lak province. In these centers, there are samples of clones, hybrids, low cost drip irrigation, nursery, solar dryer, fermentory for doing research and training.

74. The NLU cocoa project published the cocoa planting manual with 25,000 copies that were distributed to farmers in SUCCESS and PSOM projects and collaboration in preparing Cocoa Farmer Training Manual to train cocoa farmer facilitators.

75. Cargill through its collaboration with PSOM project and its own training program has trained around 7,000 farmers in the provinces of Dak Lac, Dak Nong, Lam Dong, Binh Phuoc, Dong Nai, and Binh Thuan.

3.5 Standards

76. Bean quality standards for Vietnam were established in February 2006 by the Vietnam Standards Center (STAMEQ). Viet Nam has established 5 standards for cocoa, respectively:

1. TCVN 7518: 2005 - Cocoa bean – Term and definitions
2. TCVN 7519: 2005 - Cocoa bean

3. TCVN 7520: 2005 - Cocoa bean – Determination of moisture content
4. TCVN 7521: 2005 - Cocoa beans – sampling
5. TCVN 7522: 2005 - Cocoa beans – cut test

77. Three categories of beans (1A, 1B, and 1C) have been established with the following characteristics:

Table 8 Indicators of Grades 1A, 1B, and 1C for Cocoa Beans

Indicator	1A	1B	1C
Bean count	< 100	< 110	< 120
Moisture content	Max 7,5 %	Max 7,5 %	Max 7,5 %
Slaty bean	Max 3,0 %	Max 3,0 %	Max 3,0 %
Moldy bean	Max 3,0 %	Max 3,0 %	Max 3,0 %
Broken/Insect infected/ Germinated bean	Max 2,5 %	Max 2,5 %	Max 2,5 %
Foreign matters	Max 1,0 %	Max 1,0 %	Max 1,0 %

Table 9 Analysis Results of Cocoa Beans Quality in 2006-2007

Moisture content	7.5 %
Bean count	97
Fat content	56.6 %
PH	5.13
Free fatty acid	1.67 %
Moldy bean	1 %
Slaty bean	0 %
Cluster	0.9 %
Shell content	17.5 %
Insect damaged bean	0 %
Germinated bean	0 %
Flat bean	0.2 %
Broken bean	1.4 %
Foreign matters	0.4 %

Source: Cargill Viet Nam

78. Additional analysis of quality conducted in comparison with other major exporters indicated a relatively acceptable quality of cocoa beans from Viet Nam (see Table 10).

Table 10 Quality of Vietnamese Cocoa and Other Countries

Indicators	Vietnam	TCVN (A1)	Indonesia	Cote d'Ivoire	Ghana
Bean counts/ 100gr	96,8	100	115.0	97.0	94.0
Humidity (%)	7,3	7,5	7.5	7.4	7.6
Proportion of fully fermented beans (%)	76,6		n/a	n/a	n/a
Proportion of partly fermented beans (%)	19,7		n/a	n/a	n/a
Proportion of fully violet beans (%)	2,6		n/a	n/a	n/a
Proportion of slaty beans (%)	0,3	3	25.0	5.0	1.0
Proportion of mouldy beans (%)	0,2	3	5.0	5.0	2.0
Proportion of germinated/ infested beans (%)	0,5	2,5	1.5	0.0	0.0
Proportion foreign matter (%)	0,4	1	3.5	5.1	1.3
Proportion of fat (%)	56,6		n/a	54.5	55.2
Proportion of shell (%)	17,5		13.0	11.1	12.5
Proportion of FFA (free fat acid) (%)	1,67		1.75	1.68	0.93
pH	5,13		5.50	5.90	5.60

Source: DCP 2008

3.6 Projects

3.6.1 Success Alliance

79. The project Sustainable Cocoa Enterprise Solutions for Smallholders (SUCCESS) aims to increase local extension and technical support capacity and to promote cocoa among smallholder farmers. A first phase of the project (2004-2006) was funded by USDA partnership with WCF, Mars-Masterfoods, and ACDI-VOCA. A second phase funded by USAID started in 2007 and is expected to continue until 2010. During the first phase, activities started in Ben Tre; during the second phase, they extended to Dak Lac and other provinces, including Ba Ria – Vung Tau, Binh Phuoc, and Tieng Giang in collaboration with the provincial Agricultural Extension Centers, and training of trainers and farmer training reached almost 20,000 farmers. The project produced a highly successful training manual⁴.

3.6.2 Promoting Sustainable Cocoa Development

80. The project funded by the Directorate-General for Development Cooperation (DGIS) and the Ministry of Agriculture, Nature, and Food Quality of the Netherlands. The project is implemented by WWF and has two main goals: (i) to influence planning and policy related to the development of the Viet Nam cocoa sector at both national and provincial levels; and (ii) to work with local stakeholders in Lam Dong province establish a community sustainable cocoa agroforestry system that demonstrates how

⁴ Success Alliance (2008) Cocoa Farmer Training Manual.

cocoa can provide a sustainable livelihood that is compatible with conservation objectives.

81. In March 2007, a community sustainable cocoa agro-forestry system (C-SCAS) in partnership with ACDI/VOCA, Touton, the Forestry Science Sub-Institute of South Viet Nam and the Da Huoi Agriculture office was established on a 40 ha pilot site in Phuoc Loc commune to demonstrate how cocoa can provide a sustainable livelihood compatible with biodiversity conservation objectives.

82. In late 2004, the Dutch Government, Cargill, and Mars started a project “Establishing a quality chain for Vietnamese cocoa” which helped develop a market system including establishing buying stations, purchase points, daily price announcement, creating origin tracking system, lending fertilizers to farmers, and training 3,000 farmers mostly in highland provinces on cocoa farming and postharvest techniques. The project ended in December 2006.

3.6.3 Production and Marketing Support Project for Organic and Fair Trade Cocoa (KAKAO)

83. This is a project implemented by Helvetas Viet Nam with the main goal to support farmers in Viet Nam to increase their livelihood and to protect their environment by producing and marketing organic and Fair Trade cocoa. A feasibility study in the provinces where cocoa has been planted was recently completed in March 2008 and is the basis for a subsequent longer term project.

3.6.4 Agroforestry Project in Binh Phuoc

84. This is a project funded by Masterfoods and implemented by the Forest Science Sub-Institute of South Viet Nam. It aims at testing the integration of agroforestry with cocoa and fruit trees on sloping hills of Binh Phuoc. Water management techniques including drip irrigation have been introduced. The experiment is at its third replication due to lack of success in the previous replications.

3.6.5 Asia Regional Biodiversity Conservation Program

85. This is a project funded by USAID and implemented by Winrock International. The goal of this program is to improve the sustainable management of natural resources and the conservation of biodiversity in Vietnam and the Greater Mekong River Sub-region. The four key objectives to the program are:

- Restore and maintain ecosystem connectivity in biodiversity corridors and across landscapes.
- Promote sustainable financing for biodiversity and natural resource conservation.
- Improve the livelihoods of the rural poor.
- Strengthen environmental governance and institution building.

86. The interest of the project in cocoa is to demonstrate viable cocoa-based agroforestry program on 17 ha in Lam Dong province that promote biodiversity and livelihoods.

3.7 Plans

87. The GOV has issued Decision 2678/2007/QD-BNN-KH indicating the following objectives:

1. By the year 2015, cultivation of cocoa reaching 60,000 ha, of which 35,000 ha harvested, with an average yield of 1.5 tonne/ha and a total production of 52,000 tonnes dry beans, corresponding to a value of export between USD 50-60 million.
2. By the year 2020, cultivation of cocoa reaching 80,000 ha, of which 60,000 ha harvested, with an average yield of 1.8 tonne/ha and a total production of 108,000 tonnes beans, corresponding to a value of export between USD 100-120 million.

88. In order to support this plan, an indication of VND 40 billion (about USD 2.5 million) public investment is provided in the Decision. It is widely perceived that the public investment indications to support the achievement of the objectives of the Government are largely underestimated.

89. Provincial plans by 2015 include the following:

1. South Central Coast: 6,000 ha concentrating in Binh Dinh, Quang Ngai, Phu Yen and Khanh Hoa;
2. Central highland: 17,000 ha concentrating in Dak Lak, Dak Nong, Lam Dong, Gia Lai and Kon Tum;
3. South East: 17,000 ha concentrating in Binh Phuoc, Ba Ria – Vung tau, Dong Nai, Binh Duong, Tay Ninh and Binh Thuan;
4. Mekong River Delta: 20,000 ha concentrating in Ben Tre, Tien Giang, Vinh Long, Tra Vinh, Can Tho, Hau Giang, Soc Trang, An Giang;
5. By 2020 it is projected to have 20,000 ha more in CH, SE and MRD to reach the target of 80,000 ha. Main approach to develop cocoa areas is small scale household production intercropped with other crops, especially cashew nut, coconut, longan, etc.

4 THE KEY ISSUES FOR THE DEVELOPMENT OF THE COCOA SECTOR IN VIET NAM

90. Based on the initial response of farmers, researchers, international and national private sector, and donors, the GOV has indicated some objectives for the cocoa sectors which were detailed in the previous chapters. The strategies, policies, action plan, and investment needed achieve these objectives however are not yet clear.

91. The overall purpose of the Study will be to provide evidence-based analysis to assist the formulation of alternative strategies, policies, action plans, and investment plans that could provide an informed and reliable basis for policy and investment decisions.

92. In order to achieve this overall purpose, three set of issues need to be addressed, related to the suitability, feasibility, and sustainability of the cocoa sector in Viet Nam. Available data, field work, review of the literature, and key respondents interview will provide the basis to make an informed analysis of the issues.

4.1 Issues related to Suitability

1. What are the agroecological environments in Viet Nam suitable for cocoa cultivation?
2. What cultivation methods are feasible and more appropriate to Viet Nam conditions?
3. What is the potential area for expansion of cocoa cultivated area and yield?
4. What are the agroecological constraints (water, soil, climate, pests and diseases) to the expansion of cocoa?

4.2 Issues related to Feasibility

1. What is the cost of production and income under different farming systems?
2. How competitive is cocoa relative to other crops?
3. Under what conditions is cocoa economically attractive?
4. What is the capacity of farmers, private sector, and institutions (research, extension, quality assurance, financial, farmer organizations, trade associations) to support the expansion of the sector?
5. What are the main socioeconomic constraints (planting material, capital, technology, land, infrastructure, labor, market education) to the expansion of the sector?

4.3 Issues related to Sustainability

1. What are the environmental risks (deforestation, loss of biodiversity, climate change, soil fertility, watershed, pests and diseases) that might accompany the expansion of cocoa cultivation in Viet Nam?

2. What are the trade-offs between sustainable practices (eg agroforestry) that increase biodiversity benefits and productivity enhancement through shade removal and use of chemical inputs?
3. Who will benefit from the development of cocoa sector and what are the expected socioeconomic impacts on different groups?
4. What risk management strategy will be more appropriate to mitigate the environmental, agronomic, economic, and social risks that accompany the expansion of the cocoa sector?
5. What is the scope for partnerships between public and private sector (PPP) to facilitate the sustainable development of the sector and mitigate the risks?

5 APPROACH AND METHODOLOGY OF THE STUDY

5.1 Approach

93. The approach of the Consultant to the Study consists of three pillars: (i) a conceptual framework based on the understanding of value chains; (ii) the understanding of the logical framework process; and (iii) effective communication with stakeholders.

5.1.1 Conceptual Framework Based on Value Chains

94. A value chain is defined as the full range of activities required to take a product or service from conception to final disposal after use, through the intermediary phases of production, processing and delivery to final consumers. A value chain approach focuses on the interaction of actors along each step of the production system (from raw producers to consumers) as well as the linkages within each set of actors. Such an approach thus considers trade relations as being part of a series of networks of producers, exporters, importers, processors and retailers, whereby knowledge and relationships are developed to gain access to markets and suppliers. The success of stakeholders in adding value to their production lies in their ability to access these networks. Several concepts are central to the understanding of value chains including the concepts of governance, innovation, distribution and network.

95. The understanding of governance implies understanding who controls the power relationships within the chain. Governance issues are of increasing importance in agriculture, given the greater emphasis on product differentiation, food safety and product standards required in a competitive market environment. Such issues place a premium on strong linkages within the value chain between agents in the chain. While individual and isolated farmers may be unable to capture value added vis à vis traders or processors, associations of producers may be in a better position to access technology, credit and market opportunities.

96. In the context of value chain analysis, innovation takes the form of either developing new, higher-value market niches or expanding the range of activities employed. Governance structures are important to understand how such innovation by suppliers occurs and the role played by government and other institutions. The understanding of value chains also depends on knowing the distribution of benefits within the chain. This refers to the amount of benefits obtained by various actors in the chain as well as ways actors try to improve their position within the chain, through the differentiation of services and roles.

97. Rather than a linear model in which relations from farmers to consumers are considered in a sequential manner (input providers supplying to farmers selling to traders distributing to processors and consumers), in a network all actors can establish relations with each other in order to gain from the value chain. That implies a multiplicity of partnerships that can be formed between not only different groups and

organizations belonging to the private sector, but also between public and private organizations.

5.1.2 Understanding the Logical Framework Process

98. The concepts underlying the Logical Framework Process contribute to (i) systematically and logically analyzing sector performance, (ii) identifying and planning interventions that lead to the design of a project; and (iii) monitoring project implementation. During the process, data gathering and conceptual analysis are needed to design appropriate interventions. The Logical Framework Process starts with the analysis of a sector and ends with the design of a project or program interventions. The process consists of six steps including:

1. **Assess Performance.** Sector performance is assessed by using indicators that reflect the contribution of the sector to the larger economy and quality of life.
2. **Identify Sector Performance Problems/Opportunities.** Problems and opportunities are identified as issues of concern. Such problems or opportunities are identified in relation to a specific sector performance indicator. Examples in agribusiness would be “high transaction costs” or “low agricultural productivity” or “high postharvest losses”.
3. **Cause-effect Analysis of Problems/Opportunities.** A core problem or opportunity is selected to improve sector performance. It is analyzed to identify the causative factors as well as consequent effects. It is usually diagrammatically presented in the form of a cause-effect tree. The effects of the problem indicate its wider dimensions and impacts on the economy. The causative factors identify the variables influencing the problem/opportunity and provide the basis for solution.
4. **Objectives Tree.** The cause-effect tree is converted into an objective tree, thereby providing the spectrum of possible actions that can be taken to address the problem or opportunity.
5. **Alternatives Analysis.** Various possible courses of action are derived from the objective tree, all aimed at improving sector performance for the performance indicator being analyzed. The options are assessed against each other using specific criteria, leading to the choice of the most appropriate (efficient, effective, and sustainable) option in the circumstances.
6. **Project Design Using the Logical Framework.** The chosen course of action is translated into a logical framework that provides the basic design of the project or program in terms of its intended objectives, outputs, and activities.

5.1.3 Effective Communication with Stakeholders

99. A strong team and sound analytical tools are necessary but not sufficient conditions for the success of the Study. Unless the Consultant’s Team is able to exchange views with stakeholders effectively, the recommendations and the strategy prepared by the team might lead to misunderstanding and fruitless conflict. The team should keep an open line of communication with a variety of stakeholders through well-structured periodic meetings, workshops, and briefings. The opinions, knowledge and ideas of stakeholders should be well circulated and understood by all

team members through a continuous effort to translate these ideas into clear statements. While this exchange of information might not guarantee a convergence of ideas, the exchange facilitates the understanding of alternative points of view and promotes a process of solution finding.

5.2 METHODOLOGY

100. The overall objective of the study is to produce a socioeconomic and environmental analysis-based set of recommendations to inform policy makers about the economic, financial, and environmental costs and benefits of alternative investments in the cocoa sector. The objective can be understood as implying three main sets of activities including (a) review of current status of the cocoa sector and identification of key issues; (b) analysis of constraints, prioritization of problems, and formulation of recommendations; and (c) feasibility analysis and assessment.

101. Quantitative and qualitative analytical methods should be considered complementary, rather than substitutes, for each other. Qualitative research methods can provide important information about the preferences and perceptions of the participants in the agricultural sector. This information is important for the design of public investments that respond to the priorities of intended beneficiaries. However, perceptions cannot always be taken at face value because of problems of strategic responses, misinformation and limited recall. Without rigorous testing of hypotheses against quantitative data, one risks perpetuating fallacies by certifying perceptions as “facts.”

5.2.1 Methods to review the current status of cocoa sector and identification of key issues

102. A variety of methods will be used for this review, including rapid rural appraisals, focus group discussions, key informants interviews, review of literature, and analysis of secondary and primary data. Field work and consultative meetings will provide an opportunity to check the findings of previous studies, gather new facts, validate hypotheses, and arrive at a better understanding of the business, economic, social, and agro-ecological conditions of cocoa sector development in Viet Nam.

5.2.2 Methods for analyzing constraints and formulating recommendations

103. The value chain approach provides an overall framework to address the issue of developing agribusiness. By looking at all the actors involved in the chain, the analyst is forced to understand the various constraints, the power relations and the linkages with multiple stakeholders. The Consultant’s Team will have to reflect on the institutional issues leading to enterprise development, including credit, infrastructure, quality assurance systems, and research and extension. The Consultant will consider the implications of various proposed measures for the poor, women, and ethnic groups. All the experts will consider the institutional bottlenecks, as well as the need for promoting an effective participatory planning that involve both the local communities and entrepreneurs, and establish partnerships between service providers from private and public sectors.

104. A variety of methods will be used for the fieldwork and the project design. The fieldwork will build upon the review work described in the previous section. Agro-ecological analysis, cost of production analysis, and domestic resource cost analysis will be key methods for assessing the potentials for cocoa relative to alternative high-value crops. Together with the analysis of cost of production at each stage of the marketing chain, marketing margins analysis will permit an understanding of how value added is distributed among main participants in the value chain. Transaction cost analysis will facilitate the identification of costs arising from weak infrastructure, lack of information, lack of reputation, weak enforcement, limited credit market and absence of insurance markets. At a more aggregate level, the analysis of border prices and supply and demand of different high-value crops will provide a basis to assess comparative advantage.

105. Particular emphasis will be put into the link between domestic production and world markets for cocoa and the integration of the cocoa industry with the chocolate industry worldwide. Quality issues should be stressed from the very beginning of the development of the sector, at the production level (looking at planting materials suitable for the production of high quality beans), at the postharvest level (appropriate techniques of fermentation), and at the manufacturing level. Alternative options for private-public partnerships to ensure competitiveness and sustainability of the sector will be explored.

106. These different methods of analysis will guide the fieldwork of different consultants, their analysis of key constraints, and inform their understanding of strengths and weaknesses; opportunities and constraints (SWOT) towards development of cocoa sector in a sustainable manner. The analysis and the formulation of recommendations will be conducted under the conceptual framework of value chain, follow the logical framework process, and will be guided by the participatory learning that involves the stakeholders in the analysis and provides the basis for consensus building.

5.2.3 Methods for Feasibility Analysis and Assessments

107. After a preliminary formulation of the main recommendations and implementation arrangements, the Team will provide an assessment of alternative investments, based on economic and financial analysis, social and gender analysis, and environmental analysis. The recommendations should ensure economic, environmental, agronomic, and social sustainability of the sector. Moreover, the institutional arrangements necessary to implement the project and recommendations for establishing effective partnerships between public and private service providers will also be finalized.

6 ORGANIZATION, DELIVERABLES, AND WORK PLAN

6.1 Organization of the Study

108. The Department of Crop Production (DCP) is the implementation agency for the Study. The Consultant's Team led by the Team Leader is responsible to the nominated Project Manager of DCP for carrying out the TOR of the Study (see section 8.1).

109. The Consultant's Team will establish an ongoing flow of communication with the following stakeholders:

1. MARD: including Department of Plant Protection, NAFEC, the Viet Nam Cocoa Coordination Committee, and the Cocoa Working Group
2. DARDs and provincial Extension Centers of the 15 cocoa producing provinces
3. Research institutes: NLU, FSSIV, and WASI
4. Private sector: major international buyers (Cargill, E&DF MAN, Mars, Mitsubishi, Olam, Touton, Amajaro, etc) and local enterprises (eg VINACACAO, VINAMILK, nurseries)
5. Projects: Success Alliance, Biodiversity Project (Winrock), KAKAO (Helvetas), C-SCAS (WWF), CARD, Food Quality and Safety (ADB), Agricultural Competitiveness Project (World Bank)
6. International Agencies: Royal Netherlands Embassy, USAID, AusAID, ADB, World Bank, Switzerland Embassy, DANIDA, GTZ, IFAD, FAO, CIRAD
7. International Cocoa Organizations: WCF, ICCO
8. Associations and Mass Organizations: Viet Nam Coffee and Cocoa Association, Women Union, Farmer Union, VCCI

110. The relations are illustrated in Figure 13.

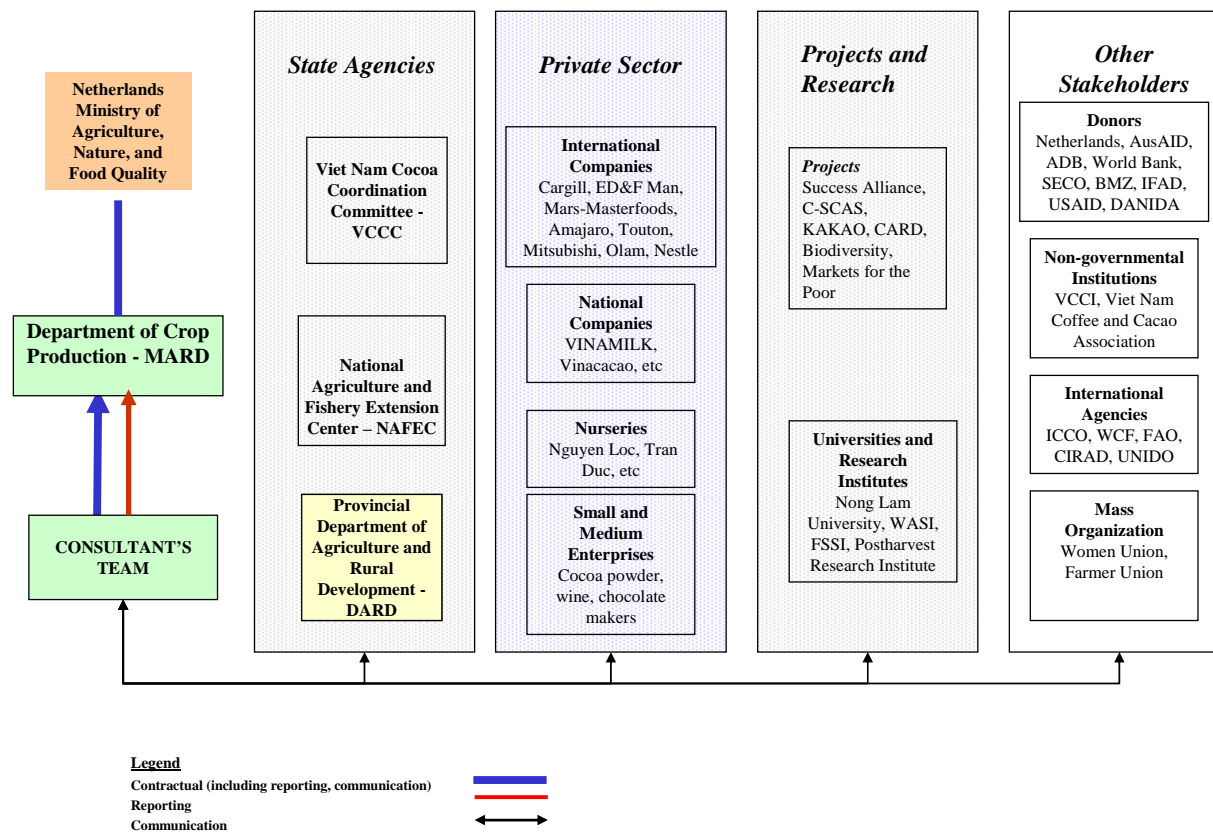


Figure 13 Organization of the Study

6.2 Deliverables

111. The deliverables of the Study will include: (i) an Inception Report; (ii) an Interim Report; (iii) a Draft Final Report; and (iv) a Final Report. The due dates and the tentative content of each report are illustrated in Table 11.

Table 11 Deliverables, Due Dates, and Content

Report	Inception	Interim	Draft Final	Final
Date	17 Jun 2008	31 August	15 October	30 Nov 2008
Content	<ol style="list-style-type: none"> 1. Overview world cocoa market 2. Overview Viet Nam cocoa sector 3. Identification of Issues 4. Approach and Methodology 5. Organizations, Deliverables, and Work Plan 6. Annexes 	<ol style="list-style-type: none"> 1. Analysis of field data 2. Preliminary Analysis of Suitability issues 3. Preliminary Analysis of Feasibility Issues 4. Preliminary Analysis of Sustainability Issues 5. Preliminary recommendations 6. Annexes 	<ol style="list-style-type: none"> 1. World market 2. Value chain analysis of Viet Nam cocoa sector 3. Analysis of Suitability, Feasibility, and Sustainability Issues 4. Proposed Strategy, Partnerships, and Road Map for development of Viet Nam cocoa sector 5. Recommendations 6. Annexes 	<ol style="list-style-type: none"> 1. World market 2. Value chain analysis of Viet Nam cocoa sector 3. Analysis of Suitability, Feasibility, and Sustainability Issues 4. Proposed Strategy and Policies, Partnerships, and Road Map for development of Viet Nam cocoa sector 5. Analysis of alternative investment options 6. Recommendations 7. Annexes

6.3 Field Work

112. Field work will occur primarily in the provinces where cocoa production is occurring. The field work will consist of field visits by the Consultant's Team, key informants interviews, and surveys.

113. Four types of surveys will be conducted with farmers, nurseries, and provincial leaders. The objective of the surveys, the locations, sample size, and implementing modes are illustrated in Table 12. Detailed field work tools, preparation of survey teams, and a schedule of visits will be elaborated over the first two weeks of Phase 2 of the Study.

114. The cost of production survey aims at determining the economic feasibility of cocoa production. Given the recent involvement of farmers with cocoa, there is only a very small of farmers who are engaged in at least 4 years of continuous production

and for which some meaningful data collection could be organized. The survey will be conducted in three provinces: Ben Tre, Ba Ria Vung Tau, and Dak Lac.

115. The nurseries survey aims at identifying all the existing nurseries in the production areas. A list of nurseries with a characterization of activities of the nurseries will be produced. As nursery entrepreneurs are often engaged in multi-activities including multiplication and distribution of planting material, production of cocoa, fermentation, and collection of pods, this information will provide a useful benchmark for the current status of the industry.

116. The farming practices survey aims at assessing farming practices and farmers' constraints under different agroecological conditions and farming system. The farmers that will be targeted will include those farmers who have recently engaged in cocoa cultivation either as a monoculture, intercropped, or as agroforestry. Five provinces will be covered by the survey including Dak Lac, Ben Tre, Ba Ria Vung Tau, Binh Phuoc, and Lam Dong.

117. A provincial survey at the level of DARD and Agricultural Extension Services aims at assessing the constraints, potential, policies, capacities, and plans of provincial institutions responsible for the development of cocoa sector.

118. The Team of Consultants will prepare the survey tools, train the survey teams, and supervise the implementation of the surveys. The surveys will be carried out by the DARD and the Provincial Extension Centers.

Table 12 Proposed Surveys

Survey	Objective	Locations	Sample Size	Implementation mode
Cost of production and income survey	To determine the economic feasibility of cocoa production	Ben Tre Ba Ria Vung Tau Dak Lac	60 (farmers who have engaged in at least 4 years production of cocoa)	Provincial Agriculture Extension Center
Nurseries survey	To inventory all nurseries and understand their multi activities in the value chain (planting material, production, trade, fermentation)	All 15 provinces where cocoa production occurs	< 100 (nurseries)	Provincial Agriculture Extension Center
Farming practices survey	To assess farm practices and constraints in different farming system	Intercropping models: Ben Tre, Ba Ria Vung Tau, Binh Phuoc, Dak Lac Monoculture models: Dak Lac, Agroforestry models: Lam Dong, Binh Phuoc	60 farmers 20 farmers 20 farmers	Provincial Agriculture Extension Center
Province survey	To assess constraints, potential, policies, capacity, and plans	All 15 provinces where cocoa production occurs	15	Provincial Agriculture Extension Center

6.4 WORK PLAN

119. The Study will be conducted over the period of June to November 2008 and is divided into 4 Phases. The activities in each Phase of the study are linked to the deliverables described in section 6.2 and are indicated in Table 13.

Table 13 Phases, Activities, and Deliverables

#	Phases	#	Activities	Deliverable
1	Inception	1.1	Stakeholders meetings	Inception Report
		1.2	Review of literature	
		1.3	Exploratory field visits	
		1.4	Work Plan	
		1.5	Preparation of Inception Report	
2	Interim	2.1	Field Tools and Surveys Preparation	Interim Report
		2.2	Regional Workshop - ASEAN	
		2.3	Field surveys	
		2.4	Compilation of field data	
		2.5	Analysis of field data	
		2.6	Preliminary Recommendations	
		2.7	Preparation of Interim Report	
3	Draft Final	3.1	Stakeholders Meetings	Draft Final Report
		3.2	Preparation of Draft Final Report	
		3.3	National Workshop	
4	Final	4.1	Feedback from National Workshop	Final Report
		4.2	Stakeholders Meetings	
		4.3	Preparation of Final Report	

120. The work plan is illustrated in Figure 14.

	Phase	Ph1				Phase 2								Phase 3				Phase 4							
	Month	June				July				August				September				October				November			
	Week	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
#	Activity																								
1.1	Stakeholders Meetings																								
1.2	Review of Literature																								
1.3	Exploratory Field Visits																								
1.4	Work Plan																								
1.5	Preparation of Inception Report																								
2.1	Field Tools and Surveys Preparation																								
2.2	Regional Workshop - ASEAN																								
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3.2	Preparation of Draft Final Report																								
3.3	National Workshop																								
4.1	Feedback from National Workshop																								
4.2	Stakeholders Meetings																								
4.3	Preparation of Final Report																								

Figure 14 Work Plan

7 PROGRESS REPORT DURING PHASE 1 OF THE STUDY

121. **Mobilization of Consultants.** Four of the five experts in the Consultant's Team have been mobilized, namely the Team Leader, the Agricultural Economist, the Agronomist, the Environment Specialist, and the Social and Gender Specialist.

122. **Meetings.** The consultants has held stakeholders meetings in Ha Noi, HCMC, Ben Tre, Dong Nai, and Ba Ria Vung Tau. The list of persons meet is included in Annex 8.2.

123. **Exploratory Mission to the South.** During the second week of mobilization a team of three consultants undertook the first exploratory mission to the South. The mission gave the opportunity to discuss the issues of cocoa development with a broad range of stakeholders including DARD, research organizations, international buyers, local companies, farmers, collectors, nursery operators, project officers.

124. **Establishment of a Database of Documents and Data.** The Team has started to assemble of relevant literature on cocoa both in Viet Nam and worldwide. Data from ICCO, FAO, ICT, and DARD were assembled. The database will increase over the course of the Study and will be organized into a CD that could be presented to the client and other stakeholders at the end of the Study.

125. **Preparation of the Inception Report.** Upon return from the field the Team prepared the Inception Report and submitted to the Client on June 17, 2008.

8 ANNEXES

8.1 TOR FOR THE STUDY

The objective of carrying out the study is to produce a (socio)-economic and environmental analysis for policy makers to understand the economic and financial benefit and costs of cocoa in Vietnam compared to alternative cash crops. The study will describe the levels of support needed from both the public and private sector in the areas of (1) research (2) technology transfer (3) marketing and (4) policies. Other key outcomes are descriptions of the role that cocoa cropping can play in the development plans for the agricultural sector, particularly in areas where significant rural urban labor migration is not occurring. The study would also evaluate the comparative advantage of Vietnam in the regional and world cocoa market with regard to volume, price and quality terms.

The study will yield results in the following fields:

- (1) Assess the current status of development of the cocoa sector in Vietnam;
 - Assess geographical and climatological suitability of current and selected regions
 - Evaluate planting techniques, planting materials, agronomic practices
 - Assess the capacity in research to meet (future) challenges, and the capacity of the extension services to provide technology transfer, training and support.
 - Consider necessary market and information tools
 - Describe supporting policies for the value chain to develop and thrive
 - Identify (socio)-economic and environmental benefits (such as soil conservation in upland areas) as well as the detriment caused by cocoa (reduced bio-diversity, possible pesticide risk) in farming systems

The study should be frank in its assessment of which IPM program is needed, taking into consideration the potential invasion of a regional pest such as the cocoa pod borer. Such IPM program may incorporate the use of pesticides, in which case a risk management strategy should be put in place to ensure safe and rational use of pesticides, as well as registration and availability of appropriate products only.

- (2) Determine the competitiveness of the Vietnamese cocoa farmer vis-à-vis other crops in Vietnam and versus other cocoa producers world-wide, now and in the future
 - Evaluate the competitiveness of cocoa vis-à-vis other crops, and the potential and benefits of farm diversification and environmentally sound farming systems

This study would include as essential elements:

- The availability of credit and proposals for provision of /access to credit
- The requirements for farmer organisation development for co-operative marketing as a means of improving competitiveness.

- The returns to labor in cocoa now and in future scenarios compared to other crops given likely wage labor growth prospects. It would suggest potential strategies for improvement in those returns in order to retain farm level competitiveness of the crop
- Identify the competitive edge for Vietnamese cocoa farmers in the regional and global cocoa industry (i.e. yield & income, quality & premium etc.)
- Understand the development of the Vietnamese economy and its' agricultural sector for the next 20 years, and the potential place of cocoa in the agricultural sector given changes in labor availability, world demand for cocoa, competition from other on-farm and off-farm enterprises (Macro-economics)

(3) Perform an agro-ecological analysis of typical existing and potential production areas. This would include a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) of the industry at this stage to identify constraints and opportunities for current and future growth; The study should involve typical existing and potential cocoa production communities in representative highland and lowland areas.

(4) Identify the key areas of further investment and policies based upon this analysis.

The outcome of the study will form the basis of a roadmap to direct investment from donors and the Vietnamese government. The roadmap will take into consideration stakeholders' interests, from farmer to processor, and will also take policy issues into account.

8.2 TEAM MEMBERS

Name	Position	Contact Details (email and mobile in Viet Nam)
Mr Francesco Goletti	Team Leader	f.goletti@agrifoodconsulting.com 0904102975
Ms Le Thi Phi Van	Agricultural Economist	lethiphivan@gmail.com 0903221142
Mr Pham Hong Duc Phuoc	Agronomist	phdphuoc@hcm.vnn.vn 0913920173
Ms Pham Minh Thao	Environment Specialist	Thao.Phamminh@wwfgreatermekong.org 0983884460
Ms Tran Thu Hang	Social and Gender	thuhangvca@yahoo.com 0904574727

8.3 PERSONS MET

#	Name	Position	Organization	Contact Details
1	Nguyen Tri Ngoc	Director General	DCP	
2	Nguyen Cong Chuc	Cocoa Program Manager	DCP	cocoavn@yahoo.com 0913234017
	Richard McNally	Senior Advisor	WWF Greater Mekong Viet Nam Programme	Richard.mcnally@wwfgreatermekong.org 0904529862
3	Tong Khiem	Director General Chairman	NAFEC CCCDV	tongkhiemkn@yahoo.com 0912532078
4	Daniel Valenghi	Country Program Director	Helvetas Viet Nam	Daniel.valenghi@helvetas.org 0904006880
	NL			
5	Nguyen Lam Giang	Project Manager	Helvetas Viet Nam	Lam.giang@helvetas.org 0913551360
	Rubert Konijn	Agricultural Counsellor	Royal Netherlands Embassy Thailand	nlbanagr@loxinfo.co.th
	Truong Thi Duong	Agricultural Program Officer	Royal Netherlands Embassy Viet Nam	Han-lyn@minbuza.nl
	Nguyen Van Hoa	Deputy Director General	Department of Crop Production - HCMC	nvhoactt@hcm.vnn.vn 0913822130
	Jonathan W. Clark	General Director	DAKMAN	j.clark@dakmancoffee.com 0913435134
	Nguyen Vinh Thanh	Purchasing Manager Cocoa Business Unit	Cargill Viet Nam	Thanh_nguyen@cargill.com 0908227965
	Nguyen The Binh	Vice Director	Sub-national Institute for Agricultural Planning and Projection	Tbinhsb-niapp@hcm.vnn.vn 0913926154
	Nguyen Van Loc	Director	Nguyen Loc ADICO Ltd	Nguyenlocadico@gmail.com 0918630969
	Trinh Van Thanh	Owner	Nursery in Ba Ria Vung Tau	0983 868 173
	Nguyen Thi Kim Loan	Manager	ED&F MAN Buying station in Ben Tre	0918 820 697
	Dinh Hai Lam	Chief of Party	Success Alliance	dhlam@acdi.voca.org.vn 0913532563
	Nguyen Ngoc Anh	Monitoring and Evaluation	Success Alliance	Anh.nguyen@acdi.voca.org.vn 0979806082

		Coordinator		
	James Pierce	Chief of Party – Asia Regional Biodiversity Conservation Project	Winrock International	Jrpeter2@gmail.com 0907279709
	Pham The Dung	Director	Forest Science Sub-Institute of South Viet Nam	thedungpvn@yahoo.com.vn 0913742108
	Nguyen Trung Chuong	Vice Director	Service of Agriculture nd Rural Development of Ben Tre Province	0913965437