VIETNAM: Agricultural Price Risk Management

- **Pepper**
- **Rubber**
- **Coffee**

Phase I Reports

June 2002

This report is based on a number of sources:

Official data
Private sector data
A field trip conducted in May 2002 by the authors.

Version: 6/21/02

Weights And Measures

1 hectare (ha) = 10,000 m2 = 2.47 acres
1 metric tonne (tonne) = 2,205 pounds
1 bag of coffee = 60 kg = 132.3 lbs

Acronyms

ACPC	Association of Coffee Producing Countries
AFD	Agence Française de Développement
FAO	Food and Agriculture Organization of the United Nations
GERUCO	General Rubber Corporation
ICO	International Coffee Organization
INRO	International Natural Rubber Organization
IPC	International Pepper Community
IPSTA	India Pepper and Spice Trade Association
IRSG	International Rubber Study Group
ITF	International Task Force on Commodity Risk Management
LIFFE	London International Financial Futures Exchange
MARD	Ministry of Agriculture and Rural Development
OME	Osaka Mercantile Exchange
SICOM	Singapore Commodity Futures Market
TOCOM	Tokyo Commodity Futures Market
USDA	United States Department of Agriculture
VBARD	Vietnamese Bank of Agriculture and Rural Development
VICOFA	Vietnam Coffee and Cocoa Association

Acknowledgements

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I INTRODUCTION

This paper considers the possibility of delivering risk management instruments to agricultural producers in Vietnam, and resulted from a field mission in May 2002 by the authors. The three reports and this introduction outline the degree of dependence on primary commodities of Vietnam, a country where 80% of the population is rural, including 90% of the poor. The transition to a market-oriented and largely urbanized nation is underway, but it's likely to take two decades to achieve. During that time, agricultural commodities are going to matter hugely to rural households and enterprises, because they have too few other choices.

Until recently, formal risk management did not feature in government strategy, and small and medium producers were forced to use more inefficient informal risk mitigation measures. At the request of the government, the Commodity Risk Management Group (CRMG) within the World Bank visited the country to deliver lessons on the groups experiences to date in risk management, and to look at some specific commodities as examples. This report is the outcome of that visit.

1. Macro-Economic Performance And The Structure Of The Economy

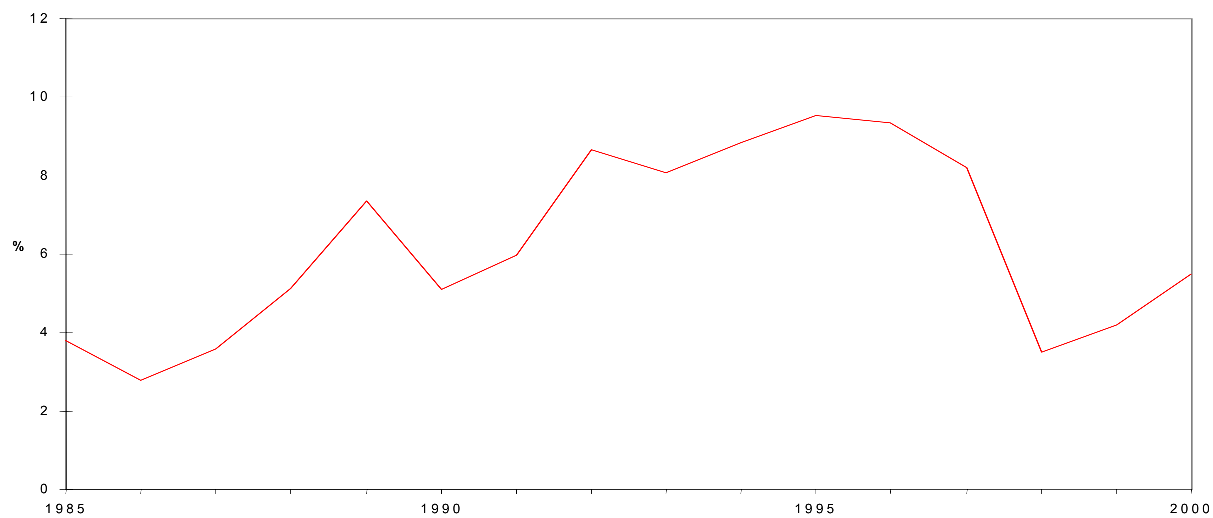
The key economic indicators are shown in Table 2.1. Growth in GDP in constant prices (Figure 2.1) was on an upward trend since 1985 reaching over 9 per cent by the mid 1990s. Then came the Asian crisis from which Vietnam suffered as well. Since then growth has recovered and prospects are quite positive.

Table 1: Key economic ratios and long-term trends

	1989	**1998**	**1999**
GDP (US$ billions)	6.3	27.2	28.7
Gross capital formation/GDP	14.6	28.7	25.4
Exports of goods and services/GDP	23.8	..	..
Gross domestic savings/GDP	4.4	21.3	23.2
Gross national savings/GDP	5.1	..	26.5
Current account balance/GDP	-9.3	-4.7	-0.2
Interest payments/GDP	0.9	1.4	1.1
Total debt/GDP	329.0	82.8	81.1
Total debt service/exports	..	9.0	9.8
Present value of debt/GNI	..	..	75.6
Present value of debt/exports	..	..	151.0

Source: World Bank, World Development Indicators

Figure 1: Growth Rates in Vietnam



Source: World Bank

The structure of the economy is shown in Table 2. The role of agriculture appears to have declined, notwithstanding its own high growth rate, as other sectors appear to have grown even more rapidly. See also Table 3.

Table 2: Structure of the economy

	1989	**1998**	**1999**
(% of GDP)			
Agriculture	40.8	25.7	25.4
Industry	22.9	32.6	34.5
Manufacturing	19.1	..	17.6
Services	36.2	41.7	40.1
Household consumption expenditure	87.7	71.1	70.0
General government consumption expenditure	7.8	7.6	6.8
Imports of goods and services	34.1	..	..

	1989-1999	**1998**	**1999**
(average annual growth)			
Agriculture	4.7	3.5	5.2
Industry	12.0	8.3	7.7
Manufacturing	..	..	..
Services	8.3	5.7	2.2
Household consumption expenditure	*8.9*	2.4	..
General government consumption expenditure	*9.7*	3.2	2.5
Gross capital formation	21.4	6.3	-3.0
Imports of goods and services	*29.6*	..	..

Source: World Bank, World Development Indicators

About 80% of the population lives in rural areas. Of the labor force some 70% in working in agriculture contributing only 25% to GDP (see Table 2.3).

Table 3: Agriculture and the rural population

	1985	1990	1995	1998	1999
Agriculture, value added (% of GDP)	..	37.5	28.4	25.7	25.4
Agriculture, value added (annual % growth)	3.8	1.5	4.7	3.5	5.2
Labor force in agriculture (% of total)	..	71.3	69.7	..	..
Land use, permanent cropland (% of land area)	2.5	3.2	3.8	4.8	..
Rural population (% of total population)	80.4	80.3	80.6	80.4	80.4
Rural population growth (annual %)	1.9	2.2	1.9	1.3	1.2

Source: World Bank, World Development Indicators

2. Price Risk Management And Viet Nam's Comprehensive Poverty Reduction And Growth Strategy (Poverty Reduction Support Paper)

After 12 months of intensive effort and a series of consultations at the national, provincial, and village level, the government of Vietnam has recently launched its Comprehensive Poverty Reduction and Growth Strategy (CPRGS). This document will be discussed by the Boards of the World Bank and the IMF as the country's Poverty Reduction Strategy Paper. Vietnam, with a population of 78 million, is the largest country ever to complete a full PRSP and is also the first Asian country to do so. The original, Vietnamese version of the CPRGS was signed by the Prime Minister in May 2002 and the English translation was launched by the government at the mid-term Consultative Group meeting in Ho Chi Minh City on May 24th.

The CPRGS sets out three broad objectives to drive the poverty reduction strategy:

- High growth through a transition to a market economy. This lays out the government's agenda for structural reform and concrete plans for their implementation.
- An equitable, socially inclusive and sustainable pattern of growth. This is reflected in the detailed plans for implementing sectoral and social policies.
- Adopting a modern public administration, legal and governance system. This aims at facilitating the design and implementation of the policies and programs necessary for attaining the first two goals.

The strategy recognizes the key role of agriculture in enhancing growth and alleviating poverty. This is true both because of the sector's importance in the economy and because a disproportionate share of poverty is related to agriculture. Over 90% of the poor live in rural areas and of these an estimated 88% are farmers. The incidence of food poverty is much higher in rural areas (15.9%) than in urban (4.6%).

The strategy recognizes too that one of the root causes of poverty is that the poor are "unable to invest in their own human capital or build up a stock of physical assets to tide them through difficult times, to withstand unanticipated shocks, and to even out irregularities in their income flows." The income of the poor is unstable and as a consequence they are vulnerable to unexpected shocks. It notes that because their income level is very low and unstable, they have low savings capacity and limited access to credit, and are therefore unlikely to be able to resist unexpected shocks. While the strategy mentions shocks such as "loss of harvest, job loss, natural disaster, loss of labor resources, and loss of health", the same problem is created by price shocks. And in fact, one element of the strategy dealing with the agricultural sector (Part IV, section 1.5) is explicitly to "develop policies to protect the rural population when they are hit with natural calamities, storms and flooding, or price risks due to market fluctuations". As mechanisms to implement this policy, the strategy gives as examples "direct methods including exemption or reduction from certain taxes, support by providing seed/animal/seafood varieties, material subsidies, non-interest loans to maintain product stock, debt rollover for households experiencing difficulties". Experience is clear, however, that market-based insurance would be far preferable to these kinds of solutions, since it would have no fiscal cost to the Government, would not undermine the banking system (as would debt forgiveness schemes) and would not encourage risky behavior. Market-based insurance, to the extent it is marketed as a joint product with loans, would have the concomitant advantage of linking more farmers with the financial system, which is itself recognized as a key mechanism to smooth income flows in the short run and in the long run to give farmers the ability to invest in productivity-enhancing technology.

3. General Policy Environment

Although the CPRGS includes "moving towards supporting the Dong's convertibility in the current account" as one element of the Government's strategy, the VND is not at present a convertible currency on either current or capital account. As a practical matter, it appears that there is no exchange rationing, and the private sector seems to have no difficulty accessing foreign exchange for imports or other business dealings. However, systematic use of international risk management instruments would require certainty in advance that there would be no restrictions on foreign exchange availability for payments to brokers[1] and providers, nor any restrictions on inflows of foreign exchange from insurance payouts. Since these financial flows would likely be treated as capital account transactions, convertibility of which is not addressed in the CPRGS, it would appear that a special legal regime would be required for these instruments. A discussion of this issue with the State (Central) Bank of Vietnam was not entirely conclusive, since the issue has not arisen before, but the general conclusion was that some kind of new regulations would be needed.

In Vietnam, as in many other countries, the Government has used debt write-offs or re-scheduling or interest rate reductions (through VBARD) as a safety net to respond to farmers' problems, including adverse price movements. Frequent resort to this kind of ad hoc bailouts undermines farmers' incentives to pay for insurance, a lesson that is quite clear from the experience of the US, where crop yield insurance has been difficult to sell to farmers even when premiums are heavily subsidized, because of the government's willingness to compensate farmers with special payments when crop yields are low. In addition, the Vietnamese

[1] This would be somewhat less complicated for simple options, for which a one-time fee would be paid in advance. More complex instruments could involve "margin calls", requiring foreign exchange at any point in the life of the contract.

government in the past established price insurance funds for associations of exporters, taking money when the price is high and giving money when the price is low. As with these kinds of funds in other countries, they were not successful, and none are now operational, although the idea of reviving them is still being discussed. Clearly any kind of price stabilization scheme would undermine the development of market-based risk management instruments.

The mission also discussed with the State Bank of Vietnam the question of whether loans backed by price insurance could be given a better risk rating for purposes of evaluating banks' provisioning requirements. This would clearly provide an incentive for banks to give lower interest rates on such loans, and perhaps to extend loans to some borrowers who would not otherwise be considered creditworthy. This was a new idea, but one which the SBV thought was worth exploring. It would, however, require further consideration and amendment of existing regulations.

There is no good cooperative system; cooperatives in the North and the Central area are still old-style cooperatives, and they only look after supply of inputs and services; not after marketing; in the South there are informal farmer groups. The current law on cooperatives does not include credit, insurance, marketing. There is no government action to support better cooperatives. Cooperatives normally do not have a good leader; they cannot hire somebody from outside. The Association of Cooperatives is not really an Association but a government run office.

4. Vietnamese Bank for Agriculture and Rural Development

The Vietnamese Bank for Agriculture and Rural Development (VBARD) takes about 80% of all lending to Agriculture and Rural Development. VBARD credit is used as follows:

- 60% agriculture, including processing
- 40% others, e.g. SME's

They have a good network with 1600 branches in the country and 24,000 staff.

All credit for rubber, coffee and pepper is given directly to the farmers. The interest rates charged are:

- max. 0.9% per month for short-term loans, max. 1 year
- max. 1.0% per month for medium-term loans, between 1 and 5 years
- max. 1.1% per month for long-term loans, min. 5 years

These rates could be lower in case of price insurance. The repayment rate is 97%, but for coffee and rubber it is much lower; sometimes there is a need to reschedule or even write off. Credit given is used as follows:

- coffee: planting (now restricted to arabica) and maintenance
- rubber: maintenance
- pepper: planting and maintenance

So far no credit has been given for rubber planting, but VBARD is the official channel for transferring money to farmers under the World Bank smallholder project. They will send information on the amount of credit to farmers, separately for rubber, coffee, pepper, the number of farmers and the average size of the loans. As collateral one can use land, trees and the house.

Warehouse receipts are not accepted as collateral; this is not allowed by the Government: the value of such a collateral is not sufficiently certain.

However, bank staff have no incentive to maximize the number of loans given, but have an incentive to prevent default; so they tend to give loans to the richer farmers or to farmers with additional non-farm income; therefore it is difficult for farmers to borrow.

Suitability and willingness of VBARD to provide price insurance

In our view, VBARD is an obvious candidate to act as a retail LTM for the proposed rubber price insurance scheme. This judgment derives from:

- their agricultural development mission,
- their extensive rural branch network,
- their detailed knowledge of farmer credit status,
- their eagerness to take on this role.

No commercial bank can compete with VBARD in these respects. They are anxious to move to a pilot transaction as rapidly as possible. Detailed further discussions will be necessary on all aspects of their qualifications and the work to be done.

5. Further Work

Before an answer can be given to the question: do these cases qualify for Phase 3, answers to a number of questions and assessments on a number items are required. Among the topics to be further investigated are the following.

Willingness to pay
Which prices are considered sufficiently attractive to farmers for them to pay a premium for the insurance? Which would be the preferred time horizon for the insurance? How much would they be prepared to pay in each of the cases?

Understanding by farmers
How can one explain to farmers how such a system works? Which organizations could assist in explaining to farmers? How could staff of such organizations be trained? What would be the role of national and provincial authorities in this connection? And what would be the role of various provincial peoples committees?

Vietnamese Bank for Agriculture and Rural Development (VBARD)
There is a need to review the network of VBARD, and the extent to which lending and other decisions are made at a provincial level, rather than at the center. How accessible is VBARD in the countryside? How strong is the trust farmers put in VBARD? What is the financial position of VBARD? Does VBARD fully understand the concept? Can they handle the LTM side of price insurance? Is VBARD as eager as shown during the interview? What would be the effect on the interest rate charged on credit?

State Bank of Vietnam (SBV)
There is a need for further discussions on the need and feasibility to adjust regulations. It is not clear what the role of SBV will be towards other Ministries.

Ministry of Finance (MoF)
There is a need for further discussions on the need and feasibility to adjust regulations with MoF, and especially the Price Insurance Corporation, which is part of the MoF.

Government policy
From discussions with different parts of MARD, it became clear that they were very positive on price insurance. To what extent is this true for the whole of MARD? And for the government as a whole? And for provincial governments? Is it possible that the approach would be acceptable in some provinces and not in others? Who would be in charge of the introduction of such a scheme? And before that, which organization would be in charge of the pilot scheme?

Providers
There is a need for further discussions with international traders in Ho Chi Minh City. In addition and more importantly, there is a need for discussions with candidate providers both in Ho Chi Minh City and in Singapore.

Locations for pilot projects
The location for a pilot project needs to be decided upon, depending on whether the case studies qualifies for Phase 2. It may be useful to indicate a region where case studies for more than one commodity could be done at the same time.

6. Internet Links To Photographic Illustrations of The Report

Dac Lac, Vietnam Photos http://www.itf-commrisk.org/DisplayContent.asp?ID=176

Vietnam Coffee Pictures http://www.itf-commrisk.org/DisplayContent.asp?ID=175

Vietnam Land Clearance Photos http://www.itf-commrisk.org/DisplayContent.asp?ID=177

Vietnam Pepper Production Photos http://www.itf-commrisk.org/DisplayContent.asp?ID=179

Rubber Production Photos in Thailand and Vietnam http://www.itf-commrisk.org/DisplayContent.asp?ID=181

II PEPPER

1. Background: World Pepper Production

Pepper is a native product of the Southern Indian coast. India until recently had long dominated the production of pepper and is still renowned for producing the highest quality pepper in the Malabar and Tellichery regions. In India pepper is identified by the region in which it is produced while outside of India it is identified by trade center.

Pepper is 34% of the world's traded spice and consumption of pepper world wide has been growing significantly.[2] Pepper exporting is dominated by six main producers Brazil, India, Indonesia, Malaysia, Vietnam, and Sri Lanka.[3] The International Pepper Community was formed in 1972. Its members are Brazil, India, Indonesia, Malaysia, Sri Lanka, Thailand, FS Micronesia, and Papua New Guinea. Together the IPC produces 84% of the world pepper and accounts for 87% of world pepper exports. [4]

2. Pepper Production and Marketing in Vietnam

Vietnam began exporting significant volumes of pepper in 1993. Since that time its output has grown immensely. During the 1990s, planted area increased at an average rate of 13% per year. At present there are well over 30,000 hectares in pepper.[5] The effect of increased area has been magnified by growth in productivity per hectare averaging 7% per year in the 1990s. India still produces the most pepper in the world but in 2001 Vietnam became the leading pepper exporter, since its domestic consumption is minimal—an estimated 3-4,000 tons.

Table 1: Pepper Production and Exports

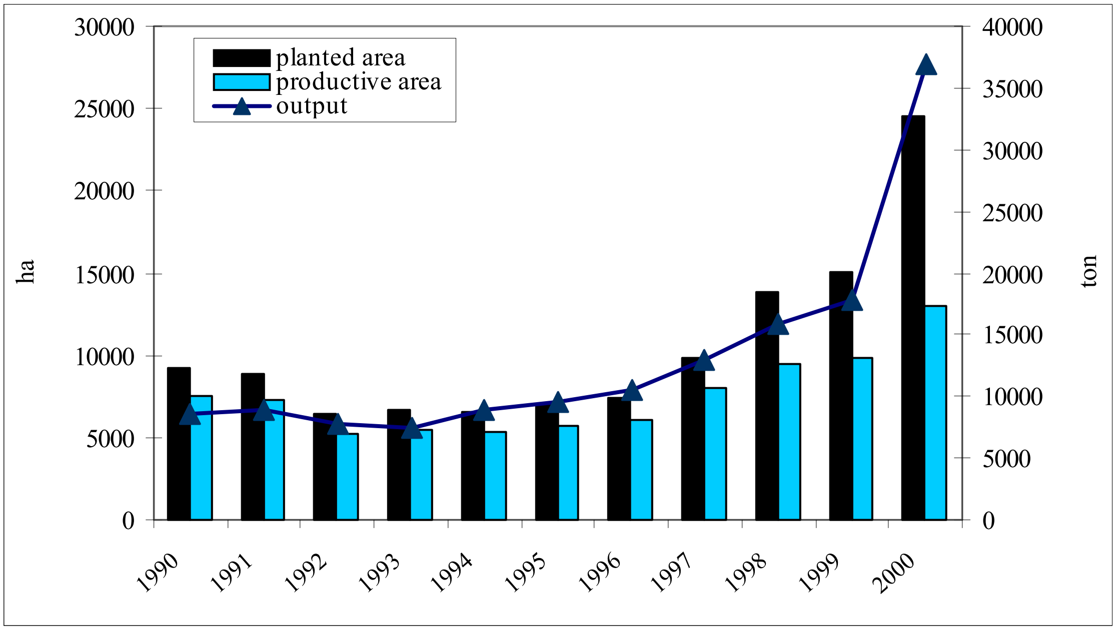
	Production	Export volume (MT)	Export value ($ mill.)
1990	8,623		
1995	20,000		
1996	20,000		
1997	25,000	24,713	67.49
1998	22,000	15,065	64.43
1999	30,000	34,776	137.26
2000	36,000	36,250	142.28
2001 (est.)	55,000	55,300	88.70
2002 (forecast)	60,000		

Source: Production--International Pepper Community, Jakarta; Exports-- MARD

[2] IPC
[3] "Vietnam become biggest pepper exporter", Nhan Dan.
[4] IPC
[5] Nhan Dan Economy Section

Some in the trade believe that these official statistics significantly underestimate the actual production by as much as 15-20,000 tons, and believe that production could increase to as much as 90,000 tons within two years.

Figure 1: Pepper - Area Statistics and Output



Source: MARD

There are a large number of companies involved in export and purchase, but the largest 10 exporters account for about 50% of total exports, and the largest 40 account for 80-90%. Pepper from Vietnam is exported to over 30 countries, with Singapore the largest purchaser of Vietnamese pepper (for processing).[6] Other significant buyers are listed below.[7] It is expected that this year a much larger percentage of Vietnamese pepper will be exported to China. Last year one fourth of all exports were undertaken by Truong Loc Ltd.[8]

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[6] "Vietnam: Staking a "King's" Share", New Agriculturist.
[7] "Vietnam Global Leader in Pepper Exports 2001", *Le Viet Nam aujourd'hui (The Vietnam News),* January 9, 2002.
[8] Nhan Dan Economy Section

Table 2: Major Buyers of Vietnamese Pepper 2001	
Singapore	12700 tonnes
Netherlands	3594 tonnes
China	2637 tonnes
UAE	2464 tonnes
US	2152 tonnes
Source: "Vietnam Global Leader in Pepper Exports 2001", *Le Viet Nam aujourd'hui (The Vietnam News),* January 9, 2002.	

There is very incomplete statistical data, but based on limited data available and on interviews with some of the main agents, the general picture of production and marketing of pepper in Vietnam is that of a very dynamic but highly fragmented sector, with almost no government involvement. Production is mainly on small plantations of less than 2 hectares. These plantations typically contain 3-5,000 "chimney plants" (5 pepper plants around a 4m high wooden pole). Farmers mostly used wooden poles, cutting down the forest for that purpose. Good wood is required for the posts because the vines may last up to 30 years. Now more farmers are using concrete piles, brick towers or living trees. Investment cost is estimated at $ 20,000 per ha. Cost of production estimates ranged from $950/ton (if farmers use low inputs and living trees) to $2,000/ton. Most production, harvesting and processing is done by hand. These factors have led quality to be inconsistent and poor, on average.

Most production is in the South East (Binh Phuoc, Binh Duong, Dong Nai provinces); Central Highlands (Gia Lai, Dak Lak); and Central Area (Quang Binh, Quang Tri, Quang Nam). Production is low in 2002 because of the drought (30% down over 2001).

Vietnamese pepper is harvested from February until June[9] (mostly February through May), a few months after the November harvest season in India and just before the Malaysian and Indonesian harvests. Normally there are four rounds of picking. The pepper is typically dried on farm. When prices were good, much of the labor for harvesting and drying was hired in, but now more is done by family labor. The farmer may then sell to collectors or directly to processors. The collector will do the cleaning. Because production of individual farmers is so small, there are often multiple links in the marketing chain before it reaches the exporter, with each link serving as an aggregator. Processors may export or may sell to large exporters. Processing was formerly done in Singapore or India, but now there are also factories in Vietnam delivering ASTA Standard or European Standard.

Prices are mostly determined in bilateral deals. Forward contracts may be used. The Vietnam Pepper Association will launch a website soon to announce the international price. The Cochin market is mostly for local traders in India. Fluctuations on the international market are passed on to the farmers; traders and processors take a small and constant margin.

[9] "Vietnam: Staking a "King's" Share", New Agriculturist.

Credit to farmers by processors is rare because of performance risk: farmers may take the inputs, but then sell to another processor. As a consequence, traders and exporters do not develop long-term relations with growers. Most farmers borrow from VBARD and pay back after the harvest. Beyond basic processing value adding activities are not done in country.

Pepper farmers do not have any large-scale organization, and reportedly only rarely form even informal local associations. Vietnam traders, processors, scientists, and service organizations have formed a Vietnam Pepper Association, but Vietnam has not joined the International Pepper Community. The association currently has about 160 members.

3. Prices and Price Volatility in the Pepper Market

There have been significant price fluctuations in pepper in the past because of supply changes in the largest producing countries.[10] At present there is a oversupply in pepper worldwide. Over the last two crops seasons prices have been falling significantly. Between 1997-1999 prices were $5,400-6,000 per tonne but now are less than $1400 dollars per tonne.[11] This has been caused by the supply growth from in Vietnam as well as growth in other producing countries. Exports from six major producers increased 23% from Jan-July 2001 95,328 tonnes to 117,465 tonnes.[12] Prices of Vietnamese pepper are especially low because of the inconsistent quality of the coffee and lack of marketing skills among exporters. The price fall has even prompted the Vietnamese Ministry of Agriculture and Rural Development (MARD) to recommend that farmers refrain from increasing crop areas.[13]

The international price of pepper is one of the most volatile among commodities. Volatility can be indicated in a number of ways: here we use the measure of standard deviation and the measure of coefficient of variation (the standard deviation divided by the mean). The coefficient of variation is especially useful to compare volatility of different commodity prices. The moving results over the previous 10 years, so 120 months, are shown in Figures 2 and 3 for pepper, palm oil and natural rubber. A different means of comparison with these and other commodities can also be found in Figures 4 and 5. Pepper prices are by far the most volatile of any of these comparators.

[10] IPC
[11] "Vietnam become biggest pepper exporter", Nhan Dan.
[12] IPC
[13] "Vietnam Global Leader in Pepper Exports 2001", *Le Viet Nam aujourd'hui (The Vietnam News),* January 9, 2002.

Figure 2

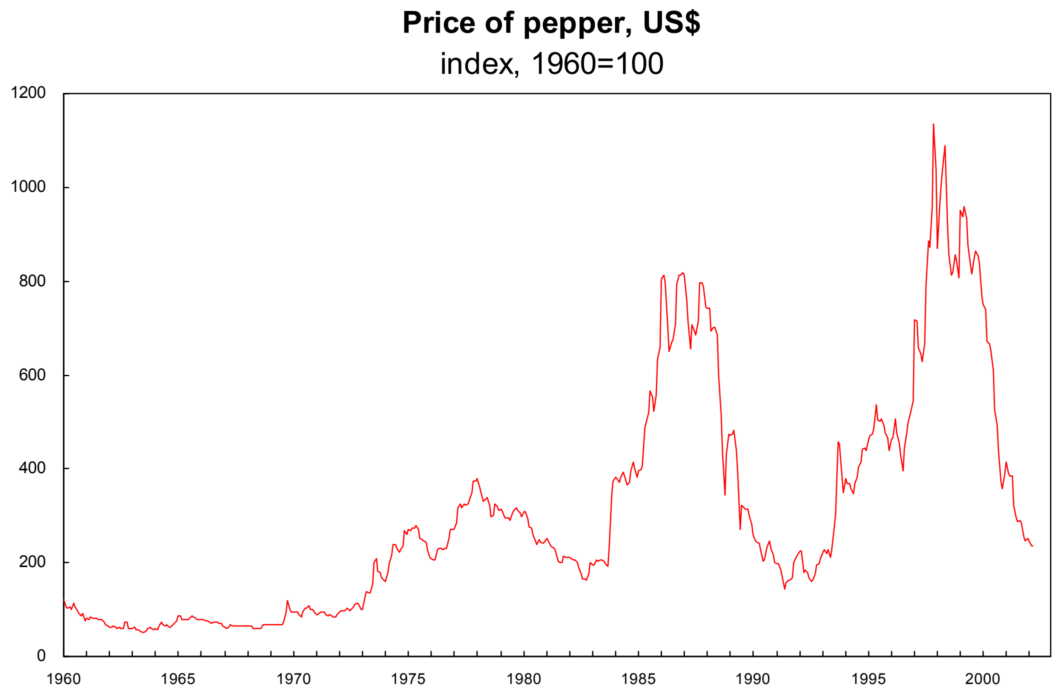


Figure 3

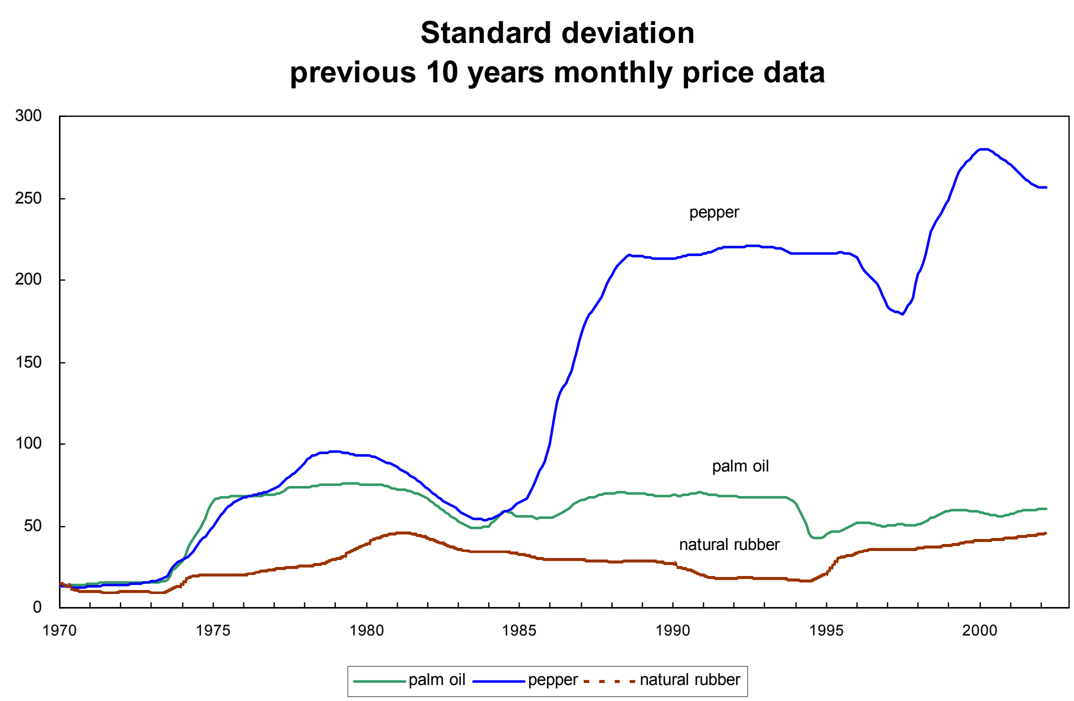


Figure 4

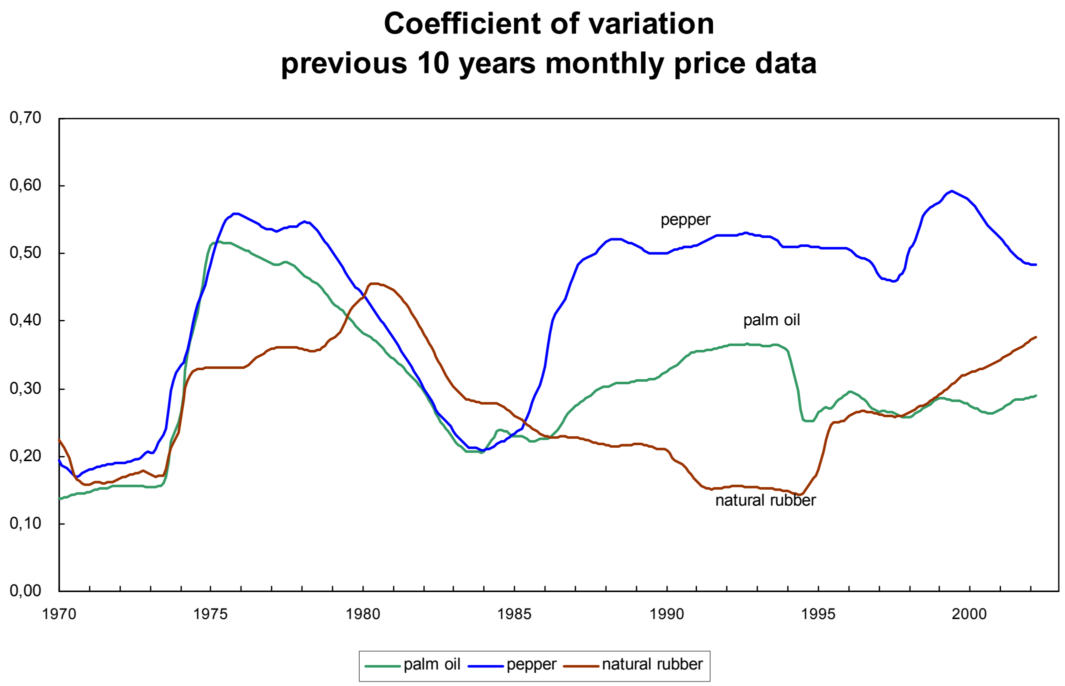


Figure 5

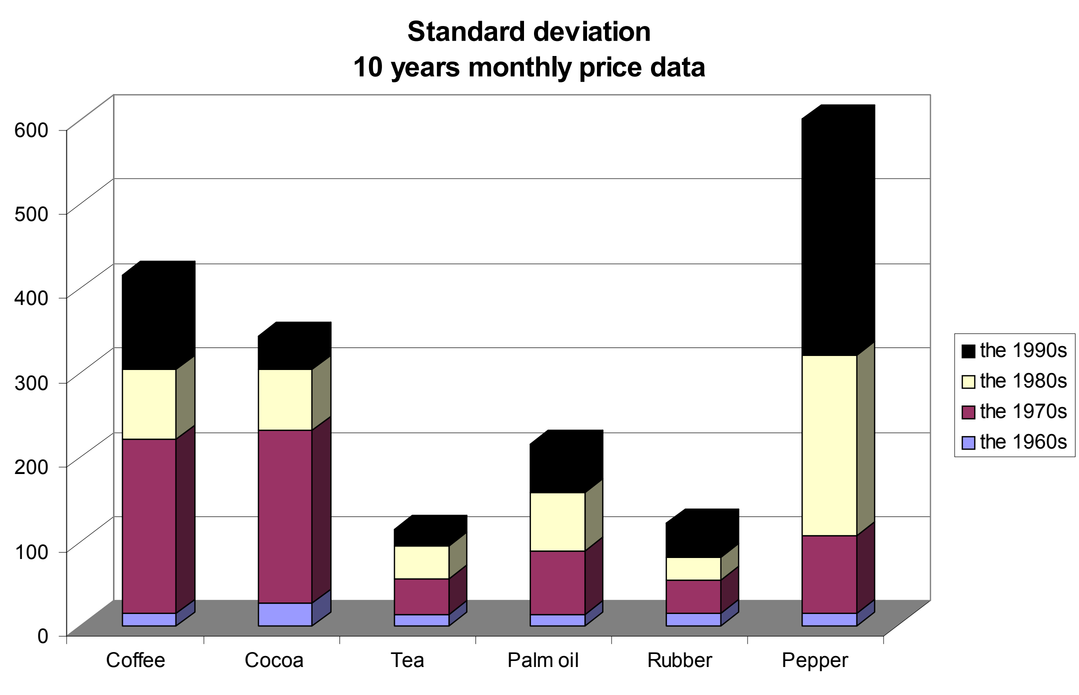
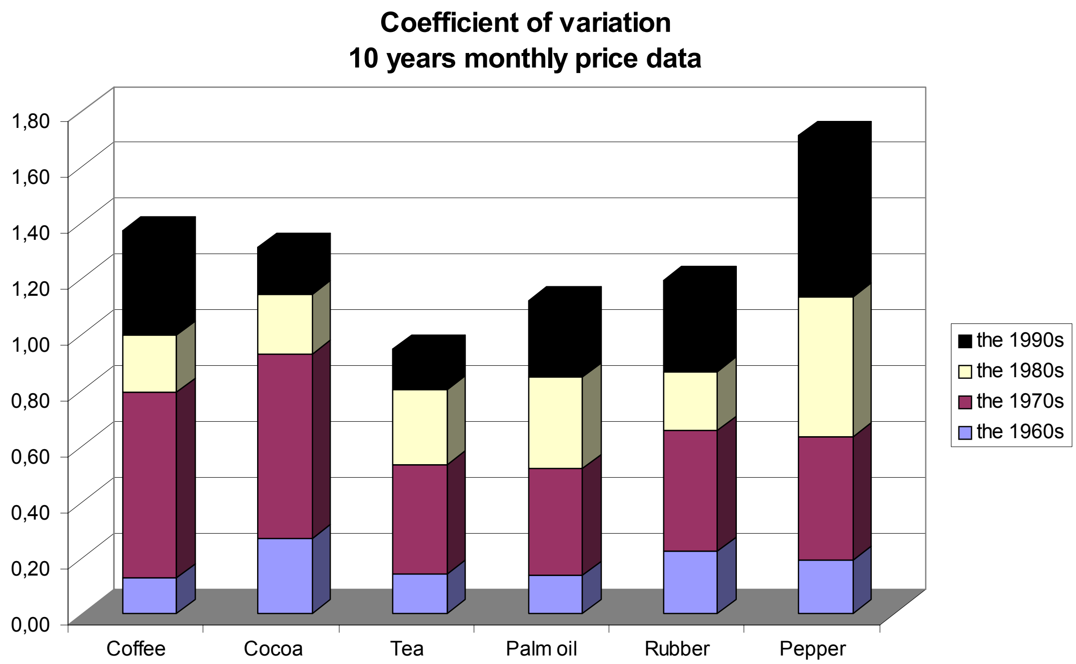


Figure 6



4. International Pepper Futures Contract

The India Pepper and Spice Trade Association (IPSTA) offers pepper futures contracts through their international commodity exchange division. Domestic contracts have been traded in Rupees since 1997 but in August of 2001 approval was given for international contracts to be traded in dollars. Global Trust Bank, IndusInd Bank and Union Bank of India are helping members to open accounts with RBI. IPSTA has also been working with the Bangalore Stock Exchange to set up electronic trading for the future. 14 However, as of now, this is not a liquid market. According to the information on the website of the Forward Markets Commission of India (http://www.fmc.gov.in/Default800.html), there has been a fairly active market in the domestic pepper futures contract, but no transactions in the international contract. The major players in Vietnam are not aware of the futures contract.

5. Vietnamese Pepper Prices and Their Relationship To World Market Prices

As explained above, there are no effective international futures prices for black pepper against which to compare the behavior of Vietnamese pepper prices. However, there is evidence that Vietnamese pepper prices are correlated with the prices of pepper of other countries.

Figure 7 shows the relationship between the prices of Vietnamese pepper and other producing countries on the world market. The raw data appears as Table 4 at the end of this report.

[14] IPC

Figure 7: Prices of Different Origins on The World Market

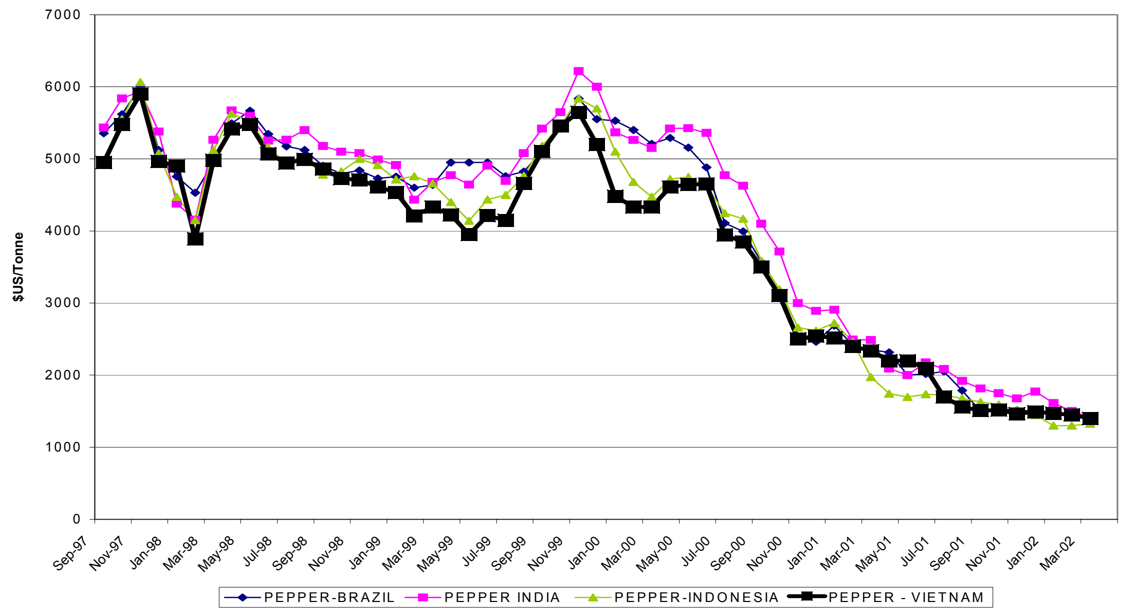


Table 3 below shows the correlation between these data sets in two ways – in levels, where the correlations are obviously very high, and in logarithm of price changes. Note that the price changes for the Asian pepper markets are correlated with each other, but that the Brazilian market will at times take its own path.

Table 3: Relationships between Different World Pepper Prices

CORRELATION MATRIX IN PRICE LEVELS

	PEPPER-BRAZIL	*PEPPER INDIA*	*PEPPER-INDONESIA*	*Pepper - VIETNAM*
PEPPER-BRAZIL	1			
PEPPER INDIA	0.987	1		
PEPPER-INDONESIA	0.985	0.990	1	
Pepper - VIETNAM	0.981	0.983	0.990	1

CORRELATION MATRIX IN PRICE CHANGES

	PEPPER-BRAZIL	*PEPPER INDIA*	*PEPPER-INDONESIA*	*Pepper - VIETNAM*
PEPPER-BRAZIL	1			
PEPPER INDIA	0.704	1		
PEPPER-INDONESIA	0.661	0.774	1	
Pepper - VIETNAM	0.625	0.738	0.728	1

Source: Staff Calculations

6. Conclusion: Moving Forward

Is there a rationale to move forward? On balance, not at this time

Clearly there is a great need for risk management in the pepper market. World prices are highly volatile, and fluctuations are passed to the domestic market. Risk management is recognized by the CPRGS to have the potential to reduce the vulnerability of the rural populations, and most poor are in rural areas. However, there are several obstacles, including the policy issues described below. The biggest hurdle is that there is not at this time a pepper risk management instrument which is traded in liquid international markets. The relatively new instrument on the Cochin exchange may develop into such an instrument, but until such time as it does, any risk management work with pepper would need to rely on an approach fundamentally different from that on which other cases of the CRMG are based. The CRMG is now studying how to deal with commodities the markets for which lack internationally traded instruments.

Is there a suitable policy environment? No

There is no direct involvement of the government in pricing pepper, so prices are fully liberalized and international price movements are transmitted fairly directly to domestic markets; in this respect, the policy environment is conducive to development of a risk management market. However, the foreign exchange regulations would need to be put in place to guarantee the ability of the LTM to carry out payments and accept payout in foreign currency. It would also be helpful if banking regulations recognized the lower risk involved in a loan to a producer with price insurance and gave such loans a lower risk rating for purposes of complying with provisioning requirements.

Is there a satisfactory LTM? Probably

The Vietnam Bank for Agriculture and Rural Development lends to a number of pepper producers and has expressed interest in playing the role of LTM. It has served as intermediary for World Bank loans, so its financial soundness and business practices have been judged satisfactory. As more farmers are issued land use certificates that can be used for collateral, it is likely that more and poorer farmers will become eligible to borrow. There do not appear to be other obvious candidates for LTM. There are few if any traders who have long-term relations with growers, and few if any cooperative associations of pepper growers that would be appropriate to play this role.

Is there evidence of a willingness to pay the necessary premium? Unknown

Could a test case be replicated around the country Probably

If a successful model could be developed using VBARD, it is probable that it could be replicated around the country, given the wide network of VBARD branches.

Table 4:World Market Pepper Prices, including Vietnam

Name	PEPPER-SHP BRAZIL BLACK	PEPPER INDIA BLACK SHIPMENT	PEPPER-SHP SARAWAK BLACK SPECIAL	Pepper, Black, Vietnam, Shipment $/Mt	Pepper, Black, Vietnam ,Spot, $/Mt
Code	PEPRBZB	PEPRBLS	PEPRSBB	PEPRBVT	PEPRBVS
Currency	US $/MT	US $/MT	US $/MT	US$	US$
09/17/97	5356.82	5434.09	4984.09	4950	5068.18
10/17/97	5617.39	5839.13	5552.17	5476.09	5569.56
11/17/97	6002.5	5940	6065	5900	6000
12/17/97	5121.74	5378.26	5078.26	4965.21	5165.21
01/17/98	4754.54	4377.27	4472.73	4900	5100
02/17/98	4530	4155	4150	3892.5	4307.5
03/17/98	4954.54	5263.63	5120.45	4981.82	5154.54
04/17/98	5493.18	5672.73	5625	5413.63	5540.91
05/17/98	5667.86	5592.86	5523.81	5476.19	5550
06/17/98	5345.45	5252.27	5163.63	5070.45	5331.82
07/17/98	5173.91	5265.21	4932.61	4941.3	5226.09
08/17/98	5123.81	5397.62	5009.52	4992.86	5214.29
09/17/98	4902.27	5179.54	4779.54	4859.09	5081.82
10/17/98	4795.45	5100	4827.27	4725	5000
11/17/98	4840.47	5080.95	5000	4709.52	4650
12/17/98	4728.26	4991.3	4913.04	4613.04	4678.26
01/17/99	4752.38	4914.29	4714.29	4533.33	4659.52
02/17/99	4600	4435	4760	4210	4515
03/17/99	4639.13	4678.26	4660.87	4330.43	4739.13
04/17/99	4950	4772.73	4400	4222.73	4645.45
05/17/99	4950	4642.86	4140.47	3952.38	4276.19
06/17/99	4950	4904.54	4436.36	4211.36	4347.73
07/17/99	4759.09	4695.45	4500	4150	4300
08/17/99	4825	5079.54	4765.91	4661.36	4750
09/17/99	5109.09	5418.18	5181.82	5104.54	5181.82
10/17/99	5416.66	5647.62	5464.29	5457.14	5459.52
11/17/99	5836.36	6218.18	5836.36	5647.73	5686.36
12/17/99	5550	6000	5700	5200	5400
01/17/00	5528.57	5366.66	5100	4480.95	4961.9
02/17/00	5400	5261.9	4680.95	4333.33	4809.52
03/17/00	5208.7	5152.17	4471.74	4330.43	4843.48
04/17/00	5290	5420	4720	4610	4780
05/17/00	5156.52	5426.09	4747.82	4645.65	4802.17
06/17/00	4881.82	5361.36	4627.27	4650	4750

Table 4:World Market Pepper Prices, including Vietnam (cont'd)

Name	PEPPER-SHP BRAZIL BLACK	PEPPER INDIA BLACK SHIPMENT	PEPPER-SHP SARAWAK BLACK SPECIAL	Pepper, Black, Vietnam, Shipment $/Mt	Pepper, Black, Vietnam ,Spot, $/Mt
Code	PEPRBZB	PEPRBLS	PEPRSBB	PEPRBVT	PEPRBVS
07/17/00	4109.52	4773.81	4247.62	3945.24	4235.71
08/17/00	3995.65	4626.09	4169.56	3847.83	4173.91
09/17/00	3571.43	4100	3585.71	3500	3692.86
10/17/00	3076.14	3713.64	3186.36	3104.55	3411.36
11/17/00	2538.64	2997.73	2659.09	2505.68	2981.82
12/17/00	2461.9	2890.48	2616.67	2540.48	2730.95
01/17/01	2686.96	2906.52	2721.74	2519.57	2880.43
02/17/01	2415	2495	2465	2400	2950
03/17/01	2350	2487.5	1972.73	2336.36	2838.64
04/17/01	2316.67	2090.48	1742.86	2200	2600
05/17/01	2000	2000	1697.83	2200	2600
06/17/01	2016.67	2176.19	1735.71	2095.24	2600
07/17/01	2050	2086.36	1725	1697.73	2254.55
08/17/01	1788.04	1919.57	1677.17	1558.7	2026.09
09/17/01	1500	1815	1627.5	1508.75	1800
10/17/01	1536.96	1750	1593.48	1515.22	1750
11/17/01	1513.64	1677.27	1513.64	1463.64	1750
12/17/01	1502.38	1771.43	1445.24	1490.48	1750
01/17/02	1450	1613.04	1300	1471.74	1628.26
02/17/02	1450	1500	1300	1450	1550
03/17/02	1400	1411.9	1326.19	1400	1500

III RUBBER

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Abbreviations

ADS	Air-Dried Sheet
DRC	Dry Rubber Content
LTM	Local Transmission Mechanism
NR	Natural rubber
OTC	Over the Counter
RSS	Ribbed Smoked Sheet
SR	Synthetic rubber
SVR	Technically Specified Rubber, Vietnamese denomination
TSC	Total Solid Content
TSR	Technically Specified Rubber, international denomination
USS	Unsmoked Sheet

Acknowledgements

This is the report of a “test case” of a commodity risk management scheme undertaken under the auspices of the International Task Force on Commodity Risk Management (the ITF). The report relates to the intermediation of risk management to natural rubber smallholders in Vietnam. It is directed to the ITF and to the World Bank, which commissioned the report on behalf of the ITF. The mission on which this report was based was undertaken by Hidde P. Smit of the Economic and Social Institute (ESI) of the Free University, Amsterdam (the Netherlands) and John Nash and Bryan Lewin of the World Bank. A list of interviews is given in Appendix 1. The objective of this project is to examine the feasibility of intermediation of risk management instruments to small coffee, natural rubber and pepper farmers. This report focuses on Natural Rubber Smallholders in Vietnam.

1. Production of natural rubber

Planting and tapping

Rubber trees (*Hevea brasiliensis)* only become productive after five to eight years. This so-called immaturity period depends on the kind of clone and on preparatory growing in nurseries. Maximum yield is reached around the tenth year of tapping. A rubber tree is productive for 20 to 40 years, where the length of the productive period is partly determined by the tapping intensity. After the productive period the trees are uprooted (the wood from the rubber tree also offers an attractive return) and replanting possibly takes place. All *Hevea* clones follow a broadly similarly shaped yield curve over time, from the first year of tapping onwards. The different registered clones number in the hundreds, most of them indicated by an abbreviation of the name of the institute, which developed them, supplemented with a number. Clones differ with respect to a variety of factors: average yield, length of productive period, early yield, wind susceptibility, disease and pest resistance and soil and terrain requirement.

Farmers respond both to the level of the price and to price changes. In this respect it is important to distinguish short-term and long-term supply response. Short-term supply response refers to the immediate reaction of farmers to price changes. The general assumption is that an increase in price leads to larger supply through more intensive tapping. However, a decrease in price may also induce farmers to tap and supply more in order to keep their income at proper levels. Long-term supply response refers to the effect of prices on supply through investment decisions. Since investments in rubber trees will be productive for a period of 20-40 years, with a period of around 7 years at the start with no revenues at all, expectations of future prices and futures returns for extended periods will influence supply.

To assist the farmer during the immaturity period of about 7 years, government agencies often provide replanting subsidies. During the first three years inter-cropping with e.g. pineapple may provide an additional source of income. For a crop like natural rubber, a low price may result in uprooting for the purpose of replanting with rubber trees or with another crop. This means a short-term reduction in supply. A high price will lead farmers to postpone uprooting and/or replanting so there will be more supply.

An important aspect of the structure of the natural rubber producing industry is the size of the holding, represented by the size of the area planted with rubber trees. Traditionally two types of holdings can be distinguished in cultivation of commodities: small holdings and estates. The criterion for classifying smallholders and estates in many countries is whether the size of the holding is under or over 40 hectares. The rationale for this division is the difference between the two groups in ownership, the role of wage and salary earners, efficiency and productivity and access to markets and information. Smallholders are mostly small-scale agricultural households that have earnings from various agricultural as well as non-agricultural activities, mainly as a way to diversify their income risk. Estates, on the other hand, are often large sized mono-crop plantations, usually owned and professionally managed by companies.

Processing

Trees are tapped during the night. The fresh latex is normally collected early in the morning. If the latex is not collected it will become solid; this solid substance is called cup lumps. In addition, even after the collection of the fresh latex, residual dripping may give latex, which is collected later as cup lump. Fresh latex may be sold directly to a processing factory. Farmers are paid according to the dry rubber content (DRC) of fresh latex. Hence, selling fresh latex requires the determination of the dry rubber content, which is usually done by the buyer. There are crude methods (when buying at the farm) and advanced method (when buying by a co-operative). The DRC is influenced by the type of clone, the age of the tree and the time of the year. Generally the dry rubber content varies from 30% to 35%.

Before selling to the manufacturer of rubber goods, rubber is processed in one of the following forms:

- Unsmoked Sheets (USS): Rubber growers may produce USS by letting the rubber coagulate and pulling the slabs through rollers after which drying is done in open air. USS is normally sold as mixed grade to the middleman who may grade themselves or may sell it to the factory as mixed grade. Most of USS is turned into RSS. A small part may be used for the production of TSR block rubber.
- Ribbed Smoked Sheets (RSS): RSS is produced in a smokehouse. Farmers may bring their fresh latex to the smokehouse.
- Air Dried Sheets (ADS): ADS is produced in small factories using fresh latex from farmers. The market is small as it is only required for a few technical end-uses.
- White pale crepe, yellow crepe or brown crepe: The different varieties of pale crepe are also produced on a small scale. It is used in various end products and in producing TSR.
- Technically specified rubber (TSR): TSR20, the standard tire rubber, uses cup lump or occasionally USS and RSS as input. The better quality TSR e.g. TSR3 and TSR5 is produced from fresh latex.
- Concentrated latex: Concentrated latex is made from fresh latex using a centrifuging process. Concentrated latex is used for manufacturing of dipped goods (surgical gloves, condoms).

All six types have different grades. In Appendix 2 it is shown how fresh latex is eventually converted into processed rubber.

Natural rubber is collected as fresh latex, as is described above. This may be sold to a cooperative factory or a private factory. As many farmers deliver their fresh latex to processing factories, a substantial quantity of natural rubber is aggregated at this processing stage. Hence, these processing factories create, to a certain extent, so-called points of constriction: specific stages in the commodity chain where a substantial number of farmers, but preferably all farmers, are delivering their production to a factory or substantial quantity of the commodity is aggregated to be processed or traded. These points of constriction are interesting as they offer good opportunities to retail other services (like price insurance) to the farmers along with the processing of the commodity. Nevertheless, in natural rubber the value of these factories as points of constriction is limited as farmers have many opportunities to deliver their production to alternative processing firms. Additionally and related to this, the capacity of the processing factories is limited, both in terms of the number of farmers needed to generate the required inputs to a factory, as well as in terms of the capital required to set up such a facility. Especially compared to other commodities like sugar and palm oil, points of constriction in the commodity chain of natural rubber have a minor value in facilitating the distribution of price insurance.

2. World supply of natural rubber

The distribution of production of natural rubber by country has changed dramatically during recent decades. Malaysia's production has declined strongly as a result of a shift by farmers, and in particular their children, to other modes of employment that provide better pay or a more attractive working environment. Thailand, on the other hand, strongly increased production during this period, due to ongoing replanting schemes. Comparing the three major producers, Malaysia lost its role as leading producer in 1991 to Thailand, while Indonesia remained in second place (Figure 2.1). Among the Asian producers, also India, the Philippines and China showed strong growth (Figure 2.2). In both the Philippines and India, most (if not all) domestically produced natural rubber is also consumed in the domestic economy. After a turbulent period, Vietnam and to a lesser extent Cambodia have returned to producing natural rubber and, in terms of availability of area, there appears to be plenty of scope for expansion in these countries. Other countries do not play an important role in World natural rubber production (Figure 2.3). World natural rubber production is expected to level off (Figure 2.4), while world consumption is expected to continue to grow steadily. Short supply and higher prices are to be expected.

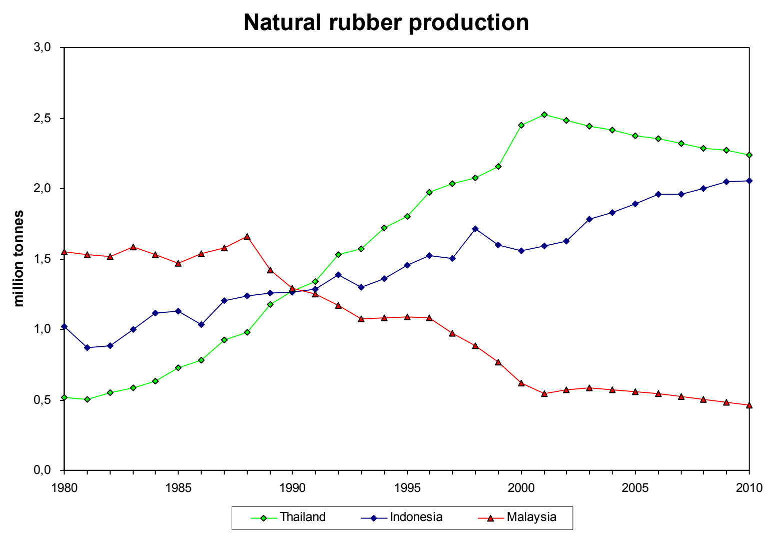


Figure 2.1

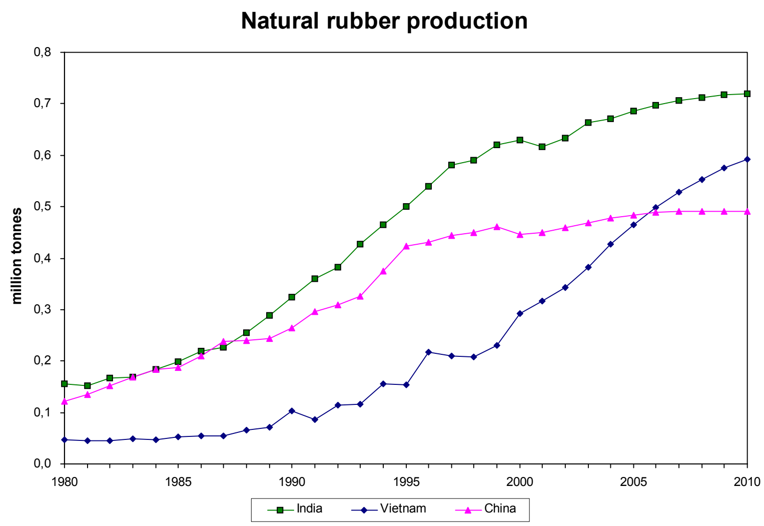


Figure 2.2

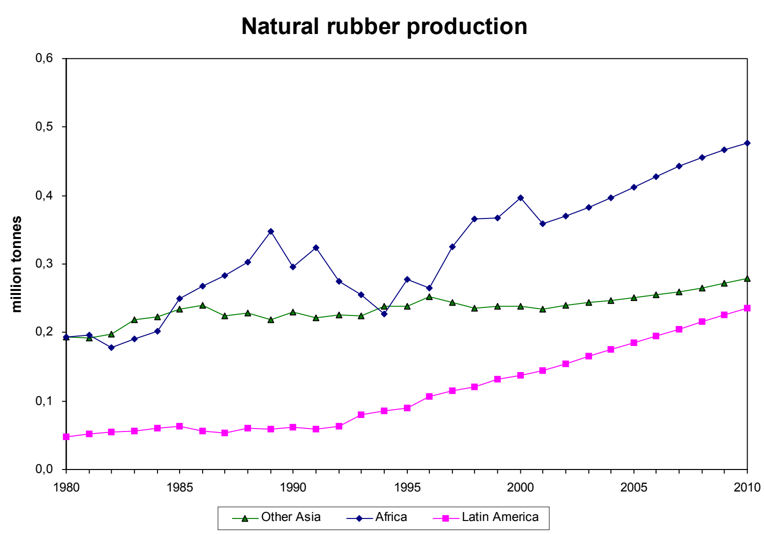


Figure 2.3

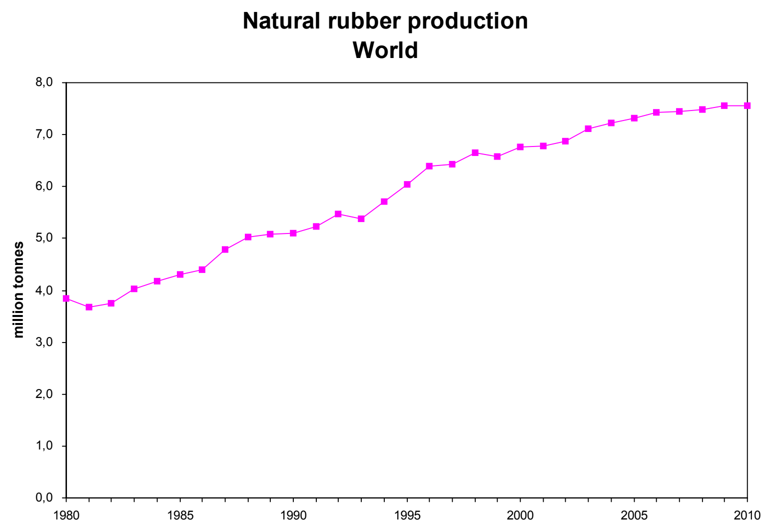


Figure 2.4

At the international level, the secular increase in direct trading between producers and consumers, together with increased computerization in manufacturing production, has resulted in a demand for higher quality specifications, and this has put pressure on producing countries to improve quality and consistency of their rubber exports. Thai rubber market policy is currently moving from an emphasis on increasing quantity to one of improving quality. In particular, there is a move from production of traditional ribbed smoke sheet (RSS) to the technical specified rubber (TSR).

3. Geographical Distribution Of Natural Rubber Production By Type Of Ownership In Vietnam

As in most major NR producing countries in Asia, NR production is over 100 years old. Started by the French, it was overwhelmingly an estate crop. At the end of the war in 1975 planted area was down to about 75,000 ha. Afterwards rehabilitation was a priority of the new leadership also stimulated through financial assistance from the Sowjet Union. In the early 1990s a World Bank project was implemented to assist the estates of the General Rubber Corporation (GERUCO) in rehabilitating processing facilities and to develop production both for estates and smallholders. A new project by the World Bank seeks to develop smallholder area among others in the Central Highlands.

The Vietnam General rubber Corporation (GERUCO) has signed contracts with rubber growers for the first time in May 2002, after an initial trial through the Phuòc Hòa Rubber Company. Phuòc Hòa signed contracts in which each grower would cultivate 3 ha of rubber for a period of 32 years. The company supplies the growers with seedlings and loans in the first year of the contract. By the eighth year, the growers should be able to tap their first latex, which will be sold to pay off the loan and all taxes. About VND 17 million will be invested in each hectare of rubber over the first seven years, which will be fully repaid by the 12th year. The growers will then be able to keep their profits for the remaining 20 years of the contract. However, the growers will not be able to sell their rubber plantations on the market, but can supply them to the factory. The rubber products will be sold at the current market prices, and the company will manage the growing and harvesting. The farmers have been excited by this new business model: 200 households registered to be among the initial 60 growing families. The 11 other members of GERUCO in the south-eastern region will follow this year, and sign contracts with 1,200 workers covering 3,600 ha.

The current situation of rubber area and production is summarized in Table 3.1. Most of the rubber area (70%) is in the South-East, with the remainder in the Highlands and the Coastal Areas. Interesting is the ownership of rubber land: most is under GERUCO estates. Provinces also own rubber estates. What is called Private is basically smallholders, although some smallholdings may have a size of around 20 ha. Hewer, most of them are really small: 1 or 2 ha. Almost all smallholders started in 1990 or later, when land use right became available. That is the reason why the immature area was around 75% in 2000. This was reinforced by the fact that many smallholders planted seedlings in the early 1990s, which give low yields. They replaced the trees a few years later. Growth in NR production in Vietnam will therefore largely come from smallholdings.

Table 3.1 Area and production, 2000

	GERUCO	Provinces	Private	Total
Southeast	165.0	24.0	93.8	282.8
Highlands	41.0	39.5	15.9	96.4
Coastal	9.4	12.4	11.0	32.8
Total area	215.4	75.9	120.7	412.0
Area tapped	160.5	40.4	30.6	231.5
Immature area	54.9	35.5	90.1	180.5
Share immature (%)	25.5	46.8	74.6	43.8
Production	218.5	37.5	34.8	290.8
Yield (tons/ha/yr)	1.361	0.928	1.137	1.256

Figure 3.1 shows the preliminary projections of rubber production as derived by Burger and Smit, resulting in production going up to levels of around 650 thousand tons. Of this more than 250 thousand tons is likely to be produced by smallholders, taking a share of 40% or more. Currently extension work is coordinated by the Rubber Research Institute. This will be transferred to the provinces as soon as their staff is properly trained.

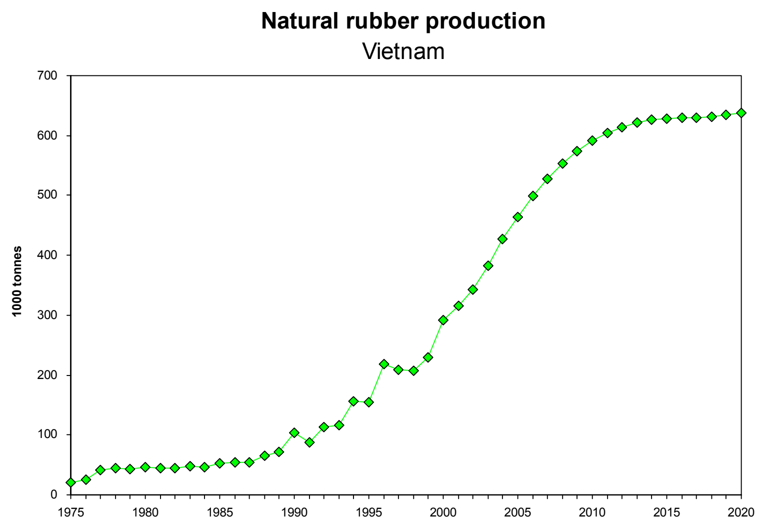


Figure 3.1 Natural rubber production by Vietnam (own calculations)

4. Demand for and trading of natural rubber

World demand for natural rubber

Until 1940 natural rubber was the only source of rubber. Large-scale production of synthetic rubber emerged when, during the Second World War, supply of natural rubber was insufficient, largely due to blocked supply lines. In the 1950s and 1960s production of synthetic rubber increased dramatically because demand, particularly in the automotive sector, grew much faster than supply of natural rubber, thus creating a reduction in the share of natural rubber from 75% in 1950 to 30% in 1980. Owing to technological improvements, synthetic rubber was able to take over from natural rubber. However, the decline in the share of natural rubber was gradually stopped because certain end-uses, in particular radial tires for passenger cars and tires for trucks still need a substantial share of natural rubber, which cannot easily be replaced by a synthetic substitute. Price responsiveness decreased owing to an increasing emphasis on technology rather than price. During the early 1990s, the share of natural rubber increased further because of the contraction in total elastomer consumption in the former Soviet Union, which had a share of natural rubber in total consumption of less than 10%.

Competition with synthetic rubber as well as a number of specific developments in major rubber good categories, determined the development of consumption of natural rubber in the recent decades. In 1975 both the tire sector and the general rubber goods sector (e.g. belts, hoses, gloves, automotive parts) each consumed about 1,500 thousand tons. However, in the general rubber goods sector many applications of natural rubber were lost to special purpose or specialty synthetic rubbers. On the other hand, the aids scare has helped natural rubber to keep consumption in the general goods sector at a steady level. Because of its technical qualities natural rubber has done very well in the tire sector. Figure 4.1 shows developments over time.

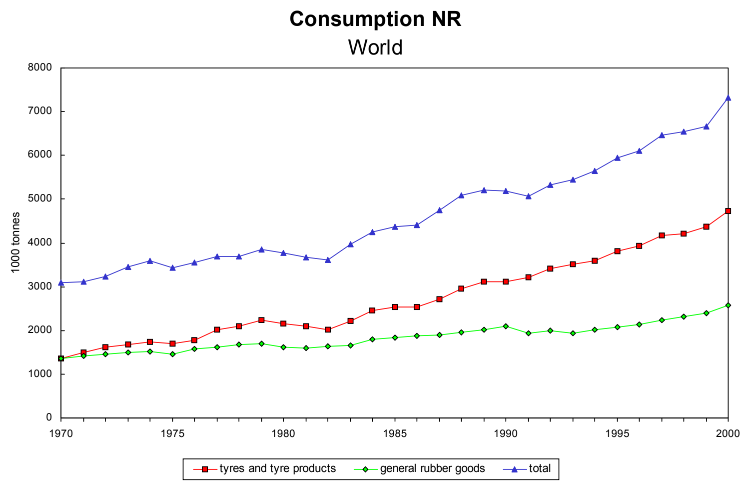


Figure 4.1 World consumption of natural rubber (source: own calculations)

World total rubber consumption (i.e. natural plus synthetic rubber) has increased steadily in the last two decades, even though the world economic recessions in the early 1980s, the early 1990s and the early part of the current decade severely depressed the rubber market. On average, about two thirds of all natural rubber is used for tires, especially for heavy truck tires. The remaining one third is used for general products, a large part of which is used in the automotive sector (Table 4.1). Consumers (i.e. manufacturers) in the general products area are numerous. However, on the tire side mergers and acquisitions have led to strong concentration. There are three big tire companies - Bridgestone, Goodyear and Michelin - three medium sized tire companies - Continental, Pirelli and Yokohama. These six together take an overwhelming share of natural rubber consumption. All six, and some of the others, have purchasing offices in Singapore and local agents in natural rubber producing countries.

Table 4.1 World consumption of rubber by end-use, year 2000

	Total rubber		**Natural rubber**		
	1000 tons	Share in total	share of natural rubber	1000 tons	share in total
passenger car tyres	2372	13%	26%	617	8%
Commercial vehicle tyres	4741	26%	75%	3555	49%
other tyres	2189	12%	31%	679	9%
general rubber goods	8839	49%	28%	2475	34%
Total	18140	100%	40%	7325	100%

Source: own calculations

The major tire manufacturers make most of their purchases on a direct trade basis rather than through rubber markets. The increase in direct trading between rubber processors in the origin countries and tire manufacturers has implied that a smaller proportion of rubber than previously passes through open rubber markets. But although being a residual source of supply, these markets maintain the function of providing a market price for all major flows of natural rubber.

Export of natural rubber

Domestic consumption is very small compared to production: only about 20 thousand tons; this was only a few thousand tons lower in the early 1990s. Exports therefore are almost equal to production. Exports by destination are shown in Table 4.2. The main buyer is China, although its share has declined over the years. Europe is a major buyer; this includes Eastern Europe. Also East Asia, including Japan and Korea are important buyers. Exports to Singapore are for re-export to other countries. Export of unprocessed rubber to Malaysia also has increased substantially.

Table 4.2 Exports of natural rubber from Vietnam by destination

(in tons)	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Western Europe	6338	9754	15548	31766	44315	38410	49397
Eastern Europe + CIS	1897	2489	2118	4037	7757	26727	29346
America	210	135	78	1917	5160	3225	4499
China	108325	137213	91813	75640	94677	110648	96159
Other East Asia	15944	12721	11509	23548	37358	45730	51507
India	0	38	180	387	420	0	0
Indonesia	19	0	38	100	487	81	2010
Malaysia	4755	3553	4572	5360	14711	7777	16230
Singapore	6285	9125	22026	21093	55681	34407	40821
Thailand	0	0	0	158	77	116	1546
Kampuchea	0	0	0	880	411	1461	1200
Rest of the World	77	4790	5395	1203	968	1520	5599
Total	143850	179818	153277	166089	262022	270102	298314

Domestic trading channels for natural rubber

In the absence of significant domestic consumption, basically all production is exported. Until recently estates did all production. As mentioned earlier smallholdings in fact started planting rubber in the early 1990s. As it takes about 6-8 years to start producing, smallholder production and marketing is still in the infant state. Smallholdings produced 37 thousand tons in 2000. This will increase to about 100 thousand tons in a few years and about 250 thousand tons in just over a decade.

Currently farmers have 4 options to sell their production:
- to a GERUCO factory (a considerable part in the form of latex)
- to provincial rubber processing factories
- to a limited number of small private processing factories (exported as smoked sheets)
- to middle men, mainly as cup lumps or air dried sheets (exported to China)

Although there is some competition between and among these groups of buyers, the choice of the buyer is mainly determined by the distance to a factory. In the project document of the World Bank smallholder project no attention is paid to the marketing side of the rubber to be produced. Very little has been done so far. Domestic or international traders take care of exports. The estates under the GERUCO umbrella are also allowed to export.

Government involvement in natural rubber in Vietnam

Apart from implementing the World Bank projects the Government does not appear to have as extensive an involvement in assisting natural rubber farmers, as is the case in e.g. Thailand. Provincial authorities may be involved e.g. in giving a loan or subsidizing a private factory, but this differs strongly between provinces.

5. Prices, price risks and price risk reduction

Price development and price volatility on world markets

The price of natural rubber in the international market has fluctuated substantially as is clear from Figure 5.1, showing the prices for RSS1 and TSR20 in Singapore, in US$. Over the period 1990-2001, prices started low, with of minimum of $0.73 for TSR20, Singapore, in October 1990 (see Figure 5.1). The maximum for 1990-1993 was $0.85, reached in May 1993. In 1994 prices started to increase to a level of $1.85 in February 1995. However, the average for the month July 1995 was only $1.27. Prices remained above $1.00 until 1997. Then the Asian Crisis led to a strong devaluation of the regional currency, including the Dong. Prices went down to levels as low as $0.50 per kg.

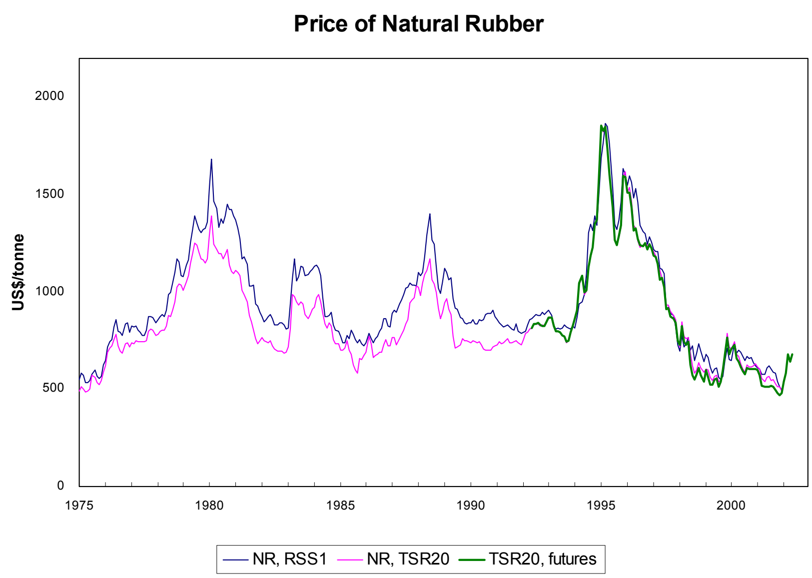


Figure 5.1 Price developments of natural rubber, Singapore (source: IRSG)

Commodity prices are quite volatile. Volatility can be indicated in a number of ways: here we use the measure of standard deviation and the measure of coefficient of variation (the standard deviation divided by the mean). The coefficient of variation is especially relevant if one wants to compare volatility of different commodity prices. The moving results over the previous 10 years, so 120 months, are shown in Figures 5.2 for pepper, palm oil and natural rubber and in Figure 5.3 for coffee, cocoa and tea. Pepper prices are by far the most volatile, making pepper a relevant candidate for price insurance. At the same time, farmers will tend to remember the recent high price and may not be easily satisfied with an insured price. Volatility of natural rubber prices has increased recently.

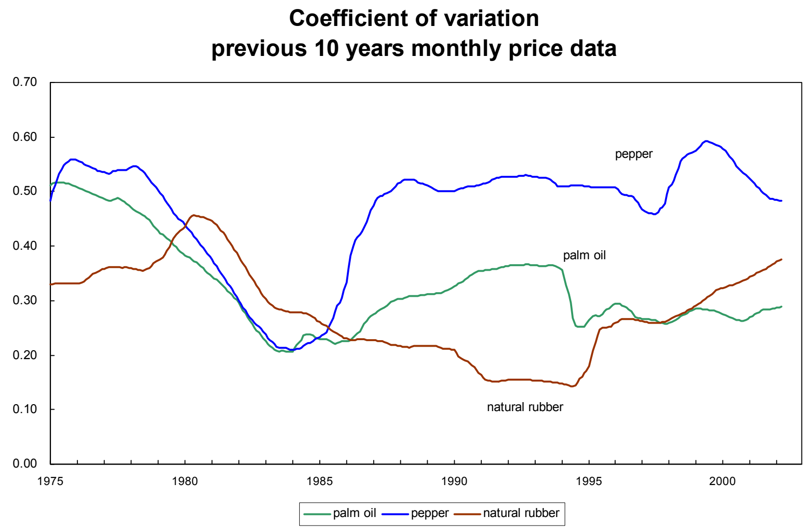


Figure 5.2

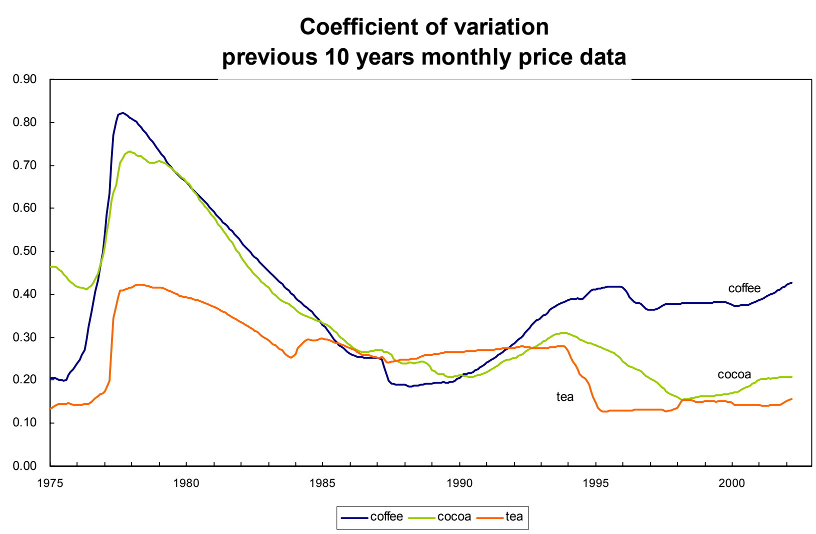


Figure 5.3

Price formation and possible risks along the trade chain

Export prices

Export unit values are presented in Table 5.1, both aggregate and by destination. The aggregate figure follows the downward trend shown in Figure 5.1. Compared to 1995 when prices were very high, prices went down by 60%. It is interesting to see the considerable difference between countries of destination. This may partly be due to different qualities, different grades of natural rubber. Partly it is caused by the fact that the average price is the ratio of value and volume, which may be small figures (America and Indonesia, 1997).

Table 5.1 Export unit values of natural rubber from Vietnam by destination (US$ per tonne)

	1995	1996	1997	1998	1999	2000	2001
Western Europe	1477	1372	1079		562	655	528
Eastern Europe + CIS	1466	1920	1478		587	677	582
America	1500	1385	808		847	647	549
China	1321	1279	1059		548	600	533
Other East Asia	1276	1312	1116		569	627	548
India		1474	1200		569		
Indonesia	1053		1158		605	672	396
Malaysia	1353	1232	964		518	517	438
Singapore	1175	1374	856		546	481	463
Thailand					601	681	534
Kampuchea					445	601	465
Rest of the World	1325	1292	962		541	743	889
Total	1320	1299	1036	725	558	604	530

Floor prices

Often GERUCO announces floor prices. If an estate export at a price above the floor price, it can go ahead. If the price is below the floor price, special permission from GERUCO is required. During some periods there was no floor price. Floor prices for 2001 are shown in Table 5.2. The full range from 1997 onwards is given in Appendix 3.

Table 5.2 Floor price (USD/TON), GERUCO

2001	CV50	CV60	SVRL	SVR3L	SVR5	SVR10	SVR20	LATEX
3-Jan	705	695	660	645	590	570	560	435
3-Feb	700	690	655	640	585	570	560	425
6-Mar	690	680	640	630	575	560	550	425
23-May	660	650	615	610	565	540	530	415
7-Jun	650	640	615	610	565	550	540	405
25-Jun	640	630	600	590	545	535	530	400
17-Jul	630	620	590	580	540	525	520	400
8-Aug	620	615	580	570	530	515	510	400

Domestic price formation
The Vietnamese farmer producing latex, normally does not make sheets by himself. When selling the latex, the price he gets depends on the dry rubber content. In Vietnam the term used is Total Solid Content (TSC). Prices used in Vietnam for NR are in VND per 1% TSC in the latex, supplied by the farmer. Mostly the TSC is in the order of 30%. If a farmer sells a liter of latex with a TSC of 30%, and if the price is VND 75, he will receive VND 2,250 per litre. The factory will need 100%/30% liter to make 1 kg of dry rubber. The cost of rubber therefore is 100/30*2,250, which is VND 7,500 per kg. It is easy to see that the price of the dry rubber will always equal 100 times the price per 1% TSC. On 7 May 2002 the price the farmer got for his latex according to the Rubber Research Institute was VND 87 per 1% TSC.

The price the farmer gets depends on the world market price minus the margin for processing and trading. It is claimed that this margin is constant over time, which would imply that farmers are fully exposed to the fluctuations on the world market. How the margin is calculated will differ from one case to another. Farmers interviewed (although this was a small sample) indicated that:

- VND 60 per 1 % is the bare minimum or below the acceptable minimum
- VND 65 per 1 % is acceptable and might be a low insurance price
- VND 70 per 1 % is quite acceptable and might be an attractive insurance price
- VND 75 per 1 % is a good price

So at a price of VND 87 at the time of the interview, farmers were happy.
Most smallholders appear not the be informed about the price other than through the buyer. In the context of the World Bank Smallholder project it is discussed whether an auction system as applied in Thailand might be feasible. Thus farmers and buyers would get together, using bids in envelopes. This could be done once every two weeks.
GERUCO estates produce a large amount of TSR3 (SVR3), TSR5 (SVR5) and TSRCV (SVRCV). In early May, traders mentioned that world market prices were as follows:
SVR20: US$ 0.58 per kg.
SVR10: US$ 0.59 per kg.
SVR3: US$ 0.63 per kg.
SVR5: US$ 0.62 per kg.
SVRCV: US$ 0.66-67 per kg.

Protection against risk
Farmers protect themselves in various ways against income risk as a result of price fluctuations ranging from precautionary saving, storage of commodities, diversification of income by cultivating a variety of crops, by having an income outside agriculture, cultivating subsistence crops, etc. Sharecropping is just another form of income diversification for owners of rubber plots: in many countries owners of rubber land leave the tapping to tappers, while some owners hire tappers on the basis of a wage, mostly the hiring of tappers is done on a sharecropping basis. Sharecropping – the organization of natural rubber production where owner and tapper agree on a contract how to distribute the proceeds of the revenues from rubber - appears not yet to be widespread in Vietnam. The farmers are still too poor and labor is still abundant. In addition natural rubber production by smallholders, anyway, is still rather new. Sharecropping implies that

the tapper shares risk with the owner of the land. In case the tappers receive a higher share because of low prices, this would pass risk back from farmers to landlords. In advanced economies bank credit may also be used to overcome temporary fluctuations of income, but it is unclear if and to what extent these options are open to smallholder rubber growers in Vietnam. Loans through VBARD may have this function at least to some extent.

Existing rubber futures markets

Futures contracts for natural rubber are currently traded on an active basis in Singapore (SICOM), Tokyo (TOCOM) and OSAKA (OME). In Japan, the Osaka Mercantile Exchange (OME) is smaller than TOCOM. TOCOM and SICOM specify delivery of smoked rubber sheet: SICOM trades RSS1 in US dollars while TOCOM trades RSS3 in yen. In practice, the higher specification RSS1 is no longer manufactured in significant quantities, so both markets may be regarded as pricing on an RSS3 basis. SICOM also has a contract in technically specified rubber (TSR20), and this is now the more active of the two SICOM rubber contracts. SICOM contracts extend to over one year ahead while TOCOM contracts extend tot 6 month ahead. Rubber manufacturing is increasingly moving from using smoked sheet to using technically specified grades, and there is general agreement that futures trading will move to technically specified contracts in coming years.

There is some disagreement about the relative attractiveness of the SICOM and TOCOM markets. Rubber exports are typically priced (up to nine months) forward on a dollar basis, and this makes a TOCOM yen hedge more cumbersome than a SICOM dollar hedge. Furthermore, there is a widespread view that the TOCOM market is unduly speculative and that SICOM provides the more reliable pricing basis.

TOCOM has seen both declining volume and open interest over recent years, but this decline now appears to have stabilized, and there has been significantly increased volume since mid-2000. SICOM activity levels are substantially lower but this in part reflects a different trading structure. In SICOM, trading is through registered market makers. The need to access SICOM through a market maker and the relative large size of SICOM deals both work to make SICOM unattractive to speculators. SICOM is therefore very much a trade market.

Currently GERUCO does not use the futures market. The main problem is that most of the production is TSR3 (SVR3), TSR5 (SVR5) and TSRCV (SVRCV). These are not traded on any of the existing futures markets. SVR3 and SVR5 are mostly exported to China; SVRCV is largely exported to Europe; these grades are used for products like footwear and technical products.

6. Suitable candidates for a price insurance transaction

Cooperatives and farmer groups

In connection with the establishment of a price insurance system it is necessary to assess whether cooperatives or farmer groups can play a role
either doing the retail side of the deal thus providing the insurance to their farmers, or,

channeling the insurance from the LTM to the farmers.
In case of rubber farmers in Vietnam this is simple: there are no cooperatives or farmer groups with anything substantive on their agenda. Purchasing of fertilizers etc. is easy at the local market. All farmers prefer to do their own selling. No cooperative factories have so far been installed.

Physical or paper

The choice of the LTM will strongly be influenced by the choice of the approach to the insurance:
- an insured price in a physical transaction between a trader or manufacturer and a farmer; in view of the scattered nature of the Vietnamese domestic trading environment for NR, this is not feasible
- an insured price on paper in an agreement between a 'bank' and a farmer where the farmer's quantity insured does not need to equal the amount he will sell; in addition the farmer can sell to anybody at any price and there is no need to monitor that.

The insurance on paper, divorced from the physical transaction therefore is the right choice in connection to natural rubber smallholders in Vietnam.

The proposed LTM: Vietnamese Bank for Agriculture and Rural Development

In view of the need for an insurance as a paper transaction the VBARD is the logical choice. In the general part this choice was already motivated. This judgment derives from:

- their agricultural development mission,
- their extensive rural branch network,
- their detailed knowledge of farmer credit status,
- their eagerness to take on this role.

No commercial bank can compete with VBARD in these respects. They are anxious to move to a pilot transaction as rapidly as possible.

The requirements for credit of smallholders may be split up into the long term requirements and short-term requirements for credit. Long term credit to natural rubber growers is mostly used for the purpose of re-planting and new planting. This is not (yet) relevant in Vietnam: new planting is by and large financed from the World Bank project. Some spontaneous planting may take place.
Short-term credit to smallholders is used for various purposes, ranging from purchasing fertilizer and buying tools to paying school-fees. Short-term credit to smallholders is provided by local banks, especially the Vietnamese Bank for Agriculture and Rural Development (VBARD), profiled in the Introduction.

The need for a good domestic marketing system

Under the above scenario, the farmer can sell to whom he likes. This makes it very necessary to set up a marketing system where the farmer gets the right price. An insurance system can never make up for a poor marketing system. To often projects look at the physical side only, without realizing that improved yield can easily be offset by low farm gate prices due to an inadequate marketing system.

Availability of price insurance at the wholesale level

No time was available to look at the availability of price insurance at the wholesale level. However, one would expect that the situation would not be very different from what was discovered in the context of the feasibility study for rubber smallholdings in Thailand. To summarize: a number of international banks were interested to act as wholesale intermediary. The proposed wholesale transaction is simple, at least in principle - the wholesale intermediary writes and sells OTC put options to VBARD. It is possible that there would be more than one wholesale intermediary, but for simplicity we assume a single bank performs this role. There are two ways that the international bank can offset the rubber price risk taken by writing puts to the retail intermediary. The two possibilities are to delta hedge the position on a rubber futures exchange (i.e. sell rubber futures contracts to offset the price exposure on the OTC puts), or to swap it out with a large rubber consumer, which in practice implies one of the major tire manufacturers.

7. Government Policy

A review of government policy is given in the general part of this report. Some more rubber specific issues remain

Privatization

It is recognized that there is a need to break down the monopoly of certain organizations (equitization) e.g. in the area of rubber. There are plans to give 30% to smallholders and to allow them to bid for the additional 70%; however, the farmers may not have the funds for this.

Processing and marketing

There is a need for more rubber processing factories in view of the strong expected growth of smallholder rubber production. Currently there is no plan on the future of the rubber marketing system. The current ‘system’ is too liberal so the farmers do not get a sufficiently high share of the export price; there is a strong need to develop a marketing plan, including local markets. Local auction markets may play an important role. Farmers only get market information from middlemen and other buyers; there is no information on standards; they do not know how to sell better quality at a higher price; a new contract system for farmers is being prepared.

8. Conclusion: Moving Forward

Is there a rationale to move forward? Probably

There is a great need for risk management in the rubber market. World prices are volatile, and fluctuations are passed to the domestic market. As mentioned before risk management is recognized by the CPRGS to have the potential to reduce the vulnerability of the rural populations, and most poor are in rural areas. However, there are quite a number of issues described in the general part under 'further work' that need to be clarified, including some policy issues.

Is there a suitable policy environment? In principle: yes. In practice: not yet

There is no direct involvement of the government in pricing rubber, so prices are fully liberalized and international price movements are transmitted fairly directly to domestic markets; in this respect, the policy environment is conducive to development of a risk management market. The interviews clearly suggested a positive attitude towards introducing risk management instruments. However, the foreign exchange regulations would need to be put in place to guarantee the ability of the LTM to carry out payments and accept payout in foreign currency. It would also be helpful if banking regulations recognized the lower risk involved in a loan to a producer with price insurance and gave such loans a lower risk rating for purposes of complying with provisioning requirements.

Is there a satisfactory LTM? Probably

The Vietnam Bank for Agriculture and Rural Development lends to a number of rubber producers and has expressed interest in playing the role of LTM. It has served as intermediary for World Bank loans, so its financial soundness and business practices have been judged satisfactory. As more farmers are issued land use certificates that can be used for collateral, it is likely that more and poorer farmers will become eligible to borrow.

Is there evidence of a willingness to pay the necessary premium? Probably

Some interviews with farmers have indicated that they would be happy to pay a premium if that would guarantee an attractive price. Rubber farmers do not appear to rely on the government and quite prepared to act as independent small enterprises.

Could a test case be replicated around the country Probably

If a successful model could be developed using VBARD, it is probable that it could be replicated around the country, given the wide network of VBARD branches.

Appendix 1 Interviews

Ministry of Agriculture and Rural Development (MARD)
- Dr. Cao Duc Phat, Vice-Minister, Ministry of Agriculture and Rural Development
- Mr. Bui Tat Tiep, Deputy Director, Department of Planning and Projections
- Dr. Dang Kim Son, Acting Director, Information Centre for Agr. and Rural Dev.
- Mrs. Ho Thi Minh Chau, Programme officer, International Cooperation Department
- Mr. Nguyen Ngoc Que, Head, Market Information Division
- Mr. Minh, Head, Export/Import Division

State Bank of Vietnam (SBV)
- Mr. Ha Dan Huan, Director, Foreign Department
- Mr. Dang Anh Mai, Chief, The World Bank Division

Vietnam Bank for Agriculture and Rural Development (VBARD)
- Mr. Pham Minh Tu, MDM, Deputy Director, International Relations Department
- Mr. Tang, Deputy Director, Credit Department
- Mrs. Nguyen Thi Mai Huong, Head Risk Management Information Division
- Mrs. Tong Khanh Linh, Expert, International Relations Department

Vietnam Chamber of Commerce and Industry (VCCI)
- Mrs. Pham Chi Lan, Executive Vice-President, Vietnam Chamber of Commerce and Industry
- Mr. Nguyen Van Hai, International Relations Department, Vietnam Chamber of Commerce and Industry

General Rubber Corporation (GERUCO)
- Mrs. Nguyen Thi Minh Ly, Manager, Market Study Section
- Mr. Vo Van An, Coordinator

Rubber Research Institute of Vietnam (RRIV)
- Mr. Mai Van Son, Director
- Dr. Tran Thi Thuy Hoa, Deputy Director, Head Project Implementation Unit
- Mr. Phn Thanh Dung, Head Crop protection Division

Smallholder World Bank Project
- Mr. Henk Zwinderman, Smallholder Rubber Development Specialist

United States Department of Agriculture
- Mr. Henry Schmick, Agricultural Attache, Foreign Agricultural Service
- Mrs. Bui Thi Huong, Agricultural Affairs Office, Foreign Agricultural Service

Vietnam Pepper Association
- Mr. Nguyen Van Thang, General Director
- Mr. Vuong Hoang Son, Assistant to the General Director

ED&F Man

Mr. Diederik van Kraaikamp, Senior Advisor

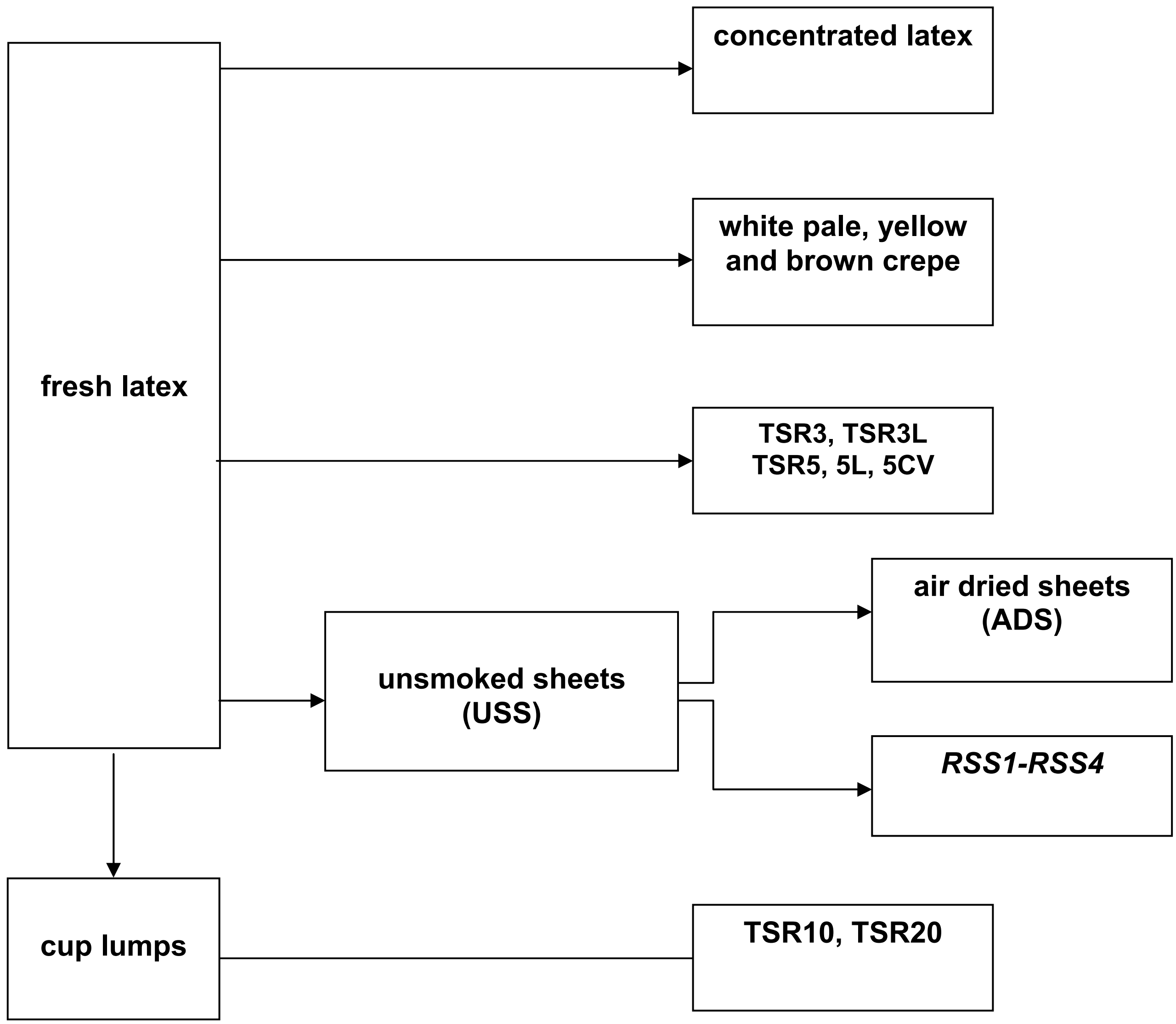
VOLCAFE,
Mr. Francis Renaud, Chief Representative

Safic Alcan Vietnam Ltd., Trade services
Mr. Bruno Bondouaire, Manager

Cargill Vietnam Ltd.
Mr. Nguyen Thao, Rubber Coordinator

Noble House
Mr. Jens Nielsen, Director.

Appendix 2 *From fresh latex to processed rubber*



Appendix 3 Floor prices for natural rubber as announced by GERUCO

Floor price (USD/TON), GERUCO

	CV50	CV60	SVRL	SVR3L	SVR5	SVR10	SVR20	LATEX
1997								
3-Feb	1290		1270	1250	1200	1100	1080	
3-Apr	1270		1230	1210	1170	1050	1040	
2-May	1220		1170	1150	1030	1000	990	
3-Sep	940		890	870	860	850	840	
4-Oct	835		805	800	795	785	780	
16-Oct	855		815	810	805	795	790	
22-Oct	835		800	790	785	775	770	
22-Nov	810		770	765	760	750	745	
28-Nov	810		770	765	760	750	745	
16-Dec	787		738	735	730	698	693	
23-Dec	750		715	710	700	655	650	
30-Dec	740		705	700	690	645	640	
1998								
22-Jan	740		705	700	680	645	640	475
10-Feb	840		810	800	780	750	740	510
18-Mar	840		810	800	760	710	700	510
14-May	850		800	780	740	700	680	600
6-Jun			790	770	730	680	670	600
8-Jul			710	700	660	610	600	530
6-Oct			620	610	570	550	540	
16-Oct			630	620	580	560	550	
24-Nov			630	620	550	530	520	
1999								
26-Jan			620	610	570	550	540	420
27-Apr			600	590	530	510	500	400
30-Jun	610		590	580	520	515	505	380
10-Sep	610		590	580	550	540	530	380
17-Sep	611		590	570	550	540	530	380
19-Oct	620		595	585	565	555	545	395
3-Nov	720		690	680	670	660	650	450
16-Oct	721		690	680	670	660	650	450
23-Dec	720		690	680	670	660	650	450

Appendix 3 Floor prices for natural rubber as announced by GERUCO (cont'd)

	CV50	CV60	SVRL	SVR3L	SVR5	SVR10	SVR20	LATEX
2000								
25-Jan	720		690	680	670	660	650	450
18-Feb	830	820	740	730	720	715	710	480
29-Feb	830	820	740	730	720	715	710	480
16-Mar	800	790	720	710	690	670	660	480
3-Apr	800	790	720	710	680	625	620	480
18-Apr	830	820	740	730	690	635	630	480
27-Apr	825	815	735	725	685	630	625	480
5-May	825	815	735	725	660	625	620	480
30-May	810	800	720	710	640	600	590	480
5-Jul	770	760	685	675	620	580	570	465
19-Jul	770	760	685	675	620	580	570	465
31-Jul	760	750	675	665	610	570	560	450
29-Aug	760	750	685	675	620	580	570	435
15-Sep	750	740	675	665	610	580	570	440
4-Oct	740	730	675	665	600	570	560	440
25-Oct	710	700	665	650	590	570	560	440
14-Nov	705	695	660	645	590	570	560	435
13-Dec	705	695	660	645	590	570	560	435
2001								
3-Jan	705	695	660	645	590	570	560	435
3-Feb	700	690	655	640	585	570	560	425
6-Mar	690	680	640	630	575	560	550	425
23-May	660	650	615	610	565	540	530	415
7-Jun	650	640	615	610	565	550	540	405
25-Jun	640	630	600	590	545	535	530	400
17-Jul	630	620	590	580	540	525	520	400
8-Aug	620	615	580	570	530	515	510	400

IV. COFFEE

1. Introduction

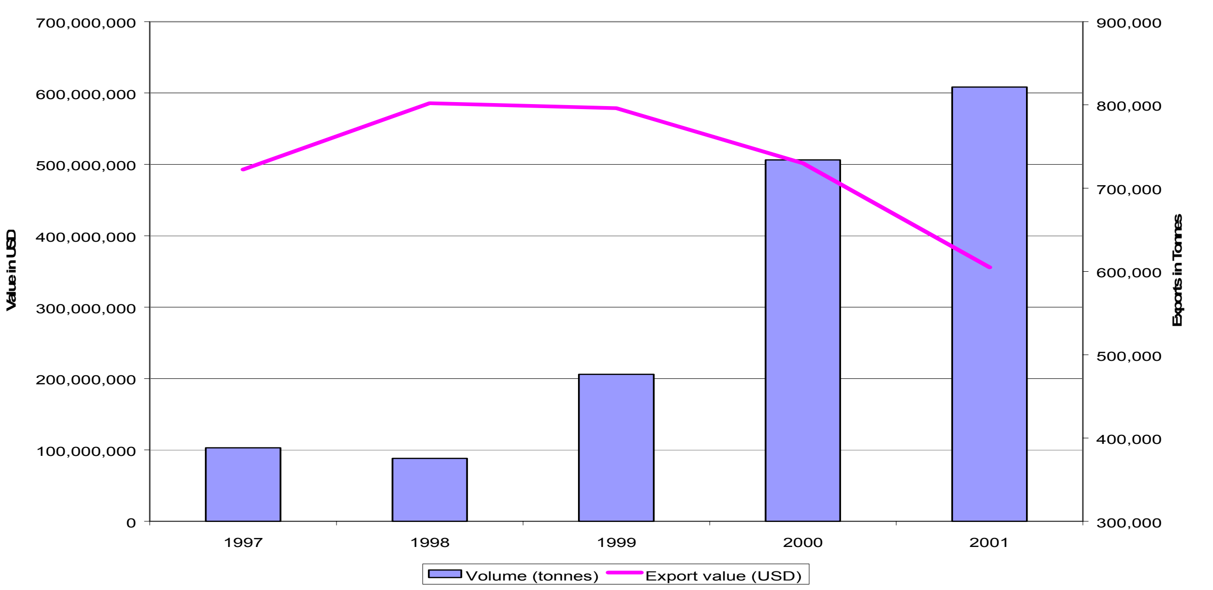
Vietnam is primarily a robusta coffee producer, but is now turning its attention to developing some arabicas. Robusta production has grown at an average rate of about 27% per year, and Vietnam is now the worlds largest producer and exporter of robusta[15], and the second largest coffee exporting country overall after Brazil.

Coffee is a vitally important part of the economy – until the recent price collapse it was the second largest export earner after rice, and employs 600,000 workers, rising to nearly 800,000 workers at the peak of the season or 2.93% of the agricultural labor force.

Vulnerability

From both a macro-economic and social perspective, the country is vulnerable to the consequences of unexpected price moves. The country has therefore not been exempt from the problems of the global coffee sector, and falling prices have hit export revenues hard, despite the rising volumes. Figure 1 show how export values in 2001 fell to US$355 mln despite the rise in export volumes.

Figure 1: Vietnamese Coffee Export Volumes and Values



Source: MARD

[15] If forecasts of a large drop in production in the 2002/3 crop season are correct, then Vietnam may cede this position to Brazil, which would then become the world largest robusta producer also.

The social vulnerability needs to be seen in the context of how the coffee industry expanded in Vietnam. The drive to increase planted area took place as a result of several events: a 1986 policy decision – *Doi Moi* -that allowed the establishment of the private sector in agriculture; the frost in Brazil which led to a price hike, picking up again after the subsequent price rise in 1997, and changes in government policy at about the same time, that allowed the further expansion of the private sector in agriculture.

The opening up of the main coffee regions in and around DakLak began with a process of the government encouraging internal migration of ethnic Vietnamese (Kinh) in to the so-called New Economic Zones of these provinces - the western parts of the Central Highlands. It was then also picked up by some ethnic minorities, some of whom appear to have been looking for more stable living arrangements (a similar trend is evident in eastern provinces of Cambodia where coffee growing is also developing). This planned migration continued beyond the period of Doi Moi, but by this time, spontaneous migration into the region by ethnic Vietnamese started to exceed planned migration. This became very substantial after 1991. Although it is clear that not all this was to grow coffee, there is a close relationship between total migration and the expansion of the coffee areas[16]. This internal migration seems to have come from the east and north – for example, on the field trip we met farmers from both north of Hanoi, and also from areas around Hue.

With the combination of financial hardship caused by low prices, this has led to some tension between the ethnic minorities and the ethnic Vietnamese that has produced widespread unrest across the region since February 2001 – earlier attempts to schedule the field trip for this report were put on hold as some areas were closed to outside access due to civil unrest.

Vietnam has become an increasingly large part of the market, although this has reduced over the last two years due to the reduction in output following recent price falls. As Table 1 demonstrates, at its peak, Vietnam accounted for 13% of the market, and part of the reduction can be explained by the big increase in the position of Brazil.

[16] Tan (2000) Coffee Frontiers in the Central Highlands of Vietnam: networks of connectivity

Table 1: The Position of Vietnam in the World Output of Coffee

	1997/98	1998/99	1999/00	2000/2001	2001/2002	2002/2003	Change On 01/02
COLOMBIAN MILDS	13,498	12,512	11,821	12,202	12,263	12,242	-21
OTHER MILDS	27,965	27,395	31,726	28,702	27,672	28,029	357
NATURAL ARABICA	23,436	35,024	30,178	30,717	27,190	39,625	12,435
ROBUSTAS	32,753	33,465	39,620	45,428	43,608	42,210	-1,398
including Vietnam:	6,933	7,433	10,920	15,216	12,084	10,250	
%	7.1%	6.9%	9.6%	13.0%	10.9%	8.4%	
TOTAL	97,652	108,396	113,345	117,049	110,733	122,106	11,373
COLOMBIAN MILDS	14%	12%	10%	10%	11%	10%	0%
OTHER MILDS	29%	25%	28%	25%	25%	23%	3%
NATURAL ARABICAS	24%	32%	27%	26%	25%	32%	109%
ROBUSTAS	34%	31%	35%	39%	39%	35%	-12%
TOTAL	100%	100%	100%	100%	100%	100%	100%

Source: USDA

Recent figures on production are that in 2001, 566,800 hectares are planted to coffee, of which 420,300 hectares are in production, and that government policy is to reduce this by about 100,000 hectares in an attempt to rationalize production. Most of the production is in the Central Highlands, and accounts for 476,800 hectares, broken down as:

Dac Lac	257,100
Lam Dong	124,300
Gia Lai	81,000
Kon Tum	14,400

Private estimates of the land area are that it may now actually be in excess of 600,000 hectares. Despite oft-repeated claims on multi-lateral donor input into planned expansion of the coffee areas, it is evident that the expansion of planted area has come in an uncontrolled and haphazard manner, much of it without government knowledge. This has had benefits and disadvantages – benefits from the fact the national marginal income from coffee rose until 1997, disadvantages from lost potential income as poor infrastructure and lack of experience has led to lost investment and reduced prices from poor quality.

Measures taken by the government to deal with the consequences of low coffee prices are dealt with below, but are in line with similar measures taken in other countries – interest rate reductions, debt rescheduling and tax exemptions, etc.

2. Coffee Trade And Finance

Industry Organization

The coffee industry is split between the private sector and State Owned Enterprises. SOE's control about 15% of the productive capacity, and according to MARD, about 40% of all coffee is marketed by state owned companies. They are either part of MARD (in the case of Vinacafe) or they belong to the Peoples Committees of individual areas

Vinacafe is the largest SOE and was formed in 1982 to take over the coffee activities run under the umbrella of the Agriculture Ministry. The state farms are the nearest things Vietnam has to cooperatives, although with some significant differences. They are structured as groups of farmers leasing government land controlled by a state company, and who have to deliver a certain quantity of coffee each year in return for the land use and provisions of inputs and salary. The key difference with cooperatives is that there is no control by the farmers over the decision-making processes, or the management of the state farm.

After farmers have met their commitment to deliver a certain quantity to the SOE, they are then free to sell their excess elsewhere, although in some areas the state farm will be the only buyer, and it will buy from other farmers also. Vinacafe estimates it receives about 60% of the coffee produced on state farms, plus some other coffees is receives from other buyers.

The relationship with the government is critical, because all profits (and losses) belong to the government, which in some cases can re-distribute the profit amongst the state farms. But as all finance comes from the government (with VBARD usually, but not exclusively as the transmission system) Vinacafe is able to act as a conduit for certain social objectives such as subsidizing production/input costs in remote areas. The government is also able to act to help Vinacafe financially in other ways – in late 2001 it froze the payment due of 38 bln VND of social insurance contributions of 24 member companies of Vinacafe which were in trouble due to low prices.

Within the private sector farms, there are no cooperatives or other types of farmer organizations. The Agriculture Ministry believes that the development of cooperatives is a good idea but currently there is no in-country expertise to manage this at the local level where such cooperatives might emerge.

There are clear limitations to where different participants in the market may act, according to their ownership. Only locally-owned companies and joint ventures are permitted to buy directly from farmers – although the law is gradually opening up the trade structure. This has partly led to a problem of international level funding and expertise not making it up the trade chain to producers and processors, and may explain some of the quality problems. However, international companies are now entering into such ventures and direct purchasing by international companies is occurring.

Harvested coffee is either delivered to the state farms or collected by private agents who usually pay private farmers cash against their coffee. Although some of the larger farmers are able to process their coffee themselves, much of it is processed by state farms or by other contract processors who then either sell it to exporters or transport it themselves to one of the two coffee export ports – Haiphong in the north, and Ho Chi Minh City in the south.

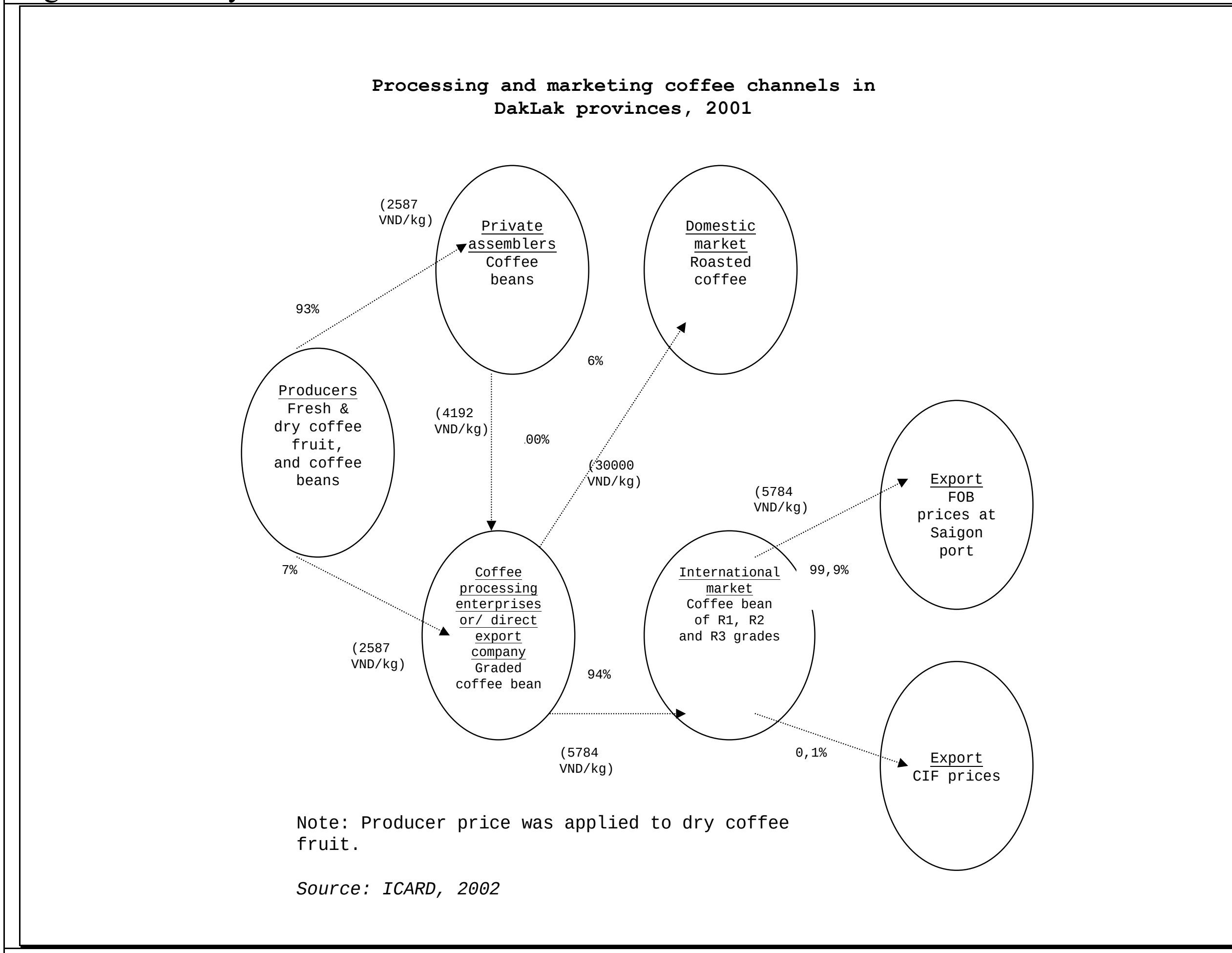
There have been considerable processing constraints, and the view of Vicofa is that the development of output was far in excess of the development of capacity at any quality level. Steps are being taken to correct this, including initially the import of Chinese machines, but also Brazilian equipment was bought and copied, and is now manufactured locally. Vinacafe is reported to be entering into agreements with European buyers under which it will get new processing equipment. It also is involved in lending machinery to processors so that they can understand how to use it as an incentive to buy it.

Credit: Institutions and Flows

The main formal source of credit for producers is the Vietnamese Bank of Agriculture and Rural Development (VBARD) which claims an 80% share of the total credit. With a portfolio of 3.2bln VND, this puts the value of coffee debt at about 4.1bln VND. VBARDS's largest borrowing sector is rice, followed by coffee, rubber and pepper – for which it has undertaken extensive lending for new plantations. In these markets it lends primarily to households – there is very little group lending. The remaining 20% of lending comes from organizations such as Peoples Credit Funds. VBARD has 1600 branches in the rural areas and 24000 staff.

VBARD lends for both crop finance and for developing new plantations, although this is now restricted to arabica. Crop finance loans are currently at 0.9% month and are for a period of less than 1 year. Development loans are currently charged at 1.1% and are available for 5 years plus, although farmers report having paid off loans for new developments in the mid-90's in 2 years.

Figure 2: Industry Structure and Coffee Flows in Vietnam



Source: ICARD

Land use rights are the only acceptable collateral at the current time for loans, although in some cases, some lenders are starting to allow coffee in storage to be used also, although this is still legally irregular. Consequently, there has been no development of systems such as warehouse receipt based lending outside the international participants who are able to buy coffee in the ports.

Amounts that can be borrowed depend on MARD assessment of likely productivity and a VBARD-imposed maximum limit. Last year this was 8mln VND/hectare, but for 2002/3 this has been reduced to 5 mln VND.

Crop finance loans are normally taken in April around the start of the rainy season, and for larger farmers, an additional tranche is made available to pay for harvesting costs. Small farmers tend not to take the second loan as they rely on family labor for these tasks.

There is a more general problem of lack of access to credit for some small and even mid-sized farmers. This has come as a result of the requirement for land use certificates that many farmers do not have because of the way the farms were started as described previously. Farmers met in both Lam Dong and DacLac explained that their farms were developed initially using informal finance from family and friends, and either repaid very quickly out of profits, or these profits were reinvested in land – hence the expansion patterns seen in Figure 1. They also reported banks as being inaccessible, bureaucratic and slow. Bank inefficiencies have tended to exclude the ethnic minorities, the under-educated and the smallest producers, although the government has put in place directed credit schemes to try and overcome this. This has also had an impact on the government's ability to promote crop switching away from coffee because these groups have no access to the funding necessary to do this.

Problems with bad debts have developed over the last 2 years, and VBARD reports problems developing when internal prices drop below 7000VND/tonne ($459/tonne). The problems seem to be restricted to the larger farmers, and this is common to other country's coffee sectors also.

3. Prices And Price Formation

Most coffees except a few specialty grades are traded at a differential to futures markets. For the purposes of Vietnamese robusta coffee, this is the LIFFE robusta contract traded in London. Full details of this contract can be found at www.liffe.com.

Risk Management By Producers

Until recently, there has been little evidence of this – partly because production costs are low enough for it not to have been an issue, but also a lack of formal mechanisms. Monoculture has been very prevalent in coffee, but now there is evidence of diversification, with food as well as other cash crops grown in the coffee areas. However, a fuller survey of attitudes to risks and risk mitigation would form part of a Phase 2 study.

At the trade level, international exporters clearly have knowledge of these instruments, and domestic exporters are used to selling on price to be fixed basis.

Other Risks Along The Trade Chain

Three types of risk are immediately identifiable, it is envisaged that any follow-up survey work would aim to capture a better perspective on what risk smallholder farmer perceive. A fourth – basis risk – is analyzed separately below.

Default Risk - in periods of rising prices, and this has been a serious problem for buyers of Vietnamese coffees. Currently, there are few remedies to international traders with contracts that are not honored.

Weather Risk (yield) - for the producers and domestic traders, this has recently shown itself to be a problem – El Nino in 1998 caused yield losses, and there will also be losses from drought this year.

Political Risk - two particular forms of this were seen recently. Changes in investment regulations which had an impact more on international trade; and internal allocations of private sector finance to different crops that turn out o be based on incomplete information.

4. Viability Of An Insurance Mechanism

Given that pricing of Vietnamese Coffee is always done basis the LIFFE futures contract, this would then form the basis of any risk management tool. Figure 3 below shows the relationship between Vietnamese unit value of monthly exports, and lagged LIFFE robusta futures prices.

Figure 3: Unit Value of Monthly Coffee Exports –v- LIFFE Robusta Futures Prices

Sources: ICO, LIFFE

This is only an indicative illustration as unit values are an average of all grades and prices exported over the month. A better picture would be available from daily prices, although this series is not available for a sufficient period of time.

Basis Risk

Basis risk is the risk that the behavior of the hedging mechanism deviates from the behavior of the prices being hedged. As figure 3 demonstrates, there is a close relationship between export values and futures prices.

Table 2 below quantifies the relationship between changes in unit values and changes in lagged monthly average futures prices. About one half of the changes in unit values can be attributed to changes in futures prices.

Table 2: Changes in Unit Value of Exports (D(UVE)) –v- Changes in Futures (D(Futures(-1))				
Dependent Variable is D(UVE)				
Included observations: 142 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.042450	8.459264	-0.005018	0.9960
D(FUTURES(-1))	0.588261	0.051909	11.33259	0.0000
R-squared	0.478444	Mean dependent var		-2.626761
Adjusted R-squared	0.474719	S.D. dependent var		139.0346
S.E. of regression	100.7671	Akaike info criterion		9.239609
Sum squared resid	1421562.	Schwarz criterion		9.281240
Log likelihood	-855.5015	F-statistic		128.4275
Durbin-Watson stat	1.891713	Prob(F-statistic)		0.000000
Source: ICO, LIFFE, Staff Calculations				

Later in the trade chain i.e. at the ex-dock point, then there should be a close relationship given that the futures price is the pricing mechanism. As mentioned above there is currently only a limited data set for this – Figure 4 below shows daily prices ex-dock Marseille versus second position LIFFE futures contracts.

Figure 4: LIFFE Robusta Futures Prices – v – ex-dock Marseille Prices

Sources: ICO, LIFFE

Table 3 below shows the basis analysis. This does not appear to demonstrate causality (in either direction) at this level of data density. This may be because the ex-dock market and the futures market trade simultaneously within a very small geographic distance and with perfect information in the ex-dock market of events in the futures market minute-by-minute.

Table 3: Basis Analysis – Ex-dock Marseille v Futures Prices

Dependent Variable is D(EXDOCK)
Included observations: 943 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.257075	0.399222	-0.643941	0.5198
D(FUTURES)	0.764696	0.020285	37.69844	0.0000

R-squared	0.601638	Mean dependent var	-1.116649
Adjusted R-squared	0.601214	S.D. dependent var	19.38166
S.E. of regression	12.23942	Akaike info criterion	5.011442
Sum squared resid	140964.9	Schwarz criterion	5.021726
Log likelihood	-3698.954	F-statistic	1421.172
Durbin-Watson stat	2.288921	Prob(F-statistic)	0.000000

Source : ICO, LIFFE, Staff Calculations

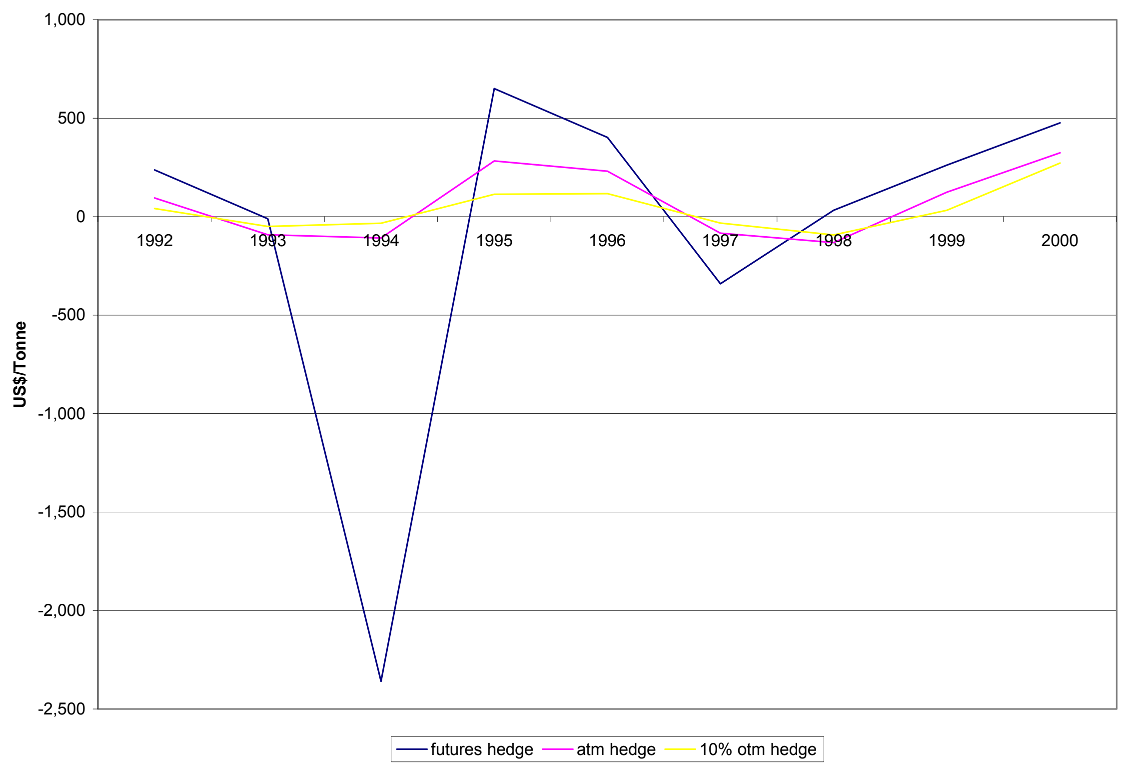
Costs and Benefits of Using Derivatives To Hedge Coffee

Figure 5 below shows the differences with constant basis risk of using futures markets, at-the-money options, or 10% out-of-the-money options to hedge robusta coffee. It demonstrates first that the use of futures is not a viable strategy because the losses are too great – over the period this strategy would have returned \$650 less than not hedging at all.

After adjusting the returns for the options premium costs, using at-the-money options would have returned \$650 more, out-of-the-money options about \$350 more. However, these amounts are only 4% of the total income.

In each case, the reduction in co-efficient of variation in income was also very small – from 51% in the Unhedged case, to 48% in the hedged. This would be in line with the theoretical position that it is not possible to make an excess return using options, and the benefits to farmers come from the adjustments they can make in production decisions through knowing their expected minimum price, and through the ability to capture other benefits such as lower interest rates.

Figure 5: Annual Income Difference Through Hedging – v – the Unhedged Position



Sources: LIFFE, staff calculations

Foreign Exchange Issues

This issue is dealt with in the introduction to these reports – problems might occur if subsequent payments were to become due after the initial premium.

5. Issues In Selecting a Potential LTM

Previous work by CRMG has found that a number of different types of institutions can act as LTM's according to local circumstances and conditions. These include:

- Banks and Financial Institutions
- Farmers Associations and Cooperatives
- Exporters
- Processors

The choice of LTM's for any pilot phase is dependant on the which group is most likely to be able to replicate at the larger level, although in Vietnam, other policy issues and the proposed direction of the other potential Vietnam test cases will need to be taken into account. However, in some cases, replication may not always be the first focus – particularly in countries where a test case might be used to demonstrate the needs of policy reform in order to make wide-spread replication possible. Arguably, Vietnam comes into this context in two ways:

Both the other two proposals for test cases in this document have focused on VBARD, and the selection of a different type of LTM would allow for comparisons of relative efficiencies.

The government does have the development of farmer organizations as an objective, but is currently facing a number of problems including a lack of a knowledge base. One or two cooperatives are known to have existed in the coffee sector but have not survived financially. However, as pointed out elsewhere in this document, the State farms have similar characteristics to cooperatives except that their management structure is top-down, rather than it being run by, and for, its members.

- State farms are conglomerates of some of the smallest farmers so there would be good potential to reach a client base dominated by our main target,
- state farms are also often the only buyers in a region, they have good outreach to producers not immediate within the state farm itself,
- there is an opportunity to achieve some synergies with other World Bank projects, including agricultural technology development projects in the northern coffee growing regions where some of the recent poverty alleviation work is focused.

An additional factor to be considered is that Vietnamese coffee production levels are very sensitive to initial input usage compared to producers in other countries, leading to higher financial exposure earlier in the production cycle. This may raise demand for input-linked insurance, and so formulation of the project will not exclude the participation of VBARD as an LTM. Survey work is expected to clarify this issue further.

Replication Potential

State farms are distributed across the country, and are able to trade with a wider segment of producers, so their outreach lies beyond their immediate reach – about 40% of coffee is marketed through the state farms. The apparent lack of outreach into some of this target segment by VBARD also suggests that other distribution channels would need to be explored.

If VBARD participates then the possibility of replicating may be more extensive, even if other advantages of different formulations of the project within a liberalizing country are diluted.

6. Conclusion: Moving Forward

Is there a rationale to move forward?	Possibly
Is there a suitable policy environment?	Not currently

The physical commodity is virtually a free market, with only some residual limitations on market entry at the purchasing level. The regulatory position of derivatives contracts needs to be clarified, and the foreign exchange regulations would need to be put in place to guarantee the ability of the LTM to carry out payments and accept payout in foreign currency.

Is there a satisfactory LTM?	Probably

A number of potential candidates present themselves, depending on the goal of the Phase 1. The State Farms would be particularly suitable given government policy objectives, and the focus of other proposed risk management projects to focus on VBARD.

The Vietnam Bank for Agriculture and Rural Development lends to a number of coffee producers and has expressed interest in playing the role of LTM. It has served as intermediary for World Bank loans, so its financial soundness and business practices have been judged satisfactory. As more farmers are issued land use certificates that can be used for collateral, it is likely that more and poorer farmers will become eligible to borrow.

Is there evidence of a willingness to pay the necessary premium?	Unknown
Could a test case be replicated around the country	Probably

Appendix 1: Vietnamese Responses To Low Coffee Prices

Official figures for losses to Vietnam from the drop in coffee prices were only available for certain regions – but the figures released by the Vietnam News Agency in December 2001 suggested that Central Highland coffee farmers lost 2.6 trillion VND (about US$173.3 mln). Consequently, the government has had to implement a series of special measures relating to the coffee sector finances in order to try and cope with the consequence of price falls. However, the view of the Ministry of Agriculture and Rural Development is that most measures taken are likely to have only short-term benefits and do not have the ability to deal with long-term structural imbalances in the market such as the area reduction policies outlined below. Consequently, there has also been some emphasis on developing strategies to deal with this also, including a broader perspective on diversification both within coffee and out of it, including the issue of coffee quality development.

In the short term the government has focused on tax changes where there have been two of significance – both land taxes and export taxes have both been reduced to 0% for coffee producers. Financial support has been provided to exporters in trouble – the government has been paying export 'bonuses' of 60000VND/tonne, and a suspension of social insurance payments has been implemented for state companies. An internal coffee retention program was stated last year and the government was paying up to 100% of the interest costs as a subsidy. As described in the section on credit, VBARD reports that it is managing the impact of low prices on debt servicing internally, and is not currently receiving government money for this.

However, other credit programs are being introduced – in the government announced a package of 3 year loans on an interest-free basis, but for producers it regarded as being the most competitive. There will be an option to defer repayment at the end of the 3 year term should market conditions not have improved.

Area Reduction Policy

Official policy is to take 100,000 hectares out of production over a seven year period. However, in a tour of Lam Dong and Dac Lac provinces we only saw significant evidence of tree removal in Dac Lac district and in DacMil district. However, some caveats are necessary on the effectiveness of this:

- Some of this coffee was trees dating back to pre-colonial times are therefore past their peak of productivity.
- Some areas that looked as though they had been cleared had in fact retained some of the root stock, and there were early signs of new growth i.e. these trees had been stumped rather than cleared.
- There were indications that this land would be used for food crops for a year or two, but if prices recovered it would be returned to coffee.

Credit policies are to allow only borrowing for clearance when the plan is to replace the crop with one approved for production by authorities, but may still be dependant on having the correct land use entitlement documentation, which is often not the case for smaller producers. So in Lam Dong, for example, we found that the Dalat office of VBARD was lending firstly for tea planting, but also mulberry, and in a few instances, arabica production. However, some of the land is planned for pasture and cattle.

Other crops are also being looked at – the DacLac division of MARD is targeting 10,000 hectares of cocoa by 2010, citing reports that the soil and other conditions suggest that this could be profitable.

Other Responses to Low Prices

Some of the measures described will be only short-term, particularly if prices rise and producers go back to replanting coffee. More common than removal is abandonment, or withdrawal of inputs and/or irrigation, as this will be easier to reverse than stripping out the coffee.

Other reasons for not pulling out the coffee are the costs of doing so – about 0.5mln VND/hectare, whilst smaller farmers generally have little access to credit and so often cannot afford it. This problem also applies to lack of access to credit for then planting new crops.

Small farmers have had some success in switching input types, either to organic fertilizers, or to significantly lower quality/cheaper fertilizers involving more labor. This has been cost-effective with regard to input costs by small farmers using their own labor.

Longer-Term Planning

Both the government and the private sector see a need for developments to improve the value of coffee products that Vietnam sells, and reduce the economic and environmental risks the country is exposed too. Amongst the initiatives being undertaken by the government is that MARD has set aside substantial resources for developing the forestry and agro-industry processing capabilities over an 8 year program starting in 2002. Consideration is also now being given to the legal and regulatory framework to enable producers to take advantage of international risk management markets.

From the private sector, Vicofa[17] cites a number of key objectives:

Crop and variety shifting, including diversification out of robusta coffee. This would include the switch to arabica, but also to other crops including those described in this report.
Reducing production costs – in particular, Vicofa sees the possibility of lowering costs through research into optimum input levels, in a belief that producers are using too much.
Quality improvement – this will take a number of steps, from the farm treatment of coffee to the processing.
Diversification to coffee export products other than green bean – in particular, to soluble coffee. There are now two manufacturers in Vietnam. The production of liquid canned coffee is also under consideration. Also to consider specialty and related niche markets,

[17] Vicofa (2001) Achievements, Challenges and Adjustment of Strategic Orientation

Production of organic and adoption of sustainable production technology –this is seen as particularly important from both a marketing perspective, as well as a need to ensure that coffee can go on being produced in those areas now highly dependant on it.

Quality Issues

Vicofa has recognized the limitations on capturing greater export value until standards have been improved, and has therefore developed a new set of standards as a starting point, in conjunction with GTZ and other external advisors. Support for quality improvement projects has also been sought from the ICO and FAO, for a project entitled “The improvement of coffee quality, prevention of mould formation on coffee in Vietnam”. The plan is to develop ISO-level standards on moisture content, foreign matter and defect counts.