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Export competitiveness of the Cambodian rubber sector relative to other Greater Mekong Subregion suppliers: A simple descriptive analysis

By

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Executive summary

The development of the Cambodian rubber industry during the past two years has been noticeably positive due to the substantial and continuous rise in prices of natural rubber. In 2007 and 2008, total harvested areas and natural rubber production surged by 30 per cent and 12 per cent, respectively. Additionally, the outcome of the divestment by the Government of Cambodia of its state-run rubber plantations has also been impressive. As of early 2009, the seven state-run plantations had already been privatized, discharging more weight of the public sector onto the private sector. However, the prospect for growth of the sector has appeared bleak since the last quarter of 2008 due to the global economic crisis, resulting in slow demand for natural and synthetic rubber across continents. The latest estimate by the Ministry of Agriculture, Forestry and Fisheries is that Cambodia's rubber cultivation in 2009 will slow by 61 per cent from 2008.

Overall, Cambodia's rubber export competitiveness remains weaker than that of other countries in the region, except for the Lao People's Democratic Republic. One of the problems is that despite the application of conventional technology for the management and maintenance of rubber trees and traditional rubber clones, per-hectare rubber yield remains lower than in other countries of the region. A significant rise in the real daily wage of labourers during the past three years appears to be one factor obstructing the improvement of Cambodia's rubber competitiveness, while high costs of electricity and petroleum relative to those of the Lao People's Democratic Republic, Thailand and Viet Nam continue to weaken the Cambodian sector's competitiveness.

More importantly, the costs of exporting, particularly transportation, customs clearance and hidden expenses, time taken to complete shipments, and customs and logistic efficiency remain critical challenges to improving the sector's export price competitiveness; the performance in such areas, albeit improved, tends to remain poorer than in other countries of the region. Cash-flow problems among the rubber producers as well as poor credibility of the country's rubber grading system have weakened the sector's competitiveness even further as producers have to enter contracts with foreign buyers that provide between 10 per cent and 20 per cent price discounts. In addition to its current weak export competitiveness, the sector has been affected by the impact of the global economic crisis since the last quarter of 2008. In attempting to improve the competitiveness of the country's rubber sector in a time of global economic crisis, the Government of Cambodia faces mounting challenges that requires strong collaboration from the private rubber planters and rubber smallholders.

In order to improve the sector's currently weak competitive stance, the following actions should be taken by the Government of Cambodia in collaboration with the private sector and its development partners:

- (a) Enhance rubber research activities through strong funding support for the Rubber Research Institute of Cambodia, and promote the application of new rubber clones through testing on smallholder and private estates, with collaboration and support from the International Rubber Association (IRA) and other regional rubber associations;
- (b) Expand rubber market access by exploring the opportunities and costs of potential markets;

- (c) Seek cheaper sources of electricity from neighbouring countries such as Viet Nam and the Lao People's Democratic Republic;
- (d) Reduce the rubber export tax further. In addition, cut back, or even eliminate if possible, the current VAT of 10 per cent on domestic rubber sales;
- (e) Continue approving the current voluntary grading certification for all rubber producers, as foreign buyers do not appear to trust Cambodian quality standard certification. Compulsory testing could adversely affect exporters' turnover;
- (f) Introduce a programme to promote international acceptance of the Cambodian grading system among buyers;
- (g) Provide rubber producers and processors with both short-term and long-term trade financing at a below-market interest rate, in order to solve the cash flow problems and the lack of funds needed for upgrading factory capacity. This, in turn, will reduce the need for price discounting.

Introduction

The development outcomes from Cambodia's ambitious integration into the region and the world, through Association of Southeast Asian Nations (ASEAN) and World Trade Organization (WTO) membership in 1999 and 2004, respectively, have been impressive during the past decade. One of the development results witnessed has been the rapid growth of the garment industry, which has contributed a considerable share of total export earnings and created a large number of jobs for the Cambodian workforce. Current economic growth has been robustly bolstered by the sector, together with a few other sectors (i.e., construction, tourism and agriculture). However, these growth-supporting pillars appear to be narrow-based, requiring broader diversification in order not to become prone to domestic, regional and global shocks.

Through efforts by the Ministry of Commerce, together with the cooperation of the United Nations Development Programme (UNDP) and several other development partners under the framework of the Diagnostic Trade Integration Strategy in 2007, 19 commodities and services subsectors with high export potential and strong contribution to human development were identified. The list was submitted to the Government of Cambodia for action. The rubber industry ranked among the top five sectors with high export potential and medium-high contribution to human development.

Strong prospects for growth in world demand for natural rubber together with Cambodia's large area of basaltic red soil have encouraged the current Government to place the rubber sector among its top development priorities. However, challenges and constraints hindering the sector's development remain, including high input and utilities costs, a lack of standard certification for exports to regional and international markets, excessive export tax, cash flow constraints among processors and producers, excessive paperwork required for exports, unofficial fees and high transportation costs. Such constraints could weaken the competitiveness of Cambodian rubber regionally and globally.

Currently, Cambodia's main export destinations for natural rubber are Viet Nam, followed by China, Malaysia and Singapore. Among them, Viet Nam is the dominant buyer of Cambodia's natural rubber as it accepts Cambodian Specified Rubber (CSR) 5L, which is below the international standard of Technically Specified Rubber (TSR) 5L. Thus, Cambodia loses an opportunity to gain direct access to the international market. In addition, Cambodia is well known within the region to be a low-yield producer and high cost processor compared with Malaysia, Thailand and Viet Nam.

Overall trade facilitation remains one of the significant challenges, despite recent but slow improvement. The costs of lengthy export procedures, coupled with other transportation hurdles, still contribute a significant proportion of the rubber export price. A recent study of export financing revealed that state-owned rubber enterprises persistently suffered from cash flow problems; for example, in order to fund infrastructure upgrades, the enterprises have to enter contracts with buyers at substantially discounted rubber prices. These factors are apparently key drivers of Cambodia rubber export competitiveness.

1. Analysis objectives

A number of studies have been carried out on rubber production, marketing constraints and performance of certain types of rubber producers and processors; however, an in-depth regional comparative study of the sector has yet to be undertaken. Therefore, this paper examines the drivers of Cambodia's rubber export competitiveness, relative to other countries in the Greater Mekong Subregion, such as production and processing costs, time involved and cost of export procedures. More importantly, previous studies of the sector have, to some extent, provided reasons for the weak competitive stance of the Cambodian industry relative to other countries in the region due mainly to high costs of processing and transportation, quality standards, unofficial fees paid for export licences, and lengthy and time-consuming export procedures. Thus, this paper is intended to provide clear confirmation of the currently weak competitiveness of Cambodia's rubber industry compared to the sector in other countries in the region.

2. Research methodology

In order to examine the key drivers of Cambodia's rubber export competitiveness relative to the Lao People's Democratic Republic and Viet Nam, available and existing national and international secondary data have been used. Therein, reports on the evolution of the rubber industry from relevant government institutions, local and international organizations and research institutes are reviewed. Furthermore, key informant interviews were also conducted to gain their perspectives on factors determining rubber competitiveness.

3. Organization of the analysis

Section A reviews key determinants of export competitiveness of agricultural commodities in some developing countries. Section B presents the evolution of the rubber industry in Cambodia, particularly with regard to production and processing costs. Section C discusses the world natural rubber situation, while section D reviews Cambodia's natural rubber trade and section E provides a regional competitive analysis of Cambodian natural rubber export. Finally, a conclusion and policy recommendations are presented in Section F.

A. Determinants of export competitiveness

During the past couple of decades, a large body of literature has been produced on the concepts, definitions and measurement indicators of the competitiveness of nations from the macroeconomic, microeconomic, business and multi-dimensional perspectives. This has been in line with the fact that a nation has often, if not always, placed the "capability of a nation to compete in the global market" at the top of its agenda aimed at sustaining the living standards of its people through national productivity improvement and job creation.

The notion of competitiveness appears to be obvious at the corporate level, i.e., "a firm is competitive if it can produce products and services of superior quality and lower costs than its domestic and international competitor" (Buckley and others, 1988). Nonetheless, when

aggregated at the industry and national levels, competitiveness concepts appear to be vague and each has its own pitfalls (Yap, 2004).

1. Price and cost competitiveness

Several studies have employed export prices and costs, which include productivity and factor prices (i.e., unit labour cost) as benchmarks for assessing a nation's industry competitive status in relation to other countries. Durand and others (1992) constructed an export competitiveness index for each Organisation for Economic Co-operation and Development country in order to examine its relationship with export prices and unit labour costs. They found that some countries experienced relatively improvements in export competitiveness based on the downward trends of export prices and unit labour costs.

Despite the potential pitfalls of such indicators, several other authors have also employed the above indicators because the results from such methodologies were indicative. Existing studies that applied such a method¹ include those by Hooper and Larin (1989), McCombie and Thirlwall (1994) and Turner and Golub (1997).

2. Transport logistics and trade facilitation

Integrated value chain analysis provides a clear picture of the extent to which transport logistics and custom facilitation costs are incurred within the value chain of a particular product. Poor and inadequate transportation infrastructure and port facilities, which are evident in most developing countries, add significant proportional costs along the chain and create longer delays in product delivery. A growth and export competitiveness study by the World Bank (2006) revealed that Pakistani exporters faced a number of challenges related to transport infrastructure, including long-standing problems with the age and condition of the transport fleet, serious overloading of trucks, high cost for less-than-container-load shipments and congestion at the port terminal due to inadequate facilities.

Another growth and competitiveness study on Bangladesh by the World Bank (2005) confirmed the significant role of transportation infrastructure in expediting the flow of trade. Therefore, the study noted, port congestion was a critical problem faced by Bangladeshi exporters. Specifically, limited and unpredictable air cargo service blocked the expansion of exports of fresh French green beans and other produce to Europe, while poor road conditions and the lack of alternative transport options caused high mortality rates among day-old shrimp shipments. This posed a serious hurdle to export growth of the sector.

Limited road networks are also evident in the Greater Mekong Subregion (GMS) countries – Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam – which limits trade flow across their borders.

Customs and export clearance has been widely acknowledged, both in developed and in developing countries, as constituting a noticeable proportion of the total export costs along the value chain and could pose a critical delay in product delivery in an unfavourable customs

¹ The Real Effective Exchange Rate was also employed as an alternative to export price for the assessment of country export competitiveness.

environment. A value chain analysis conducted in 2003 by Global Development Solutions in Cambodia for the World Bank (2003) revealed that a substantial proportion of total costs along the value chains in the textile and rice industries were spread through customs and export clearance. For example, to export Neang Mali rice, Cambodian traders had to spend approximately 19.7 per cent of the total cost, while the proportion of the total cost paid by denim jean exporters amounted to 12 per cent for export documentation and 27 per cent for export clearance.² It is obvious that such considerable proportional costs could weaken the export competitiveness of the industries.

In addition, in countries with weak governance and rampant corruption, the customs environment is often poor. For example, knitwear manufacturers in Bangladesh have to pay unofficial fees of between 6 per cent and 10 per cent of the total cost of imported equipment, while footwear makers have to pay informal fees to clear imported materials and to export finished products. The charges amount to between 2 per cent and 5 per cent of the total import value or even as much as 10 per cent, depending on producers/exporters (World Bank, 2005). An improved customs environment will expedite trade flow, which is also in line with the findings by Wilson and others (2003). In analysing the relationship between trade facilitation, trade flow and GDP per capita in the Asia-Pacific region, they found that enhanced port efficiency, coupled with an improved customs regulatory environment, had a large and positive effect on trade.

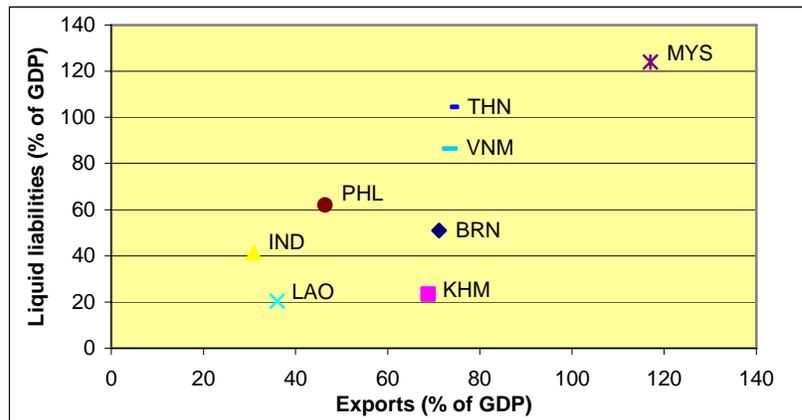
3. Cost of finance

Fundamentally, foreign buyers appear reluctant to pay sellers in cash prior to delivery, as there is a potential risk of non-delivery of goods. Such hesitance could slow the expansion of trading activities. Under such circumstance, trade financing could play an important role in bridging the time between an export order and the payment for goods and services produced, and in providing sources of funding for exporters to cover such costs as transportation and other trade-related expenses. Therefore, improved export competitiveness of firms could be achieved through better equipping them with a wide array of trade finance tools and instruments at affordable and viable rates (UNESCAP, 2005).

Availability and cost of trade finance instruments depend upon the soundness and depth of a country's financial sector. A banking sector survey in ASEAN by RAM Consultancy Services (2005) showed that the depth of the financial sectors in the ASEAN-6 (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand) was greater than that in the ASEAN-4 (Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam). This reflects the varying degrees of availability and costs of trade finance between the two groups. Figure 1 shows that countries with a more developed financial sector, i.e., Malaysia and Thailand, have a better capability of grasping opportunities for export.

² The value chain for Neang Mali rice is from planting to milling to foreign destination, while the value chain for denim jeans is from input import to sewing assembly to export clearance.

Figure 1. Financial depth and exports in eight ASEAN countries, 2006



Source: World Bank, World Development Indicators database.

* Liquid liabilities measured by share of M3 to GDP were used as proxies for the level of development of country financial sector (Beck, Levine and Loayza 1999).

The cost of finance, including trade finance instruments, does matter for trade expansion and export competitiveness of a country's industry. The high cost of finance prevails in many developing countries. An integrated value chain analysis in Bangladesh by the World Bank (2005) revealed, for example, that financing costs alone constitute 13.5 per cent of the FOB price of an exported set of ceramic tableware, while interest payments make up as much as 2.5 per cent of the FOB price of a Bangladesh-made T-shirt. Additionally, Bangladeshi shoe manufacturers, operating in a capital-intensive industry, pay interest charges on loans at between 7 per cent and 12 per cent, higher than the rate of around 5 per cent at which its main competitors in Indonesia, for example, can borrow (World Bank, 2005).

B. Cambodia's rubber industry

1. A Brief history of the Cambodian rubber industry

The development of rubber plantations can be traced back to the early 1910s during which Cambodia was a French protectorate. The first plantation was established at Prey Nop in Kampot province and survived until 1965. The scale of the development became increasingly apparent during the early 1920s following the granting of concessions on a vast scale in Chup and the Chamcar Loeu plateaux to five European plantation companies, largely dominated by French investors. Despite world overproduction during the early 1930s, which impaired the international rubber price, concerted efforts and agreements among producers managed to stabilize prices. By 1937, Cambodia's rubber plantations constituted approximately 20 per cent of the total rubber plantation area in Indochina³.

Despite the change from a French protectorate to independence in 1953, the sector remained largely dominated by five French companies, which extended the plantations to around 30,000 ha. By 1958, large private estate and state-owned plantations had emerged, which were extensively located in the basaltic red plateaux region in Kampong Cham and

³ Indochina consists of three countries, Cambodia, the Lao People's Democratic Republic and Viet Nam.

Kratie provinces. By the end of 1966, according to SOFRECO and the Cambodian Centre for Study and Development (CEDAC) (2005), the sector consisted of five state-run plantations, 14 public limited companies, a semi-public company and 2,088 individual planters, covering 62,211 ha.

Between 1970 and 1979, Cambodia's rubber production declined significantly due to the expanding conflict between North Viet Nam and United States of America-backed Government of South Viet Nam along the Cambodian-Vietnamese border adjacent to the rubber growing areas and the subsequent takeover by the Khmer Rouge (1975-1979) resulting in considerable devastation of the rubber plantations. After the fall of the Khmer Rouge regime, Cambodia was under Vietnamese occupation between 1979 and 1989, during which time the industry started to revive. Under the centralized economic regime, all rubber plantations were nationalized and placed under the direct supervision of the General Directorate of Rubber Plantations, Ministry of Agriculture, Forestry and Fisheries.

The sector's comeback was a result of the technical assistance provided the former Soviet Union and a number of European bloc countries. However, the withdrawal of Vietnamese control in 1989 left Cambodia in a precarious condition. By the early 1990s, the rubber plantations had been better reorganized into seven state-owned companies, together with two private plantations and several smallholder rubber plantations. The Cambodia Rubber Research Institute (CRRI) was formed in 1991 with the objective of upgrading rubber yield and production.

2. Current development of the Cambodian rubber industry

(a) Harvested areas and rubber producers

The development of the Cambodian rubber sector in the past two years has been noticeable, stemming from the sharp and continuous rise in prices of natural and synthetic rubber. Price acceleration has encouraged smallholders, private companies and state-run estates to expand their harvested areas. As of 2007, total rubber plantation area was 82,059 ha, largely dominated by state-owned plantations (48 per cent) followed by smallholders (44 per cent), private companies (6 per cent) and plantations of economic land concessions (2 per cent).

The sector's growth was even more noticeable in 2008 in terms of ownership of rubber estates and their geographical locations. Total harvested area expanded by approximately 30 per cent from 2007. In addition, new plantations emerged outside the traditional locations, including Siem Reap, Kampong Thom, Svay Rieng, Battambang, Preah Vihear and Pursat provinces. The continuous rise in rubber prices during the year continued to be a major incentive for the expansion. As of late 2008, six of the seven state-run plantations had been privatized, resulting in a dominant share of private ownership in the sector. It should also be noted that the last state-run rubber estate was divested in early 2009, reflecting the full retreat of the public sector's engagement in the rubber-growing industry.

Table 1. Natural rubber plantation situation, 2007-2008

	2007				2008 ^a			
	Status	Mature	Immature	Total	Status	Mature	Immature	Total
Rubber estates		16 740	22 731	39 471		16 378	22 073	38 451
Chup	State-run	5 722	8 625	14 347	State-run	5 884	5 814	11 698
Peam Cheang	State-run	2 064	1 400	3 464	Private	2 000	2 030	4 030
Krek	State-run	2 639	1 764	4 403	Private	2 290	2 140	4 430
Memot	State-run	1 778	2 755	4 533	Private	1 900	3 000	4 900
Snuol	State-run	1 082	1 782	2 864	Private	1 000	1 870	2 870
Chamcar Andong	State-run	1 810	3 396	5 206	Private	1 720	4 200	5 920
Boeung Ket	State-run	1 310	2 560	3 870	Private	1 300	2 500	3 800
CRRRI	State-run	335	449	784	State-run	284	519	803
Private	-	3 353	2 883	6 236	-	5 036	12 126	17 162
Tapao	-	1 053	1 053	2 106	-	1 050	1 253	2 303
Labansiek	-	2 300	90	2 390	-	3 500	90	3 590
New investment	-		1 740	1 740	-	486	10 783	11 269
Smallholders	-	10 398	25 953	36 351	-	12 900	40 144	53 044
Total		30 491	51 567	82 058		34 314	74 343	108 657

Source: Rubber Development Department, General Directorate of Rubber Plantations, 2008.

* As of November 2008.

Around one third of the rubber plantations only are mature enough for tapping; when immature rubber trees are ready to be tapped, Cambodia's rubber production will expand considerably. The current total production of dry rubber as of November 2008 was some 37,050 metric tons (mt) compared with 32,975 mt in 2007, which reflected a 12 per cent growth in production. During the past six years, the sector has played an important role in creating export earnings and generating jobs, with a total annual income from natural dry rubber exports ranging from US\$ 35 million to US\$ 40 million. In 2007, the total number of workers on rubber estates reached 13,289, of whom 88 per cent were working for the state-run plantations (Ministry of Agriculture, Forestry and Fisheries, 2008).

However, the sector's growth momentum appears to have slowed since the last quarter of 2008 as the current economic crisis has made its impact felt, particularly among large-scale rubber consumers such as the United States, Japan, China and India. Given the current slowdown in global demand for rubber-based products, coupled with declining petroleum prices, several large rubber-based product manufacturers have cut back their production; as a result, the natural rubber price nosedived from its peak rate of US\$ 3,226/mt in July 2008 to US\$ 1,397/mt in March 2009 (Malaysian Rubber Board, 2009). During the last three months of 2008 average year-on-year growth of Cambodia's natural rubber exports contracted at around -62 per cent (Ministry of Economy and Finance, 2008). The latest estimate by the Ministry of Agriculture, Forestry and Fisheries shows that expansion of Cambodia's rubber cultivation in 2009 is expected to slow by 61 per cent from 2008 (*Phnom Penh Post*, 2009).

(b) *Natural rubber collectors and traders*

Collectors and traders play an important role in facilitating the flow of natural rubber from the farmgate to the rubber processing factories. The establishment of formal collecting points since June 2005 has further intensified rubber-trading activities. Traditionally, there are three types of natural rubber collectors: small-scale collectors who visit smallholders and buy cup lump and coagulum at the farmgate; formal sub-agents of private processors located in district and provincial centres; and informal sub-agents of processors acting as unofficial private collectors (Khun and others, 2008).

Across the marketing chain, small-scale collectors mostly sell rubber to the informal sub-agents of processors. The spot market rate is used as the base for purchasing rubber from smallholders. Smallholders enter a contract with collectors to supply rubber; however, collectors tend to be disadvantaged by smallholders' defaulting once the market price reaches between 5 per cent and 10 per cent higher than that stated in the contract. This poses a substantial risk for collectors of any type as farmers are inclined to use the contract price as a price floor (Khun and others, 2008).

(c) *Rubber processors*

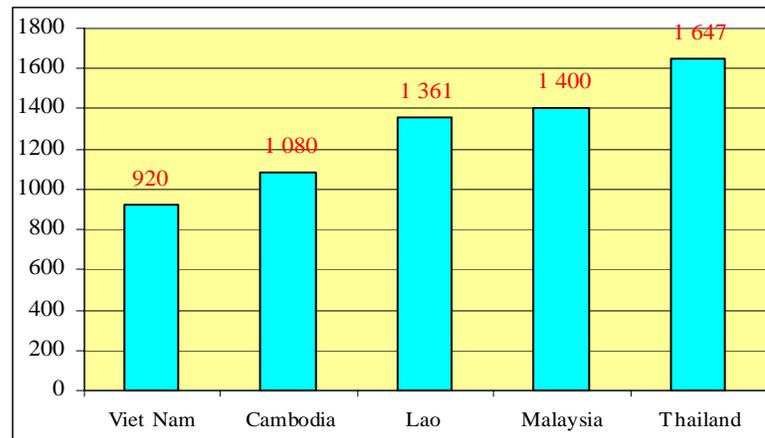
The seven state-run rubber plantations, all of which have been privatized since early 2009, have their own rubber-processing plants, the capacities of which vary from one plant to another. The average producing capacity of the seven plants is between 1 mt and 2 mt per hour. SOFRECO and CEDAC (2005) estimated that the potential production capacity of the industry could reach approximately 100,000 mt annually (around 384 mt daily). The remarkable surge in the number of smallholders and private plantations in 2008, coupled with the acceleration in world rubber demand and consumption could go some way to providing incentive for the private sector to establish rubber-processing plants. However, there are no clear statistics on the current number of processing factories in the sector. Khun and others (2008) confirmed that the number of private processing plants had increased from one in 2004 to 17 in late 2006.

3. Rubber production and processing costs

(a) *Natural rubber yield*

Being endowed with fertile basaltic red earth in the north-east as well as the application of new and better rubber clones, Cambodia's rubber industry has the potential to improve its currently low natural rubber yield relative to other countries in the region. figure 2 shows that Cambodia's average natural rubber yield remains lower than in other countries of the region. Poor management and maintenance of rubber trees, and the application of traditional rubber clones during the 1980s have resulted in low yields, although this situation is improving gradually.

Figure 2. Regional rubber yield (Kg/ha/year)



Sources: General Directorate of Rubber Plantations; Malaysian Rubber Board., 2009; Thai Rubber Association; and Alton and others., 2005.

Note: Values for Cambodia and Thailand are for 2008; Malaysia, 2007; Lao People's Democratic Republic, 2005; and Viet Nam, 2004.

(b) *Cost of growing and harvesting*

Growing rubber trees is a high-cost and long-term investment as it takes five to six years for the rubber trees to become mature and ready for tapping the natural latex. Rubber trees can be tapped from year six to their maximum life span of 25 or 30 years, when the trees must be felled and replanted. It is worth noting that the real daily wage of labourers rose by almost 50 per cent from Riels 6,632.2 in 2006 to Riels 9,938.5 in 2008.⁴ Rising prices of natural rubber and commonly consumed food items between 2007 and 2008, together with the rapid expansion of private rubber estates and smallholder plantations, appeared to be the underlying factor in the wage increase. A sharp rise in the real daily wage was the key factor to the jump in estimated investment costs and the cost of tapping per hectare. EIC (Economic Institute of Cambodia) study in 2007 estimated that the total five-year investment cost per hectare was US\$ 1,624 in 2006, which was as about half of the investment cost of US\$ 3,086 in 2008. The first-year tapping cost per hectare rose by 49 per cent from US\$ 104.15 in 2006 to US\$ 155.35 in 2008.⁵ This could weaken the industry's export competitiveness relative to other countries in the region.

Table 2. Cost of investment in growing and tapping rubber

(US \$/ha)

Categories	Year one	Year two	Year three	Year four	Year five	Total	Year six
Cost of labour	633.75	365	227.5	197.25	168.75	1 592.25	60
Cost of input	670	213	160	180.5	271	1494.5	95.35
Total	1 303.75	578	387.5	377.75	439.75	3 086.75	155.35

Source: General Directorate of Rubber Plantations, 2008.

⁴ Author's calculation using CPI (CPI 2000 = 100) data from the National Institute of Statistics of Cambodia, and nominal daily wages of Riel 8,000 in 2006 and Riel 15,000 in 2008 from General Directorate of Rubber Plantations data.

⁵ By adjusting for inflation using CPI 2000=100, real investment costs for the first five years and for the first tapping year between 2006 and 2008 were up by 52 per cent and 20 per cent, respectively.

(c) *Cost of processing*

Fundamentally, electricity and diesel fuel are vital to the processing of natural rubber latex in Cambodia as well as other countries in the region. High electricity and energy costs put Cambodian rubber processors in a weaker position than those in other countries in the region. Table 3 indicates that the cost of electricity in Cambodia is many times higher than in the other ASEAN member countries. Likewise, petrol and diesel prices in Cambodia are high compared with those of neighbouring Thailand and Viet Nam. This is due to the cost of fuel imports as well as distributors' gross profits in Cambodia being higher than in Thailand and Viet Nam, as indicated in an Economic Institute of Cambodia (2007) study on export diversification and value addition for human development.

Table 3. Electricity tariffs in ASEAN countries, 2005
(US cents/kWh)

Country	Commercial	Industry
Brunei Darussalam	3.03-11.91	2.97-11.91
Cambodia	14.41-15.62	11.53-14.42
Indonesia	2.47-5.05	1.52-3.91
Lao PDR	3.00-3.74	2.52
Malaysia	2.57-10.27	2.57-10.27
Myanmar	7.32	7.32
Philippines	3.84-10.31	3.50-11.34
Singapore	4.71-7.64	4.44-7.12
Thailand	2.97-7.56	2.97-7.21
Viet Nam	3.97-13.08	2.65-13.08

Source: ASEAN Centre for Energy, 2005.

According to SOFRECO and CEDAC (2005), rubber-processing costs ranged from US\$ 74/mt to US\$ 120/mt, which were higher than in Viet Nam (US\$ 70/mt) and Indonesia (US\$ 60/mt). A substantial rise in oil prices between late 2007 and mid-2008 pushed Cambodia's rubber processing costs even higher. Data from the Chup rubber processing plant show that the processing cost per mt rose by almost 47 per cent between December 2007 and September 2008, to reach US\$ 210/mt. The significant surge in processing costs during the past few years, plus the considerable decline in natural rubber prices since the last quarter of 2008, make the growth prospects of the sector gloomy. Likewise, the current outlook for Cambodia's export competitiveness relative to other countries in the region is also poor.

C. World situation of natural rubber

As the world economy was heading into recession early in the last quarter of 2008, there were signs of a substantial decline in global demand for natural and synthetic rubber. In addition, falling oil prices since mid-2008 as well as the surge in natural and synthetic rubber stocks have put greater pressure on the deceleration of natural and synthetic rubber prices, thereby weakening the growth prospects of the industry.

1. Natural rubber production

With favourable weather conditions and good quality soil, Asia has long been a leading natural rubber producer. Asia's total production of natural rubber has been many times higher than that of Africa and Latin America. The leading producers in Asia are China, India, Indonesia, Malaysia, Thailand and Viet Nam. World annual production of natural rubber grew gradually during the first three quarters of 2008 as natural rubber prices surged during the same period.

In 2008, global natural rubber production (table 4) was 9.9 million mt, an increase of 200,000 mt from 2007, which was slow compared with growth in 2007. A sharp decline in the natural rubber price in the last quarter of 2008 was likely a key factor in the slowdown. Indonesia, Malaysia and Thailand agreed in 2008 to fell ageing rubber trees and replant new ones, at the objective being to cut rubber production by 200,000 mt in order to shore up declining rubber prices (Association of Natural Rubber Producing Countries, 2009).

Table 4. World natural rubber production, 2006-2008

Region	2006	Q1-07	Q2-07	Q3-07	Q4-07	Q1-08	Q2-08	Q3-08
Latin America	202	59	65	50	54	64	69	52
Africa	426	112	111	115	116	110	105	115
Asia	9 331	2 371	1 978	2 436	2 611	2 406	2 031	2 604
Total	9 959	2 542	2 154	2 601	2 781	2 580	2 205	2 771

Source: International Rubber Study Group, 2009.

2. Natural rubber consumption

Annual world natural rubber consumption (table 5) grew by 3.6 per cent in the first quarter of 2008, declined by 4.3 per cent in the second quarter but then rebounded by 1.6 per cent in the third quarter. Between September and December 2008, consumption shrank by more than 300,000 mt. The significant drop in consumption was due mainly to the slump in the global auto industry following the global economic downturn. Prospects for a surge in consumption appear gloomy while the global economic recession continues (Association of Natural Rubber Producing Countries, 2009).

Table 5. World natural rubber consumption, 2006-2008

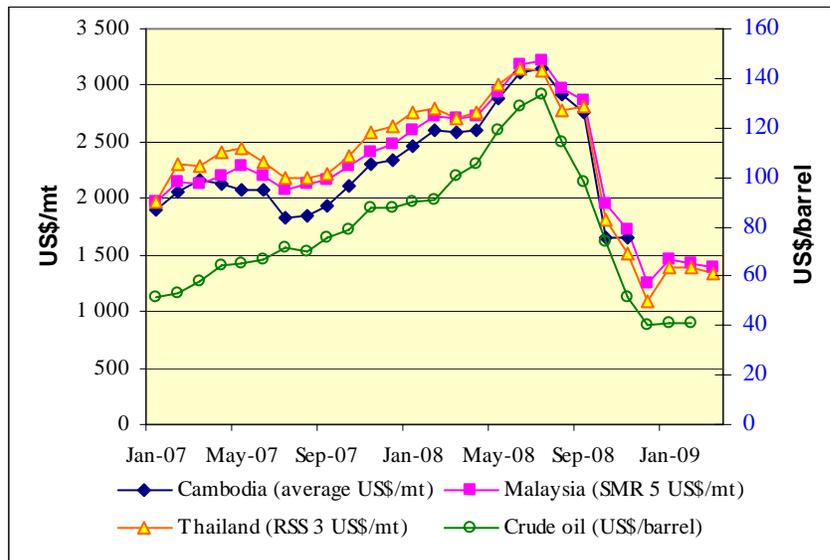
Region	2006	Q1-07	Q2-07	Q3-07	Q4-07	Q1-08	Q2-08	Q3-08
North America	1 148	290	298	284	284	273	317	324
Latin America	528	134	142	146	142	145	144	134
European Union	1 302	373	358	320	327	321	321	294
Other Europe	252	67	68	68	70	68	67	66
Africa	120	30	30	30	28	28	27	27
Asia	5 961	1 500	1 552	1 688	1 651	1 651	1 467	1 731
Total	9 311	2 394	2 448	2 536	2 502	2 486	2 343	2 576

Source: International Rubber Study Group, 2009.

Natural rubber prices (figure 3) in the international markets showed a significant rise from January 2007 to July 2008, with a peak price of around US\$ 3,200/mt in July 2008. In

2007, consumption outpaced production by approximately 157,000 mt as demand for natural rubber was strong. As the world economy receded in the last quarter of 2008, consumption of natural rubber started to slow. Thus, with higher output in 2008, the global natural rubber balance marked a surplus of 392,000 mt. The slowdown in the world economy, coupled with declining oil prices (figure 3), resulted in an immense drop in the natural rubber price from August 2008, reaching a low of US\$ 1,340/mt in March 2009. However, prices started to rebound slightly during the first three months of 2009 (International Rubber Study Group, 2009).

Figure 3. Natural rubber and crude oil prices
(US\$/mt; US\$/barrel)



Sources: General Directorate of Rubber Plantations, Malaysian Rubber Board, Thai Rubber Association and United States Energy Information Administration.

Note: Cambodia and Malaysia – FOB export prices; Thailand – domestic market price.

D. Cambodia’s natural rubber trade

Cambodia’s rubber sector has traditionally been one of the key strategic industrial crops as it has contributed to employment creation and national export earnings. The share of natural rubber export value in total export earnings during the past two years ranged from 1.5 per cent to 2.1 per cent. Data from the Customs and Excise Department indicates that growth in the volume of rubber exports decelerated noticeably between 2003 and 2008; however, the unit export value showed a reverse trend due to a continuous surge in natural rubber prices during the same period. The downward trend in exports of natural rubber could be attributed to lower productivity resulting from the increasing number of ageing rubber trees and their replacement.

In addition, between 2007 and 2008 the decline was significant (table 6), although the price of natural rubber was then at its highest since 2003. However, the drop was due primarily

to the fact that processors/exporters temporarily cut their export volume in the hope that the price would rise in the following quarters.

Table 6. Values and volumes of Cambodia's rubber exports

Category	2003	2004	2005	2006	2007	2008
Export volume (mt)	37 048	33 228	28 289	25 427	24 815	14 467
Export values (US\$ million)	35.1	38.3	36.7	41.5	41.6	36.09
Unit values (US\$)	947.42	1 152.64	1 297.32	1 632.15	1 676.41	2 494.64
Total exports (US\$ million)	1 708.08	2 108.15	2 352.75	2 799.95	3 098.74	3 097.79
Share of total export values (%)	2.10	1.80	1.60	1.50	1.30	1.20

Source

: Customs and Excise Department, 2009.

Data discrepancies between the General Directorate of Rubber Plantations and the Customs and Excise Department should also be taken into consideration when analysing export performance of the sector. General Directorate of Rubber Plantations (2007) data showed that rubber exports totalled 33,121 mt and generated earnings of US\$ 60,482,808, which is a 45 per cent difference from the rubber export value reported by the Customs and Excise Department. Rubber exports are subject to a 10 per cent export tax if the export price is greater than US\$ 840/mt, applicable prior to December 2008. That said, Cambodia's rubber export performance could be placed in a better position once the volume difference is taken into account. A reliable explanation for the data discrepancies has not been provided; however, it has been claimed that, to a certain extent, tax evasion could be a factor.

Cambodia's natural rubber is exported to only a few market destinations, mainly Viet Nam, Malaysia, China, Singapore and the Republic of Korea, due to its currently limited processing capability to meet rubber grade types. The Vietnamese market has long been the leading export destination for Cambodian natural rubber, as most Cambodian rubber estates are located close to the Cambodia-Viet Nam border. In addition, Vietnamese traders accept low-grade natural rubber from Cambodia for reprocessing and re-exporting. More importantly, although prices in the Vietnamese market are generally lower than those in Malaysia and Singapore, domestic producers tend to choose Vietnamese buyers as the price difference in the two markets is normally lower than the cost of transportation and handling to the point of sale (Phnom Penh or Sihanoukville) for non-Vietnamese sales (Tasker, 2003).

Table 7 shows that the Vietnamese market remains the top export destination for Cambodian natural rubber. The Malaysian market is remains second, but it showed remarkably strong export growth from 2004 to 2007, while exports to the Republic of Korea and Singapore declined gradually from 2001 to 2007. Somewhat surprisingly, Cambodia also ships natural rubber to distant markets such as the United States and Europe. Exports to the United States and Spain constituted a significant share of total natural rubber exports between 2001 and 2007. In terms of market destinations, Cambodia is not limited, and with the currently recognized membership of IRA in March 2009, Cambodia has accreditation to gain better access to markets such as Thailand and China (*Cambodia Daily*, 2009).

Table 7. Cambodia's natural rubber (HS code 4001) exports (000' US\$)

Country	2001	2002	2003	2004	2005	2006	2007
Viet Nam	-	28 526	41 693	61 463	63 401	73 783	-
Malaysia	10 017	10 031	2 715	2 481	3 940	7 509	15 826
China	5 706	7 486	7 684	2 531	3 131	8 691	11 014
United States	1 184	972	1 100	2 348	1 156	2 872	1 659
Spain	2 311	1 740	1 020	1 349	360	421	528
Taiwan Province of China	182	239	209	423	84	421	137
Republic of Korea	1 257	980	703	668	637	167	42
Italy	635	615	83	179	-	-	-
Philippines	68	-	-	61	68	-	-
Singapore	6 630	873	873	413	-	-	-
Thailand	-	-	-	-	-	-	-

So

urce: ITC Trade Map (mirror data retrieved in March 2009).

In fact, Cambodia has a rubber quality grading system⁶ of CSR (Cambodian Specified Rubber), the grading specifications of which are identical to those of Malaysia (SMR: Standard Malaysian Rubber), Thailand (STR: Standard Thai Rubber), Viet Nam (SVR: Standard Vietnamese Rubber), and ISO 2000. However, there has long been an issue over buyers' lack of confidence in the integrity of the Cambodian rubber product testing process. Thus, IRA accreditation of Cambodian specification grading activities, specifically the government grading authority, is critical to quality acceptance among buyers. More importantly, as a member of the association, Cambodia has to commit to fulfilling a certain number of terms set by the association in response to its currently promoted status. This will encourage Cambodia to expand current production capacity, improve rubber yields through the application of modern technology, and bolster the industry's exports and further enhance its pace of growth.

E. Competitive position of Cambodian rubber in the region/Greater Mekong Subregion

Cambodia has continued to lag behind other countries in the region, except the Lao People's Democratic Republic, in terms of production expansion and exports of natural rubber (table 8). Its competitive status relative to other countries in the region has remained weak since the industry experienced a significant surge (50 per cent) in real daily wages of labourers between 2006 and 2008 due to significant rise in costs of commonly consumed food items as well as higher natural rubber processing costs compared with Viet Nam and Indonesia. Cambodia also remained behind neighbouring countries, again except the Lao People's Democratic Republic, in natural rubber export value and its share of world exports in 2006. During that period, Thailand led in both indicators, followed by Indonesia and Viet Nam. However, in terms of export value growth, Cambodia ranked last and showed a marked slump in export volume growth in 2006.

⁶ The current certification of rubber quality standard is voluntary and no fees have been charged. However, producers do not seek certification of their products due to the attitude of buyers in Viet Nam and China. It is planned to make certification mandatory and to charge a fee following recent IRA accreditation of the National Specification Laboratory House.

Table 8. Regional trade performance comparison, 2006

Category	Cambodia	Lao PDR	Viet Nam	Thailand	Malaysia
Export value to world ('000 US\$)	20 489	12 141	596 167	5 430 350	2 246 584
Share of total country exports	0.53	1.33	1.44	4.16	1.40
Share of world rubber exports	0.14	0.08	4.08	37.13	15.36
Growth of export value (p.a.%)	4.8	71	27	33	36
Growth of export volume (p.a.%)	-10	-	-4	2	6
Number of markets (value >US\$ 100,000)	7	1	47	67	69
Balassa index/RCA index	4.4	10.9	11.8	34.1	11.5
Lafay index	3	4	6	26	9

Source: ITC Trade Competitiveness Map, 2009.

In terms of market destinations, Cambodia appears to have a limited number of export markets compared with other countries in the region. Table 8 indicates that the Lao People's Democratic Republic was the most limited with regard to market destinations, which in some ways could reduce its bargaining power over its recipient countries. While Cambodia has a comparative advantage in natural rubber, with a Revealed Comparative Advantage⁷ of 4.4, its status appeared lower than Thailand, Viet Nam, Malaysia and the Lao People's Democratic Republic.

1. Issues in trade facilitation

Due to data limitations, data on cross-border trade costs at the national level were used and combined with certain indicators of the industry in order to provide an indication of Cambodia's competitive status relative to its neighbouring countries. As indicated in table 9, Cambodia performed worst in terms of the number of documents required for export approval, but ranked ahead of the Lao People's Democratic Republic with regard to the number of days for product export. In addition, the container cost in Cambodia appears comparable to some other countries in the region, such as Viet Nam and Indonesia, reflecting the similarity in the quality of transportation in those countries.

Table 9. Regional comparison of cross-border export costs

Category	Cambodia	Lao PDR	Viet Nam	Indonesia	Malaysia	Thailand
Documents for export (number)	11	9	6	5	7	4
Time for exports (days)	22	50	24	21	18	14
Cost to export (US\$/container)	732	1 860	734	704	450	625
Ease of trading rank (out of 178)	122	165	67	37	29	10
Efficiency of customs*	2.19	2.08	2.89	2.73	3.36	3.03
Quality of transport*	2.3	2	2.5	2.83	3.33	3.16
Logistics competence*	2.47	2.29	2.8	2.9	3.4	3.31

Source: World Bank, "Doing business 2009" and World Trade Indicators, 2008.

*Higher score reflects improved quality and efficiency (2007 data).

⁷ $RCA_{ij} = (X_{ij}/\sum X_{ij}) / (X_{iw}/\sum X_{iw})$ where X_{ij} is export value of product group i of country j , $\sum X_{ij}$ is total export value of country j , X_{iw} is world export value of product group i and $\sum X_{iw}$ is total world export value. Interpretation: RCA exceeding 1 indicates that country j has comparative advantage in the production of product i in the global economy, and a Revealed Comparative Advantage of less than 1 indicates the opposite.

Although customs efficiency and logistics competence remain a challenge for Cambodia, as a developing country, they are better than that of the Lao People's Democratic Republic, comparable to those of Viet Nam and Indonesia, but poorer than those of Thailand and Malaysia. To a certain extent, this has some implications for exports of Cambodian natural rubber.

In general, natural rubber is exported through two channels, Sihanoukville seaport and the Vietnamese border. It has been confirmed that the latter channel offers transportation and custom clearance services that are efficient and lower in cost. However, hidden costs are incurred in both channels. Such costs can reach 5 per cent of the total FOB value at Sihanoukville port, and around US\$ 6/mt at the border with Viet Nam (Khun and others, 2008).

In addition, one key cost component that has long exacerbated Cambodia's rubber export prices is export tax. Every licensed rubber exporter must pay VAT (10 per cent) on domestic sales of natural rubber and additional export tax ranging from 2 per cent to 10 per cent when natural rubber is exported. Once an export transaction is completed, exporters can apply for a VAT tax refund. As of late 2008, the export tax rates were:

- (a) Two per cent if the Malaysian FOB price is below US\$ 720/mt;
- (b) Five per cent if the Malaysian FOB price is between US\$ 720/mt and US\$ 840/mt; and
- (c) Ten per cent if the Malaysian FOB price is above US\$ 840/mt.

Domestic sales of natural rubber in Viet Nam are subject to VAT of only 5 per cent, and no export taxes are imposed on rubber and other agricultural products. Thai rubber exports are also subject to a substantially lower export tax ranging from US\$ 20/mt to US\$ 33/mt (SOFRECO and CEDAC, 2005).

The drastic decline in global demand for natural and synthetic rubber because of the world economic downturn has reduced rubber prices markedly since the last quarter of 2008. In response, the Ministry of Economy and Finance issued notification No. 6794 SHV on 17 December 2008 introducing a new export tax scheme on rubber, and delegating authority to customs and excise offices at the border checkpoints in order to sustain Cambodia rubber exports and the current expansion of rubber plantations. The new export tax rates, which became effective in January 2009, are:

- (a) US\$ 0.0/mt if price is below US\$ 700/mt;
- (b) US\$ 10/mt if price is between US\$ 700/mt and US\$ 1,000/mt;
- (c) US\$ 30/mt if price is between US\$ 1,000/mt and US\$ 1,500/mt;
- (d) US\$ 50/mt if price is more than US\$ 1,500/mt.

Although the newly introduced scheme has improved Cambodia's rubber export competitiveness, but that competitiveness remains weaker than Viet Nam and Thailand.

In sum, it is apparent that a significant proportion of the Cambodian rubber export price is created by hidden expenses, domestic sales tax and export tax. In addition, rubber exports

are further complicated by the questionable customs efficiency and logistical competence. These factors combined continue to weaken Cambodia’s rubber export competitiveness relative to other countries in the region.

2. Regional market access

All countries in the Greater Mekong Subregion face similar market conditions. The most liberal market access is evident in Malaysia, Singapore and Thailand, which have zero tariffs applied to natural rubber imports. For the time being, Viet Nam, Malaysia and China absorb the major proportion of Cambodia’s natural rubber exports. Although Malaysia is the most attractive market, in terms of tariff restriction, among the three major destinations (table 10), Viet Nam remains the top importer of Cambodian natural rubber due to geographic proximity and the country’s acceptance of low-grade natural rubber.

Table 10. Estimated ad valorem tariff applied to natural rubber imports in the region
(Percentage)

Exporters (below)	China	Malaysia	Singapore	Thailand	Viet Nam	Indonesia	Philippines
Cambodia	10.00	0.00	0.00	0.00	3.00	3.75	3.00
Lao PDR	10.00	0.00	0.00	0.00	3.00	3.75	3.00
Viet Nam	10.00	0.00	0.00	0.00	-	3.75	3.00
Thailand	10.00	0.00	0.00	-	3.00	3.75	3.00

Source: ITC Market Access Map, 2009.

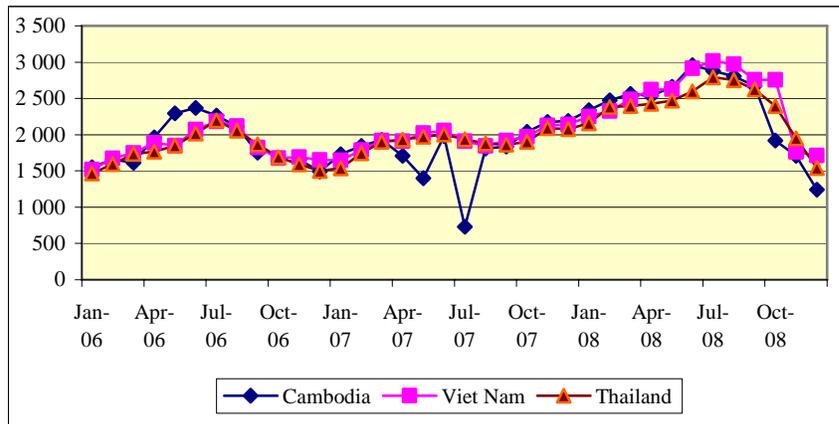
Traditionally, Cambodia produces four main type of natural rubber – CSR L, 5, 10 and 20 – for regional and international exports. However, weak foreign buyer confidence in the Cambodian natural rubber grading system has been a critical factor in the discounting of the Cambodian rubber export price. Several studies have confirmed that discounts on export price range from 10 per cent to 20 per cent of the total export price, with an annual average discount of between 5 per cent and 20 per cent. Since Cambodia’s natural rubber sale price is based on the Malaysian SMR FOB export price released by the Malaysian Rubber Board, the Cambodian price follows the formula (Khun and others, 2008) of $CSR\ price = SMR\ price - (10\ to\ 20\ per\ cent\ discount) - transportation\ fees - taxes$.

Such a high rate of price discounting places Cambodian rubber producers at a disadvantage in terms of bargaining power with their foreign buyers. There have been claims that Cambodian natural rubber graded as CSR L has been sold to Vietnamese buyers as CSR 5 at a discount price, later certified as TSR L by Vietnamese laboratory testing and then re-exported at a higher price (Khun and others, 2008). Moreover, as Cambodian rubber exporters (particularly state-owned rubber plantations) are facing a cash flow problem and a lack of capital to upgrade their processing facilities, they tend to enter into contracts with foreign buyers at substantially discounted prices in order to obtain faster or advance payment (Ministry of Agriculture, Forestry and Fisheries, 2007). Such price distortion erodes Cambodian rubber competitiveness in the region as well as on the international market (Khun and others, 2008).

Figure 4 provides a mixed picture of Cambodia’s rubber export price competitiveness with Viet Nam and Thailand. The difference in the unit export prices among the three countries

was not significant between the first quarter of 2006 and the first quarter of 2008, except for the second quarter of 2007 in the Cambodian case. However, price differences in those countries were significant during the last three quarters of 2008.

Figure 4. Unit export values of natural rubber in the region
(US\$/mt)



Sources: Customs and Excise Department of Cambodia, Bank of Thailand and General Statistics Office of Viet Nam.

It is likely that wide international market access and the internationally certified rubber grading system are key drivers of a country’s rubber export price. For the time being, the credibility of the Cambodia rubber grading system is enhanced by the IRA’s recent accreditation of the National Specification Laboratory House. Therefore, it is expected that the current high discount price will decline gradually over time, and thereby improve Cambodia’s rubber export competitiveness.

F. Conclusion and policy recommendations

The development of the Cambodian rubber industry during the past two years has been noticeable due mainly to the substantial and continuous rise in the prices of natural rubber. In 2007 and 2008, total harvested areas and natural rubber production surged by 30 per cent and 12 per cent, respectively. In addition, as of late 2008 six of the seven state-run plantations had been privatized. However, the prospects for growth within the sector appear bleak due to the current global economic crisis, which has resulted in slower demand around the world for natural and synthetic rubber. The latest estimation by the Ministry of Agriculture, Forestry and Fishery for Cambodia’s rubber cultivation in 2009 projects a slowdown of 61 per cent from 2008.

Overall, Cambodia’s rubber export competitiveness remains weaker than in all the countries of the region, except for the Lao People’s Democratic Republic. Despite the application of conventional technology in the management and maintenance of rubber trees and traditional rubber clones, Cambodia’s rubber yield per hectare remains lower than in other countries in the region. In addition, a significant rise in the real daily wage of labourers during the past three years appears to have hampered the improvement of the competitive status of

Cambodia's rubber industry, while the high cost of electricity and petroleum has continued to weaken competitiveness.

More importantly, the costs of exporting, particularly transportation cost, customs clearance efficiency and logistics competence, hidden expenses and the time involved in exporting remain critical challenges to improving the sector's export price competitiveness. Performance, albeit improved, tends to remain poorer than in other countries of the region. Cash-flow problems experienced by the rubber producers as well as poor credibility of the country's rubber grading system have weakened the sector's competitiveness even further as producers have had to enter into contracts with foreign buyers at discounted rates. Given the additional difficulties created by the current global economic crisis, it is crucial that the Government of Cambodia ensure strong collaboration with the private rubber planters and rubber smallholders in facing the mounting challenges to improving sectoral competitiveness.

The following actions should be taken by the Government in collaboration with the private sector and its development partners in order to improve the sector's currently weak competitive position:

- (a) Enhance rubber research activities through strong funding support for the Rubber Research Institute of Cambodia and promote the application of new rubber clones through testing on smallholder and private estates with collaboration and support from IRA and regional rubber associations, i.e., the Malaysian Rubber Board, the Rubber Research Institute of Thailand and the Viet Nam Rubber Association;
- (b) Expand rubber market access beyond the currently limited market destinations by exploring the opportunities and costs of potential markets;
- (c) Seek cheaper sources of electricity from neighbouring countries such as Viet Nam and the Lao People's Democratic Republic, where the cost of power supplies are lower than in Cambodia;
- (d) Reduce the rubber export tax further, as the recently introduced tax scheme remains higher than that in Thailand. In addition, cut back, or even eliminate if possible, the currently applied VAT of 10 per cent on domestic rubber sales, as that will to a certain extent help to solve the cash flow problem for exporters. Viet Nam, for example, currently applies VAT at 5 per cent on domestic sales;
- (e) Continue approving the currently voluntary grading certification for all rubber producers, as foreign buyers do not appear to trust Cambodian quality standard certification. Compulsory testing could adversely affect exporters' turnover;
- (f) Introduce a programme to promote international acceptance of the Cambodian grading system among buyers;
- (g) Provide rubber producers and processors with both short-term and long-term trade financing at an interest rate that is below the market rate, in order to solve the cash flow problems and the lack of funds needed for upgrading factory capacity. That, in turn, will reduce the need for price discounting.

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