

9. Trade in Sectors Important to the Poor: Rice in Cambodia and Vietnam and Cashmere in Mongolia

Jehan Arulpagasam, World Bank

Francesco Goletti, Agrifood Consulting

Tamar Manuelyan Atinc, World Bank

Vera Songwe, World Bank[†]

Trade liberalization has profoundly changed the determinants of national economic growth and social development. World trade is now growing much faster than world GDP, so that growth opportunities are typically greater for exports than they are for domestic sales. But the extent to which poor people, especially poor producers, benefit from expanded trade opportunities often depends on complementary measures designed to tackle behind-the-border constraints to efficient production and exports. These include measures to foster the development of competitive markets and public action to provide information, reduce transaction costs that are often high as a result of corruption, deliver public services, and address market and collective action failures. Poor producers are not only economically disadvantaged but often politically powerless, and when their interests are pitted against those of more powerful actors, they often lose. Understanding the institutional and political economy underpinnings of the organizational structure of a particular commodity or a sector is crucial for designing a set of measures that enables the poor to take fuller advantage of greater access to markets.

This chapter focuses on two sectors—rice in Cambodia and Vietnam and cashmere in Mongolia—and uses supply-chain analysis to inform policymakers about measures needed to ensure that the poor benefit more fully from global integration. Why rice and cashmere? For one important reason: In the countries considered, the two commodities provide a livelihood to the majority of poor people, and therefore any gains in productivity or the share of producers in the value chain will lead to improvements in poor people's welfare.

In Cambodia and Vietnam, as in much of Asia, most of the poor earn a living by growing rice, and the rice culture permeates the farming traditions of the region. In Mongolia, where the livestock herding tradition is centuries old, it provides a livelihood to the bulk of the rural population. These are traditional economic activities of the poor, determined by history and country context, and higher productivity and returns to producers in these subsectors would have a vital impact on the livelihoods of the poor.

Why value-chain analysis? The main remaining constraints to welfare improvements of poor producers engaging in rice and cashmere production are of a sectoral policy nature. Domestic trade policies, by and large, no longer represent important impediments, which means that exporters receive the undistorted price signals from international markets. At the other end of the export chain, producers have incentives to respond to price signals because they now

[†] The authors gratefully acknowledge helpful comments from Professor Florian Albuero and participants at seminars held at the Institute for Southeast Asian Studies of the National University of Singapore and the World Bank office in Ulaanbaatar.

have full property rights over their assets and/or the returns to those assets, thanks to increased security of land tenure in Vietnam and the privatization of livestock in Mongolia. But there are a host of institutional and policy constraints between the two ends of the supply chain that tend both to interfere in the transmission of the price signals and reduce the ability of poor producers to benefit from expanding opportunities. Value-chain analysis is a useful tool for understanding these constraints and proposing a set of measures to relieve them.

Value-chain analysis considers the behavior of each major participant (producers, processors, traders, exporters) in the system that links production to final consumption and provides a detailed account of the constraints the participants face at different stages of the chain.¹ The approach considers international trade relations as part of a series of networks of producers, exporters, importers, and retailers, whereby knowledge and relationships are developed to gain access to markets and suppliers. The relations among different participants in a sector, in turn, determine the means by which benefits are distributed within the chain and influence the way different actors try to improve their positions within the chain.² From the constraints identified, it is possible to derive policy recommendations to raise the returns of poorer households within the sector. These recommendations can then be validated and prioritized by using quantitative methods. Not all measures to eliminate constraints have to be conflictual in nature, implying a zero-sum game. In fact, the focus on the links among various actors in the value chain can be a powerful means for building consensus around proposed policy reforms.

The analysis in the rest of the chapter presents the considerable impediments that exist both to upgrading the value of rice and cashmere production and to increasing the share of poor producers in the value chains. In all three countries, powerful constituents appropriate rents through explicit preferences (credit for state-owned enterprises in Vietnam, export tax in Mongolia), industrial structure (near monopsony for a few millers in Cambodia) and corrupt practices that are tolerated (illegal fees) while poor producers remain trapped in low-productivity states in the absence of improvements in public service delivery (poor road network, inadequate research and extension, and so forth). The analysis shows that the poor can benefit from expanded opportunities presented by global integration, provided that these institutional constraints are addressed. Giving voice to poor producers' interests by placing these issues on the policy agenda is crucial for fostering reforms that unleash the productivity potential of poor people and increase their bargaining power.

¹ Kaplinsky defines the value chain as "the full range of activities...required to bring a product or service from conception through the intermediary phases of production, delivery to final consumers, and final disposal after use." Kaplinsky (1999), p. 121. The value-chain methodology derives from two strains of literature: the business literature on strategy and organization (Porter (2000)) and the literature on global commodity chains promoted by Gereffi and developed in numerous studies in the late 1990s (UNCTAD (2000)).

² Strategies to improve *relative positions* may involve cooperative solutions through vertical or horizontal integration within the chain; for example, farmers' associations may help improve the bargaining power of producers vis-à-vis traders, or direct contractual relations between smallholders and retailers might enhance the predictability and quality of supply for the retailer while increasing the producers' share in the value chain by cutting out the middlemen. Strategies may also be devised to improve the *overall value* in the chain through upgrading by upstream actors, which may take the form of either developing new, higher-value market niches or expanding the range of activities (for example, a manufacturer expanding into distribution or R&D). The role of governance structures is important in how such upgrading by suppliers occurs, as is the support of government and other institutions. UNCTAD (2000).

The first section of this chapter analyzes the value chain in rice in Cambodia and Vietnam and makes policy recommendations to address the constraints that face different groups of participants; it then validates these recommendations using quantitative methods and weighs their effectiveness in reducing poverty. The next section analyzes the cashmere value chain in Mongolia and makes policy recommendations, followed by a concluding section.

Rice and the poor in Cambodia and Vietnam

Rice is a central feature of life in Cambodia and Vietnam. More than 80 percent of the population in both countries is rural, and most of the rural population produce rice (Table 9.1).

Table 9.1: Rice in Cambodia and Vietnam

<i>Indicator</i>	<i>Unit</i>	<i>Vietnam</i>	<i>Cambodia</i>
Agriculture as a share of GDP/a	percent	24	39
Agricultural labor as a share of total labor/b	percent	69	85
Rice as a share of total cultivated area/c	percent	64	84
Rice as a share of GDP in agriculture/d	percent	35	22
Share of rural households growing rice/e	percent	80	78
Share of rural households selling rice/f	percent	47	na
Rice exports/g	000 mt	3,600	310
Rice exports/h	\$ million	644	55
Rice exports as a share of agricultural exports/i	percent	27	51
Agricultural exports as a share of total exports/j	percent	16	12
Total production of rice/k	000 mt	20,150	2,600
Total rice production/capita/l	kg/capita/year	252	217
Share of rice in total calorie consumption/m	percent	64	70
Budget share of rice in rural household food budget/n	percent	36	29
Budget share of food in total rural household expenditures/o	percent	51	69

Notes:

a. Data for Vietnam refer to 1999 and data for Cambodia refer to 2001.

b. Data for both Vietnam and Cambodia refer to 1998.

c. Data for Vietnam refer to 1999 and data for Cambodia refer to 2000.

d. Data for Vietnam refer to 2000 and data for Cambodia refer to 2001.

e. Data for Vietnam refer to 1998 and data for Cambodia refer to 2002.

f. Data for Vietnam refer to 1998.

g. Data for Vietnam refer to 2001 and data for Cambodia refer to 2001 and include rice equivalent of 400,000 tons of paddy.

h. Assume average price for Vietnam of US\$179/ton and for Cambodia paddy at US\$90/ton and rice at US\$350/ton.

i. Data for Vietnam refer to 2000 and data for Cambodia refer to 2001.

j. Data for Vietnam refer to 2000 and data for Cambodia refer to 2001.

k. Data for Vietnam and Cambodia refer to 2001.

l. Data for Vietnam and Cambodia refer to 2001.

m. Data for Vietnam refer to 1998 and data for Cambodia refer to 1998.

n. Data for Vietnam refer to 1998 and data for Cambodia refer to 1998.

o. Data for Vietnam refer to 1998 and data for Cambodia refer to 1999.

Sources: Statistical Yearbook 2001 and Cambodia Socioeconomic Survey 1999, National Institute of Statistics, Ministry of Planning, RGC. Statistical Yearbook various issues, and Vietnam Living Standard Survey 1998, Government Statistics Office, SRV. World Bank Team, 2002.

Rice covers most of the cultivated area (64 percent in Vietnam and 84 percent in Cambodia) and makes major contributions to agricultural GDP (35 percent in Vietnam and 22 percent in Cambodia) and to agricultural exports. It is the main staple food, representing 60-70 percent of the calories in the diet of the average rural household and absorbing about 30 percent of household expenditures. Food security in both countries is closely identified with rice, as testified by recent history.³

Poor households contribute 15-25 percent of total rice production, cultivating very small holdings. The average poor household has a rice landholding of less than a hectare in Cambodia and less than half a hectare in Vietnam (Table 9.2). In Vietnam, most farmers outside of the productive Mekong and Red River Deltas grow rice on small plots for subsistence reasons.

Table 9.2: Land size and rice profit

<i>Indicator</i>	<i>Cambodia</i>	<i>Vietnam</i>
Average landholding size	1.71	1.08
Average size of cultivated rice land (ha/household)	0.99	0.87
Average household size	5.3	4.9
Size of cultivated rice land by the poor (ha/household)	less than 1 ha	less than 0.5 ha
Rice production gross margin on labor (\$/ha)	49	96
Rice production gross margin, including labor (US\$/ha)	147	216

Notes:

a. Information for Cambodia. See Goletti, Bhatta, Srey (2002), and ACI (2002a).

b. Information for Vietnam. See ACI (2002b).

Income per hectare of rice ranges between US\$100 and US\$250. For the poor, rice provides a smaller share of total income than for the average rice farmer (Table 9.3).

Table 9.3: Rice and income of the poor

<i>Indicator</i>	<i>Cambodia</i>	<i>Vietnam</i>
Rice as a share of total farmers' income	50.4	42.5
Rice as a share of income of the rural poor	40.4	47.5

Sources: Cambodia: Goletti, Bhatta, and Srey (2002); Vietnam: Minot and Goletti (1998).

Most of the poor in both countries grow traditional rice varieties that, unlike modern high-yielding varieties (HYVs), can thrive on poor land with few modern inputs. These varieties usually fetch higher prices than HYV rice, because their quality is better and local consumers prefer them. There is limited scope for increasing rice yields in the Mekong and Red River Deltas, but there is considerable scope in more remote and mountainous areas of Vietnam, and in all provinces of Cambodia.

³ For a brief history of rice cultivation in the two countries see the Appendix to this chapter, at <http://www.worldbank.org/eaptrade>.

Rice exports

In both countries, liberalization policies have pushed up rice supply considerably over the past decade, at average rates of 4-5 percent a year, mostly as the result of increases in yield and cropping intensity.⁴ The production increases have allowed both countries to achieve self-sufficiency and to export rice. Vietnam has become a major player in international markets; with 3.5 to 4.5 million tons of exports, it is now the world's second largest exporter after Thailand (Appendix table 3). Cambodia has started to export rice to international markets (316,000 tons currently) and paddy to Vietnam.

The values of rice exports are significant for both countries. For Vietnam, they range from US\$600 million to US\$1 billion and represent 30-50 percent of agricultural trade. For Cambodia, rice plus paddy exports provide around US\$40 million and represent about 40 percent of agricultural exports, surpassing rubber and forest products.

Cambodia and Vietnam have a comparative and competitive advantage in rice relative to other regional and international rice producers, as shown in the Appendix to this chapter.⁵ The computed domestic resource costs for different rice varieties and production patterns show that both Vietnam (with domestic resource cost ratios for rice ranging from 0.42 to 0.66) and Cambodia (with domestic resource cost ratios for rice ranging from 0.87 to 0.77) have a comparative advantage in rice and would gain significantly from using more efficient farming practices.⁶

Prospects for export expansion

Exports are likely to be the main driver of further production expansion in rice in the medium term, given that domestic demand for rice is unlikely to grow much faster than the population (at 2 percent a year). The world rice market is thin and growing only slowly, but it presents good opportunities for export gains by countries such as Vietnam and Cambodia that have a comparative advantage in rice, especially if global trade liberalization continues in the direction indicated by Uruguay Round trade negotiations. The competition is with few main suppliers, and the customers are many, with diverse preferences.

Currently Cambodia and Vietnam have a 2 percent and a 16 percent share of world rice exports, respectively, and if they want to maintain or increase their shares, they will need to maintain or increase their productivity relative to that of competitors. Their success will also depend on establishing links with value chains that go beyond their national boundaries.

Some opportunities for export gains may lie in diversifying into higher-quality rice. Rice comes in many varieties, grades, standards, and qualities. Thailand, as a highly successful rice exporter, has been able to accommodate the diverse requirements of foreign markets—for some high-quality, some low-quality, some fragrant, some nonfragrant, some long-grain,

⁴ OPCV (2002); ANZDEC (2000).

⁵ At <http://www.worldbank.org/eaptrade>.

⁶ Domestic resource cost is an indicator of comparative advantage. It measures the ratio of value added from domestic, nontraded activities to the foreign exchange earned or saved from domestic production. A DRC less than one suggests comparative advantage and efficiency in production.

some short-grain, some parboiled, some normally milled, and so forth. If a producer like Vietnam remains focused on delivering on contracts for low-quality rice, it will lose the opportunity to export to other markets, to diversify its clientele, and possibly to increase its overall market share.

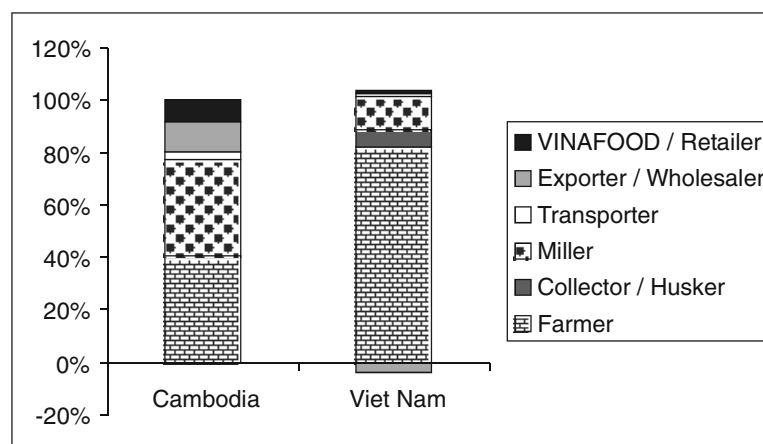
In neither Vietnam nor Cambodia does trade policy per se offer significant further promise for expanding rice exports. Most of the traditional instruments of trade policy have already been used.⁷ Some difficulties in import and export still exist as a result of irregularities, mostly corruption and weak institutions (inspection, customs, shipping, accounting, banking), but barriers to interprovincial trade have been lifted in both countries. Further progress in trade liberalization is certainly possible, but the most effective way to promote rice exports in both countries seems to be sector policy rather than trade policy.

Even if rice exports expand successfully, both Vietnam and Cambodia will face challenges in ensuring that the expansion benefits the poor. What can value-chain analysis tell us about the specific constraints and challenges for Vietnam and Cambodia in expanding rice exports as an element of a strategy for poverty reduction?

Value-chain analysis: Constraints on production and trade, and policy options

Numerous actors take part in the value chain that links rice producers to final consumers: farmers, collectors, millers, wholesalers, retailers, state-owned enterprises, and exporters. Other participants include transporters, seed companies, agrochemical companies, agricultural equipment companies, irrigation companies, shipping companies, port authorities, banks, inspection agencies, commerce and tax departments, agricultural departments, farm organizations, miller organizations, research organizations, extension organization, policymakers, and consumer organizations (Figure 9.1).

Figure 9.1: Profit shares for rice value chain in Cambodia and Vietnam



⁷ Quotas have been lifted, export taxes are zero, import tariffs are low in Cambodia (7 percent) and, even though they are relatively high in Vietnam (at 30 percent), they are not binding.

Producers are not the dominant actors in the chain in either Cambodia or Vietnam; nor are there powerful retailers nor multinationals. In Vietnam, a good deal of power rests with a state-owned enterprise engaged in rice trade, particularly through government-to-government contracts involving large amounts of low-quality rice. In the case of rice in Cambodia, power lies with a few large millers oriented to high-quality exports, a new Rice Millers' Federation, and traders who ship paddy to Vietnam.

The sections that follow briefly analyze the characteristics, constraints, and behavior of each of the main groups of participants, and draw policy recommendations for improving efficiencies and distribution in each country.⁸

Cambodia

Farmers. Cambodian rice farmers face serious constraints on increasing productivity and output quality. These include the lack of breeding-seed stock, many farmers' lack of title to the land they farm (which discourages them from investing in improvements), and a lack of access to commercial credit, in part because credit application procedures are discouraging and not tailored for small loan sizes. Water-use systems, where irrigation is available, are highly politicized, with pervasive free riding, and many farmers struggle to subsist on rice production from plots that are just not suited to rice production.

Increased public investment is needed to maintain the breeder stock of seed, particularly for the traditional rice varieties that the poor grow. This should be complemented through an appropriate institutional framework to ensure that research centers focus on basic research and varietal development, while private companies focus on the multiplication and sale of certified seed. Efforts also need to be redoubled to implement the land law and raise public awareness of land rights, while improvements in the functioning of water user groups would go a long way to raise productivity and returns. Those farmers who cannot profitably produce rice because of poor natural resource endowments should be encouraged to diversify into other products, helped by agricultural extension and advisory services.

Processors/millers. Rice processing, too, faces some key constraints. The few millers that do operate have monopsony power, allowing them to capture higher margins than if the milling link were more competitive (Figure 9.1). Reliance on obsolete milling equipment results in high levels of broken rice, reducing the value of the crop. Poor paddy quality, in the form of mixed varieties of seeds and inadequate postharvest handling, also increases the percentage of broken rice and lowers the price earned by most farmers. Millers' lack of working capital, and the high cost of credit, limits their ability to buy paddy from farmers and update their machinery. This encourages the unofficial export of paddy to Vietnam and Thailand and prevents the country from capturing the value added from rice milling. Rice millers have limited access to foreign markets, given their inability to produce consistent amounts of standardized varieties of milled rice and their lack of information about foreign market conditions.

⁸ The background papers for this chapter contain a detailed analysis of constraints for each actor along the chain. See ACI (2000a and b). Based on these papers, a more extensive analysis of the specific constraints and policy recommendations relating to each link of the value chain is detailed in Appendix tables 9-12, at <http://www.worldbank.org/eaptrade>.

Milling is the key bottleneck in the rice value chain in Cambodia. Millers and farmers have important unexploited opportunities for collaboration to encourage more productive cultivation of paddy as well as better sorting and postharvest handling; farmers' associations have linked with millers and processors in Angkor Kasekam, providing a model that could well be replicated elsewhere. More important still is increased competition in milling to help reduce milling margins in Cambodia that are substantially higher than those in Vietnam, and increase prices to poor producers. Efforts to build capacity (both private and public) in marketing information services would be useful to improve knowledge among participants in the rice marketing chain.

Distributors: Retail and export. Poor roads dampen production incentives and reduce market access. Unofficial checkpoints and port fees raise the costs of rice for Cambodian consumers and lower the competitiveness of all Cambodian rice products, including those bound for export. Nearly half of transport fees are unofficial costs. In addition, exporters are constrained by their inability to obtain consistent amounts of a standardized quality of milled rice.

Increased investment to improve roads, railways, and ports, and to strengthen the market information system, would reduce transactions costs and raise the profits to actors along the chain. So, too, would efforts to put into place transparent rules for export clearance and to build capacity in legal institutions to facilitate export transactions. Reducing transactions costs and marketing margins can go a long way to improve returns.

Vietnam

Farmers. Vietnamese farmers seeking credit face complicated borrowing procedures and unsuitable repayment schedules. They have difficulty obtaining high-quality seed, in the absence of standardized seed specifications. And they are charged the same irrigation fees regardless of how much water they use and despite the poor quality of service.

As in Cambodia, Vietnam's research institutes and universities should focus on seed research and varietal development, while commercial seed companies focus on seed multiplication and sale of certified seed. Irrigation fees should be set on the basis of metered water use rather than area irrigated (at least at the level of farmer groups), and set at levels high enough to cover capital costs and operations and maintenance. As in Cambodia, research is needed into alternative land-use options and possibilities for diversification, especially for farmers that do not have appropriate land or other endowments for productive rice farming.

Processors/millers. Rice processing and distribution face a number of key constraints. Vietnam's milling sector is in transition from a bimodal structure—with a large number of small and medium-sized mills catering to the domestic market and a few large mills catering to the export market—to a more modern industry with fewer, larger mills. Technology in the domestic milling sector is often outdated, resulting in high levels of broken rice, and, as in Cambodia, millers are fundamentally constrained by a lack of working capital. Small millers are also constrained by their limited storage space, as well as by shortages of electricity in some cases. In the large milling sector, the preferential credit arrangements for state-owned mills hamper the ability of the private sector to compete effectively. The awarding of

government-to-government contracts to state-owned mills also prevents the expansion of the export base to private mills.

Interventions are needed to improve postharvest storage facilities and build the financial management capacity of millers. Leveling the playing field between state-owned and private mills would also foster enhanced private sector involvement in the milling sector. And, as in Cambodia, there is much to be gained by encouraging collaboration between farmers and millers, with millers providing seed and other inputs and enhancing the incentives to supply higher-quality, less breakable paddy that would realize higher prices.

Distributors: Retail and export. Rice distribution in Vietnam is hampered by inadequate infrastructure, particularly in areas outside the Mekong River Delta, while a multilayered distribution system between producers and millers/exporters makes it difficult for the latter to obtain high-quality inputs. State-owned enterprises benefit from preferences and are able to borrow the entire value of a contracted shipment of rice, while private firms can borrow only up to 70 percent. Rice exports from Vietnam are vulnerable because they are of relatively poor quality and go to only a limited number of markets. Most exports go through a small number of distributors, and most sales are made through government-to-government contracts.

Improving physical infrastructure, particularly in remote and mountainous regions, would lower transactions costs. Rationalizing state-owned enterprises, permitting their equitization, and leveling the playing field by removing their preferential access to credit arrangements would foster greater private sector participation and efficiencies in this link of the chain. To encourage the diversification of export outlets, simple steps such as the development of overseas trade promotion activities and strategy can help. Increased efficiency, lower transactions costs, and better placement of a final, higher-quality product would raise prices, lower costs, and benefit the various actors along the value chain.

Overview of recommendations

To the extent that the poor are able to benefit from increased production, they will also benefit from trade. Most poor households in Vietnam and Cambodia are farm households, and since 80 percent of farmers grow rice, the poor are likely to benefit from any improvement in rice productivity or value added. They are likely to benefit most from improvements in productivity and technology associated with traditional varieties, so short-term strategies to reduce the numbers in poverty and the severity of poverty should focus on how to increase returns from these varieties. Actions are needed to improve production technologies for traditional varieties, moderate postharvest losses,⁹ introduce increased competition and more modern technology into milling, strengthen infrastructure, and lower transactions costs (including illegal fees). Particularly significant will be efforts to develop farmer organizations: The development of institutions and markets that increase information about prices and permit the agents in a value chain to form strategic alliances can play an important role in increasing returns to players such as poor smallholder farmers.

⁹ These losses occur at different stages after harvest and are the results of moisture, pests, rodents, outdated milling technology, and pilferage. Losses at the village level can be substantial, at 5-20 percent of production.

The role of the public sector in direct investments to increase productivity should be limited to providing irrigation, where irrigation is economically viable. Elsewhere the public sector should play an enabling role, both through legislation and through provision of services—especially improved infrastructure and public policies to reduce the transaction costs of providing credit.

Effects on poverty

For convenience, the recommendations that emerge from the value-chain analysis are grouped as strategic options related to improvements in productivity, postharvest technology, and infrastructure and chain management (Table 9.4).¹⁰ This section uses quantitative methods, applied to household data, to evaluate these options and explore their effects on different participants within the value chain.

Table 9.4: Strategic options for rice

	<i>Option</i>	<i>Adoption of Option</i>
Productivity	Green Revolution Package	Dry season Cambodia
	Improvement in traditional varieties	Wet season Cambodia Upland areas in Vietnam
Postharvest technology	Reduction in postharvest losses	Cambodia, Vietnam
	Improvement in milling	Cambodia, Vietnam
Marketing and chain management	Improvement in road and port infrastructure	Cambodia, Vietnam
	Reduction in transaction costs	Cambodia, Vietnam
	Niche market (specialty rice)	Cambodia, Vietnam
	Level playing field	Private sector and SOE, Vietnam

Aggregate effects

A multimarket model was built with which to explore the probable effects of the various policy options on aggregates including production, exports, and agricultural incomes. The results reported in Table 9.5 show that a combination of different approaches is needed to improve the income generated by the value chain. Improvements in productivity, postharvest technology, and marketing and institutions can go a long way to increase exports and agricultural income.

¹⁰ Details of these options are described in the Appendix to this chapter, at <http://www.worldbank.org/eaptrade>.

Table 9.5: Effects on rice production, income, and exports of various policy options

		<i>Percent Change in</i>			
	Option	Rice Production	Agricultural Income	Rice Exports	
Cambodia	Improvement in productivity	Green Revolution	4	1.5	31
		Traditional varieties	15	7	228
	Improvement in postharvest	Milling technology	3.1	1.3	24
		Postharvest losses	4.6	2	37
	Marketing and chain management	Marketing cost farm-port	1.6	5	25
		<i>Percent Change in</i>			
Vietnam	Improvement in productivity	Yield improvement	18.2	1.2	39
	Improvement in postharvest	Milling technology	0.5	0.37	12
		Postharvest losses	1.31	0.1	1

Source: Authors' simulation of multimarket model; see ACI (2002a).

Clearly, to guide the design of policy, it would be necessary to make more explicit the costs involved and the time frame required to implement different options. Even so, however, some useful insights can be obtained from a qualitative analysis such as that reported in Table 9.6.

Table 9.6: Qualitative analysis of strategic options for Cambodia

<i>Cambodia</i>	<i>Option</i>	<i>Benefit in agric income</i>	<i>Cost</i>	<i>Benefit /cost ratio</i>	<i>Time frame</i>
Improvement in productivity	Green Revolution	2	4	0.5	3-10 years
	Traditional varieties	5	3	1.7	3-10 years
Improvement in postharvest	Milling technology	1	1	1.0	3-5 years
	Postharvest losses	3	2	1.5	3-5 years
Marketing and chain management	Marketing cost farm-port	4	5	0.8	5-10 years

Note: Scoring method: 1=lowest, 2=low, 3=average, 4=high, 5=highest.

Effects on farmers and the poor

What are the marketing margins and profits of the different participants in the value chain? Table 9.7 and Table 9.8 report these at each level of the chain for rice in Cambodia and Vietnam.¹¹ Farmers and millers have the largest marketing margins and profit margins¹² in

¹¹ This breakdown may not be an appropriate metric for cross-country comparisons of the efficiencies of agents (such as farmers), because farmers in some countries may take on more functions (for example, postharvest

both countries but the distribution of profits differs; Cambodian millers capture a much higher share of profits than their Vietnamese counterparts.

Table 9.7: Marketing costs and margins for rice in Cambodia, 2002

	<i>Inputs</i>	<i>Farmer</i>	<i>Collector</i>	<i>Miller</i>	<i>Transporter</i>	<i>Wholesaler</i>	<i>Retailer</i>	<i>Total</i>
Transport cost			15		26.5	10.00		
Operating cost				34.22		6.03		
Input cost		355.02	453.24	469.74	526.72	561.72	605.06	
Total costs		355	468	503.96	553.22	577.75	605.06	
Price received	355.02	453.24	469.74	526.72	561.72	605.06	625.06	
Value of byproduct				65.52				
Total revenue	355.02	453.24	469.74	592.24	561.72	605.06	625.06	
	355	98	1.5	88.3	8.5	27.3	20.0	243.81
Profit		21.7%	0.32%	14.9%	1.5%	4.5%	3.2%	
Percent of total profit		40%	0.62%	36%	3%	11%	8%	100%
Marketing margins	56.80%	15.71%	2.64%	9.12%	5.60%	6.93%	3.20%	27.49%
Markup over farm gate price		0%	3.6%	31%	24%	33%	38%	

Notes: 2 tons/ha yield, transport from Battambang to Phnom Penh. Riel per kg of paddy rice. Milling recovery 0.64.
Source: Derived from data collected by World Bank Study Team July 2002.

Table 9.8: Marketing costs and margins for export rice in Vietnam, 2002

	<i>Inputs</i>	<i>Farmer</i>	<i>Collector/ Husker</i>	<i>Large miller</i>	<i>Transporter</i>	<i>Exporter</i>	<i>VINAFOOD</i>	<i>Total</i>
Transport cost			32	4.62	2.64			
Operating cost			37	47.52	14.3	13.00		
Input cost		1,000	1,600.00	1,717.10	1,716.00	1,742.37	1,727.88	
Total costs		1,000	1,669	1,769.24	1,732.94	1,755.37	1,727.88	
Price received	1,000	1,600.00	1,717.10	1,716.00	1,742.37	1,727.88	1,736.86	
Value of byproduct				144.10				
Total revenue	1,000.00	1,600.00	1,717.10	1,860.10	1,742.37	1,727.88	1,736.86	
	1,000	600	48.1	90.9	9.4	-27.5	9.0	729.88
Profit		37.5%	2.80%	4.9%	0.5%	-1.6%	0.5%	
Percent of total profit		82%	6.59%	12%	1%	-4%	1%	100%
Marketing margins	57.58%	34.55%	6.74%	-0.06%	1.52%	-0.83%	0.52%	7.88%
Markup over farm gate price		0%	7.3%	16%	9%	8%	9%	

Notes: Dong/kg paddy equivalent. Milling recovery: brown rice 0.77, white rice from brown rice 0.85, white rice from paddy 0.66. Export price: 15 percent broken rice US\$172/tonne = 2632 dong/kg.
Source: Derived from data collected by World Bank Study Team July 2002.

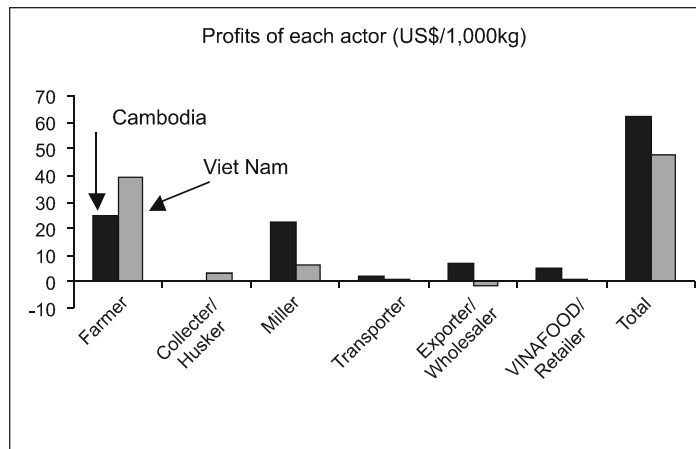
In absolute terms, Cambodia's rice value chain realizes a higher profit than Vietnam's (Figure 9.2), partly because Cambodia exports higher-quality paddy than does Vietnam. Cambodia's farmers realize lower unit profits than their Vietnamese counterparts. On average, their rice land is only half as productive as that in Vietnam, but the average Cambodian rice farmer has more than twice as much land as his Vietnamese counterpart.

storage) than they do in other countries. In Vietnam and Cambodia, however, the comparison would appear to be appropriate.

¹² In Cambodia, these two groups together get about 80 percent of the profits, whereas in Vietnam they get about 90 percent of the profit (Figure 9.1 above).

These features suggest that efforts to reduce poverty by raising productivity might be more effective in Cambodia than in Vietnam. Because rice production represents between 30 and 50 percent of the incomes of the poor in the two countries, even small improvements in productivity can lead to important direct income gains for the poor. In addition, the combined effects of higher productivity for millions of small rice farmers could be dramatic increases in rural nonfarm activities.

Figure 9.2: Profit structure for rice value chain in Cambodia and Vietnam (US\$/ton)



To assess the overall direct impact on the poor of the proposed improvements in the rice subsector would require a more in-depth model, based on household data such as those available from living standards surveys, that would trace the microeconomic behavior of poor households. There is little doubt that higher consumer prices for rice will hurt households that are net consumers of rice, including the urban poor. Also, it is clear that net sellers of rice in rural areas would benefit from higher prices or increased trade volumes. The issue for an in-depth study would be to look at the distribution of poor households in rural areas, understand who is going to be a net buyer or net seller, and consider the effect of changes on each category in detail. To the extent that farm-gate prices of paddy increase more than retail prices for rice, not only net sellers of rice but also some of the net buyers will benefit from increased exports, and a reduction of overall poverty might result.¹³

Rice farmers in both countries have limited capacity to capture a larger share of the profit or marketing margins produced along the value chain. Comparisons of four countries at increasing levels of development suggest that the marketing margins of farmers are smaller in the less developed economies than in the more developed economies (Table 9.9). As national income per capita increases, farmers get a progressively bigger size of the total price (higher margins) and higher profits. The reasons farmers get less in Cambodia and Vietnam than in the other countries shown are partly related to infrastructure and partly to political economy. In the United States, where the farm lobby has garnered substantial subsidies, leading to farm-gate prices higher than f.o.b. prices, farmers are better positioned to influence decisions than are farmers in Cambodia, who have very small and dispersed holdings, are

¹³ Minot and Goletti (1998).

less effective in influencing policy, and face relatively much higher costs for transport, processing, marketing, credit search, and information.

Table 9.9: Marketing margins of farmers in different countries

<i>Country</i>	<i>Marketing margin of farmers Farm price / f.o.b. price (%)</i>
Cambodia /a	72
Vietnam /a	80
Thailand /b	90
US\$ /c	111

Sources:

a. Field work of World Bank Study Team, July 2002.

b. Personal communication from Tom Slayton, October 2002.

c. Data from USDA (2001).

Policies that promote infrastructure, information systems, and farm organizations will help to transfer some of the benefits to farmers. Better infrastructure will lower the cost of transport from the farm gate to the port and lower the marketing costs of traders. For farmers, that will likely result in higher prices and a greater share of the value added. Better information systems will help farmers adopt better technology and orient marketing agents toward the higher-quality rice that is demanded by international markets. The result will be higher production and higher prices for the raw material; both suggest that farmers will capture a larger share of the value added. The promotion of farm organizations will raise the bargaining power of farmers vis-à-vis millers, traders, and exporters. The development and strengthening of farmers' organizations, and their alliance with milling firms and other agencies in the value chain, can lead to substantial improvements in efficiencies and quality.

Cashmere and the poor in Mongolia

Mongolia produces one-fourth of the world's supply raw cashmere and is the world's second largest producer after neighboring China. Annual production over the last decade has more than doubled. All cashmere production is traded and almost all is exported; cashmere exports of US\$90 million accounted for 17 percent of official exports in 2000 (Table 9.10).¹⁴

The cashmere subsector provides incomes to more than a third of the country's 2.4 million people. It is the single largest employer—providing jobs for more than 16 percent of the work force and accounting for more than 6 percent of GDP in 1993–2001¹⁵—and it is a principal source of livelihood for Mongolia's poor. Average household income from cashmere for herding households is estimated at US\$220 in 2001. There is substantial variation around this average, however, with 44 percent of livestock herding households earning less than US\$100 a year, another 44 percent earning between US\$100 and US\$500, and the remaining 12 percent earning more than US\$500.¹⁶

¹⁴ These figures considerably understate the importance of the industry to the Mongolian economy, as about 45 percent of the raw cashmere produced in 2000—worth about US\$50 million—was smuggled to China.

¹⁵ At <http://www.worldbank.org/eaptrade>.

¹⁶ Mongolian National Statistics Office, 2001 Household Income and Expenditure Survey.

Table 9.10: Cashmere in Mongolia

<i>Indicator</i>	<i>Unit</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>
Agriculture as a share of GDP	percent	39.9	40.3	34.2	28.4
Livestock sector as a share of GDP	percent	36.1	36.8	30.8	24.8
Agricultural labor as a share of total labor	percent	49.7	49.5	48.6	48.3
Goat herd as a share of total livestock	percent	33.6	32.9	34.0	36.8
Cashmere production as a share of GDP	percent	3.5	6.7	11.7	5.7
Cashmere exports/a	tonnes	1,812.1	3,499.6	2,770.6	2,369.1
Cashmere exports/b	\$ million	38.7	70.3	90.1	67.8
Cashmere exports as a share of total exports	percent	8.4	15.5	16.8	13.0
Cashmere exports as a share of agricultural exports/c	percent	41.6	53.7	53.8	50.0
Agricultural exports as a share of total exports/d	percent	17.3	24.7	26.5	24.5
Total production of cashmere	tonnes	3,126.7	3,194.8	3,084.5	2,930.0
Total cashmere production/capita	kg/capita/year	1.3	1.3	1.3	1.2
Cashmere revenue/capita	US\$	15.2	26.5	49.1	25.0
Share of cashmere revenue/capita in GDP/capita	percent	3.8	6.9	12.2	6.0
Total cashmere production/household with livestock	kg/capita/year	11.4	11.8	11.5	11.4
Cashmere revenue/household with livestock	US\$	124.4	223.4	423.4	229.0
Share of cashmere revenue/households with livestock in GDP/capita	percent	31.1	55.9	105.9	57.3
Livestock/capita	Head	13.6	14.1	12.6	10.7
Livestock/household with livestock	Head	119.6	124.4	112.5	101.6
Goats/capita	Head	4.584103	4.648397	4.265930	3.983966
Goats/household with livestock	Head	40.2	40.9	38.2	37.4

Notes:

a. Data for semiprocessed and finished cashmere products converted to raw cashmere.

b. Official exports, value of the smuggled cashmere is not included.

c. Here, the finished cashmere products (tops and garments) are excluded from total cashmere exports and agricultural exports.

Source: National Statistical Office of Mongolia, 2001 and staff estimates.

When COMECON collapsed in 1991, Mongolia privatized collective farms and livestock and removed price controls, fueling a boom in the livestock sector and ushering in substantial increases in the livestock population. The number of cashmere goats doubled, to 10.3 million by the end of 2000. Per capita incomes for herders rose from about US\$30 to US\$55 between 1991 and 1996. The characteristics of the herder population changed, too: The number of herding households more than doubled during the 1990s, to 185,500 (one-third of households nationwide) in 2001, reflecting an influx of nontraditional herders.

There are now three groups of herders in Mongolia, distinguished by herd size, income levels, and grazing techniques. The first group is made up of households that were in poverty after the collapse of COMECON and moved into cashmere production for lack of alternative

income opportunities.^{17,18} Unlike traditional herders, most of these families own small herds of up to 100 goats that they graze on common areas, and more than 30 percent of them—with fewer than 30 goats on average—live in urban areas. Their average annual income from cashmere sales in 2000 was less than US\$55 per capita. Their intensive and stationary herd management is a major source of serious land degradation. As their livestock numbers have increased, land degradation has become more acute, imposing costs both on the poor and the state. Overgrazing increases the incidence of respiratory diseases from dust and lowers productivity, as herders have to travel further to tend their stock. It also exacerbates the impact of harsh winters on animals and on the households that depend on them. These households have been able to operate at the margin thanks only to the implicit subsidies—free public land and water—and explicit subsidies—free restocking of goats after the devastation of livestock in the successive harsh winters of 2000 and 2001. Taking account of the cost of inputs and land degradation, the social returns from their livestock practices may be negative.

The second group of herders, which own herds of 101 to 500 head, accounts for the bulk of cashmere production. They own 38 percent of the national herd and produce more than 65 percent of Mongolia's cashmere. Most live in rural areas, previously worked in state-owned livestock cooperatives, have herding experience, and bought livestock using vouchers when collective enterprises were privatized. They depend almost entirely on livestock herding for income. Not all these herders are poor, but all are vulnerable to bad weather and changes in demand conditions.

The third group makes up 2 percent of all herder families and produces about 3 percent of Mongolian cashmere. These households are considered rich and are generally not at risk.

Both the second and third groups of herders are nomadic and can afford to move to three or more different camps a year; they have access to winter shelters by tradition or kinship, and have longer experience in selecting and occupying rangeland in distant areas.¹⁹

Potential gains for the poor from trade in cashmere

Because a high share of production is exported, the cashmere subsector in Mongolia is much more directly influenced by trends in the international market, including quality standards, than is the rice sector in Cambodia and Vietnam.

¹⁷ PLSA (2001).

¹⁸ The collapse of the Soviet Union ushered in a difficult period of transition for Mongolia. The Mongolian economy imploded, and real GDP declined by 20 percent between 1989 and 1993. The one bright spot was the expansion in agriculture and herding, fueled by wholesale privatization in the livestock sector in 1991. The privatization of livestock using the voucher system was largely equitable and successfully put assets in the hands of poor households. Every Mongolian citizen received vouchers worth Tg 10, 000 (roughly US\$10 dollars) for the purchase of state assets, particularly livestock and small businesses, but only members of state-owned cooperatives (about 40 percent of the population) could use vouchers to purchase livestock. The voucher distribution system was not economically optimal, as it created incentives for production but encouraged suboptimal herd sizes. Over time there was an increasing concentration to yield an economically sustainable herd size, but this process was interrupted in 1999 by external shocks.

¹⁹ Source: Participatory Living Standard Assessment, 2001.

Looking ahead, there are many reasons for optimism about the international market. Demand for luxury goods is growing worldwide and is well balanced globally. Demand for finished cashmere articles is highly income-elastic, and trade in cashmere and cashmere products is likely to continue growing.²⁰

Quality is an important consideration in assessing Mongolia's prospects for expanding export earnings and incomes. Mongolia has historically supplied some of world's best cashmere, but quality has declined significantly over the last 15 years as the country's production has increased. Quality cashmere commands a 30-40 percent price premium in international markets, and quality discounts cost Mongolian herders about US\$18 million in 2001—23 percent of income for the average household with livestock.

Higher export earnings from cashmere would help to boost the incomes of a large number of Mongolians, and though we do not have information about the relative position of herder households in the income distribution, it is clear that many of them represent the poorest segments of Mongolian society. There are questions, however, about the sustainability of cashmere production as a livelihood for households in the first group described above.

Value-chain analysis: Constraints on production and trade, and policy options

Numerous actors—herders, traders, processors, retailers, and exporters—take part in the value chain linking producers to final consumers. Others include veterinary service providers, local and central government officials, herder organizations, graders, and external partners, including donors and nongovernmental organizations. Most of the power within the value chain resides with the state-owned processing firm and retailer, Gobi; herders are the largest group of actors but perhaps the least powerful.

This section focuses on the policy and institutional constraints faced by each of the main actors and suggests possible policy responses. As with rice in Cambodia and Vietnam, many of the constraints in the sector represent shortcomings of sectoral policies and institutions rather than of trade policy.

Herders

Herders face several serious impediments in improving the quality and expanding the supply of cashmere without undue environmental damage. The combination of easy entry into cashmere production and failing institutions for key inputs has led to deterioration in water supply, collapse of the fodder industry, and the absence of pasture management. They have put pressure on environmentally fragile land and increased both the private and social costs of production.

Mongolia's existing legal and administrative mechanisms for controlling grazing are unlikely to be able to resolve the problems of land degradation. The primary input for cashmere—grazing and pastureland—continues to be a public good, and privatization is not a realistic

²⁰ Trends in the global cashmere market are outlined in the Appendix to this chapter at <http://www.worldbank.org/eaptrade>.

option.²¹ To strengthen social controls would require introducing provisions in the land law to allow groups of herders, organized as legal entities, to exclude others from well-defined areas of pastureland. Other options include land user fees, the feasibility of which would need to be assessed, or modifications to the head tax on livestock to ensure it reflects the social costs associated with land degradation.²² Improvements in land-use laws or a revision of the livestock tax would provide incentives for herders to rationalize their stocks, pool resources, and employ more efficient grazing techniques. Imposing fees on land use would also spur the development of a sustainable fodder market. Rehabilitating water bores is crucial to increased livestock productivity and supply and could generate rural employment. Bores and wells are constitutionally the responsibility of local government administrators, but the USAID-funded Gobi Initiative has shown that herders are willing to pay for water facilities if exclusive use is guaranteed. Support from government and donor agencies is needed in scaling up this successful public-private partnership nationwide.

Managing herders' vulnerability: Mongolia is vulnerable to severe winters.²³ Better herding practices can help mitigate the impact of severe weather, but herders will remain highly vulnerable without insurance. Only about 0.3 percent of Mongolia's livestock was insured in 2001.²⁴ The cost to the government of providing subsidized fodder and other disaster relief services in that year is estimated at about Tg 12 billion (about 1.1 percent of GDP).

A well-developed insurance market for livestock could reduce these costs substantially for the government and help stabilize herders' incomes. There are important challenges to the development of insurance options, including herders' nomadic lifestyle, the difficulties of gathering adequate information on herd management techniques, and the lack of sufficient skills and information to determine appropriate insurance premiums. But recent pilots aimed at providing index-based livestock insurance provide a good start to the introduction of market-based techniques for addressing risks.²⁵ Persistence of an implicit government guarantee of livestock assets will discourage the development of an insurance market and retard the needed exit of marginal producers; donors and the government need to desist from restocking herds free of charge and at levels too high for long-term sustainability.

²¹ Private ownership is prohibited under the Constitution and the 2002 Land Laws. The traditional approach has been for private herds to use public lands, with herders having traditional rights to certain areas at certain times of the year; mobility and knowledge are essential if the pastures are not to suffer from overgrazing.

²² Mongolia already has a specific tax on livestock, but the level of the tax would need to be reassessed to determine whether or not it is sufficient to capture social costs associated with land degradation. Local administrators already have detailed records of stock ownership by herder that enable the tax to be efficiently administered.

²³ Those of 2000 and 2001 were particularly harsh, and drove down the stock of goats by more than 700,000 animals. Rising prices cushioned the impact of declining production and export volumes, but more than 19,000 herders—about 8 percent of the households with livestock—lost all of their animals.

²⁴ Mongol Daatgal (state-owned insurance company).

²⁵ For example, under the Sustainable Livelihoods Project supported by the World Bank, the livestock insurance program is a public-private initiative for the purposes of developing a risk index, on the basis of which private insurance companies would offer insurance to livestock owners to cover risks arising from the drought, or other weather-related events. Details of this scheme are in the Appendix to this chapter, at <http://www.worldbank.org/eaptrade>.

Upgrading quality: Restoring quality is critical to increasing the value of Mongolian cashmere and the incomes of herders. Reasons for the drop in quality over the last decade include herders' lack of information on grades and prices, and on veterinary and other herd-improvement topics, together with a lack of grading and testing facilities. Lack of market information makes herders vulnerable to exploitation by processors and traders, and without price differentials between high-quality cashmere and other grades, herders lack incentives to invest in improving their herds.

The way to restore the quality of Mongolian cashmere is through herd selection, superior genetics, and price incentives that reward quality improvement. Improvements in the legal and regulatory framework could encourage the establishment of innovative joint venture agreements and R&D partnerships. New technological developments in rearing cashmere goats could improve the supply and quality of Mongolian cashmere without damaging the environment. The provision of services for testing and grading should be encouraged, and the Mongolian herders' association should use internationally accepted grading standards. Grading will allow for product differentiation and will allow herders and processors to determine the best mix of quality and price for production and sale.

Traders; marketing and distribution channels

Mongolia's one major cashmere market—the Tsaiz market in Ulaanbataar—is 600 to 1,000 km from most regional production centers. Most herders must sell their cashmere either to traders at the “farm gate” or at informal provincial marketplaces, at discounts of 10 to 45 percent from capital city prices. Generally, they sell as individuals, often on a barter basis, with little knowledge of market demand and little ability to influence market outcomes. They incur additional expenses transporting goods to the market day locations with no certainty of concluding sales.

To stimulate growth in Mongolia's cashmere industry, and in poor herders' incomes in particular, strategies are needed to improve marketing channels, so as to get products from herders to processors at least cost and to remunerate herders fairly for superior quality. Development of regional market centers, as in the Gobi Initiative Program funded by USAID, and improvements in infrastructure, could significantly increase the incomes of rural herders. Other promising initiatives are the development of herder cooperatives and attempts by government to improve herders' access to markets by creating wholesale networks. Mongolia has a good law on cooperatives, but assistance is needed to improve governance and financial management in cooperatives. Vertical integration between herders and processors could in principle lead to a sharing of transport costs between agents, improve herders' income security, and reduce the uncertainty of supply for processors. But developing such strategic alliances would be challenging; herders' nomadic lifestyle makes it difficult for them to enter into formal marketing agreements. Also, such formal relationships require a lot of trust and strong social cohesion, which has been eroding in Mongolia. Credible mechanisms to enforce contractual obligations would need to be in place and so would a system that rewards herders for cooperation and organization.

Processors

Since the transition, the number of cashmere-processing and -dehairing companies has risen to more than 30, and herders can trade directly with international buyers, middlemen, or trading agents. Though the state abandoned cashmere producers in the wake of the transition, it retained a heavy influence in cashmere processing through the ownership of Gobi, the largest processing company, and other joint venture partnerships in Mongol-Amical and MonForte.²⁶ Processing capacity exceeds domestic supply even in the best of years, and in 2000 the four large factories that account for about two-thirds of processing capacity were running at only one-fifth of their capacity.

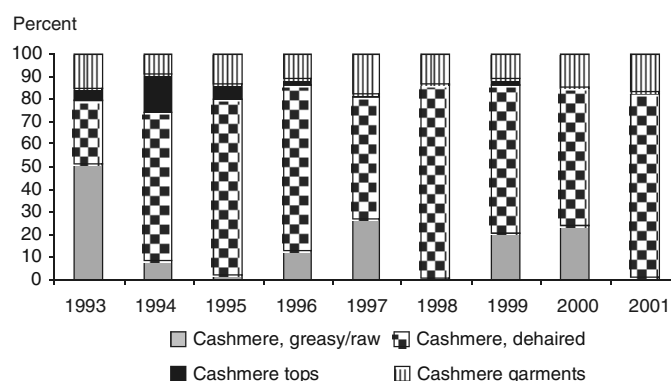
Policies to reform this segment of the value chain need to level the playing field among processors; Gobi benefits from continued government support in raw cashmere procurement. There is also a need to rationalize the industry's excess processing capacity, which adds to production costs.

Cashmere trade policies

In 1994, the government banned exports of raw and washed cashmere on the grounds of a need to “protect domestic industry from external competition and increase domestic value added.” In 1997, the export ban was replaced by an export tax on raw cashmere of Tg 4,000 per kg, equivalent to 13 percent in 2001 prices.

Though the policies were meant to protect domestic processing firms, by providing them with larger volumes of cashmere at cheaper prices, and to increase the value added by the cashmere subsector to the economy, these goals have not been met. The main impact has been to stimulate activities that circumvent the ban and the export tax, in fact lowering the supply of raw cashmere to the domestic processing industry and exacerbating the problems associated with low-capacity utilization. Smuggling has grown rampant, given the length and porosity of the border with China, and Mongolia's final goods exports have remained quite limited (Figure 9.3).

Figure 9.3: Share of cashmere products in Mongolia's total cashmere exports, 1993-2001



Source: Government of Mongolia.

²⁶ Gobi remains in state hands, despite having been slated for privatization for some time.

Proceeds from the tax in 2001 amounted to less than 0.01 percent of total government revenues. The decline in recorded raw cashmere exports cost Mongolia about US\$100 million in official export earnings between 1996 and 2001. In addition, by pitting the interests of processors against those of herders, the tax may have damaged the prospects for forming strategic alliances within the domestic supply chain.

The case for retaining the export tax is unconvincing; the tax has shown itself to be unenforceable, but if it were to have its intended effects, the result would be a transfer of resources in the value chain away from the poorest members to the more powerful ones. Abolishing the tax is likely to have beneficial consequences both for herder incomes and for the overall development of the cashmere subsector.

Overview of recommendations

As a matter of priority, measures are needed to stop the degradation of grazing land and assure more secure supplies of water and fodder.

For herders, there is significant scope for expanding incomes and reducing poverty by upgrading the quality of cashmere produced. Simple simulations suggest that closing half the quality gap between Mongolian and Chinese cashmere would have increased average annual incomes for herder households from US\$220 to US\$263, or by 20 percent in 2001. This is a feasible target over the next 6-10 years.

To reduce poverty will require a combination of measures to increase both the value of output—through upgrading quality—and the herders' share of that value. A host of measures would help increase herders' share of profits in the value chain: increasing their security of access to pastureland; enabling the development of input and insurance markets; providing livestock support services and reliable information about quality standards and prices that are differentiated by quality; developing markets in regional centers, to reduce transport costs and increase the bargaining power of herders; and fostering cooperative solutions to help households attain economies of scale or strategic alliances to increase the security and quality of supply.

Government has a necessary role in improving the policies and institutions to support the cashmere value chain. For the most part, this is an enabling role, but some instances of market failure require nonmarket solutions: They include pastureland management, veterinary services, standard setting, and dealing with information asymmetry in insurance markets. In addition, there is a case for revising Mongolia's trade policies for cashmere: while the government should pursue the relaxation of the ban of breeder stock imports from China, in the context of discussions on China's WTO accession, the tax on exports of raw cashmere appears counterproductive.

Effects on the poor

Detailed household survey data are not yet available for Mongolia, and without them it is difficult to estimate the net impact of the recommended changes on the welfare of various

participants in the cashmere supply chain.²⁷ It seems clear, however, that upgrading cashmere quality is likely to increase value, and that reducing transaction costs (by developing regional market centers) and reducing volatility (through insurance) would yield unambiguous welfare gains. Some of the recommendations, particularly the elimination of the cashmere export tax, would transfer gains from one set of participants to another, while others would increase private costs to reflect more accurately the economic costs of input provision and of externalities, notably environmental degradation from overgrazing.

Without subsidies, the marginal segments of the herder population might no longer find cashmere production a sustainable activity. This raises difficult questions about the role of livestock herding in Mongolia, which has acted as a safety net for many households adversely affected by the transition. For such families, a transition out of herding would need to be phased over time and accompanied by measures to stimulate alternative employment—for example in storage, maintenance and repair of wells, and fodder production.

Conclusions

The analysis of value chains provides a good understanding of the behavior and constraints of different actors involved in the addition of value from producers to consumers. At the same time, it allows the analyst to identify the major constraints in the sector as a whole and the solutions and policy responses that would remove or reduce those constraints.

Growth in trade can be achieved through improvements in productivity combined with improvements in postproduction technologies and marketing and institutions. This is true for rice in Vietnam and Cambodia, where a small proportion of total production is actually traded and a yet smaller proportion is exported. It is also true for cashmere in Mongolia, where all output is traded and almost all is exported in some form.

Both rice and cashmere are commodities central to the livelihood of a large proportion of poor households in the countries studied, but between the countries there are differences in the prospects for income gains from improvements in the supply chain. This is largely because of differences in the nature of the commodities—which affect the prospects for growth in the international market, for gains from upgrading quality, and for gains in the relative share of producers, who are the poorest participants in the value chain. While cashmere is a luxury good for which demand is highly income-elastic, most rice is a basic good where growth in the overall market is sluggish and tied to population growth rather than income trends. In rice, few poor households are likely to be able to raise their incomes from producing high-quality rice; the niche market for high-quality rice is small and Cambodia and Vietnam have limited potential for supplying it. In cashmere, by contrast, the prospects for income gains from quality improvements are sizable and would have widespread impacts among all herder households.

²⁷ A new household survey, including a special module on cashmere production, is currently underway and will yield useful information to enable a more quantitative estimation of both net impacts and distributional changes.

Within the value chains for both rice and cashmere, power rests not with producers but with processing firms, especially state-owned Gobi in Mongolia, millers in Cambodia, and the state-owned trading company in Vietnam. The share that producers capture of the final value of the products differs among countries—and so, therefore, do the prospects for raising their incomes through efficiency gains and strategic alliances in the form of either greater horizontal or vertical integration. In Vietnam, where farm-gate prices are 80 percent of the border price for imported rice and farmers capture as much as 82 percent of the profits from the value chain, there is less scope for gains from either improving efficiency or restructuring the value chain. In Cambodia, where farm-gate prices are somewhat lower, at 72 percent of the border price, and the farmers' share of total profits substantially less, at 40 percent, there is considerable scope for productivity and efficiency gains along the value chain and for improvements in farmers' bargaining position. In Mongolia, it is difficult to decompose the value chain, but it is clear that herders capture only a very small portion of profits, and that they have significant potential for raising their incomes. Finally, all three countries are highly vulnerable to external shocks, and coping with risk is a major concern for households engaged in both rice and cashmere production.

Appendix to Chapter 9: Trade in Sectors Important to the Poor: Rice in Cambodia and Vietnam and Cashmere in Mongolia

Comparative and competitive advantage of Cambodia and Vietnam in rice production

One of the major issues confronting the rice sector in Cambodia and Vietnam is in understanding their competitiveness relative to regional and international suppliers. Vietnam has been acknowledged as having significant comparative advantage in rice. Using the revealed comparative advantage (RCA) measure of Balassa¹, Fukase, and Martin found that Vietnam find that had a RCA measure (using 1997 figures) that exceeded that of Thailand (Fukase and Martin 2001). However, it remains a question for research as to whether Vietnam has retained that comparative advantage, the quality areas in which Vietnam has that advantage, and the types of protection afforded the sector.

To measure the relative competitiveness and degree of comparative advantage for Cambodian and Vietnamese rice, nominal protection coefficients (NPCs) and domestic resource costs (DRCs) can be computed. NPCs relate prices in the domestic market to a reference border, or world price (Tsakok 1990) to examine the level of price distortion in the economy. An NPC that is greater than one means that positive protection is afforded to producers and, consequently, consumers are taxed. An NPC that is less than one implies that producers are taxed at the expense of consumers. An NPC exactly equal to one means that price policy is neutral and does not adversely impact producers or consumers.

The border price is typically calculated at the official exchange rate, although when this is not at equilibrium, a shadow exchange rate should be used to capture the effects of an overvalued or undervalued exchange rate on the production present in an economy (Sadoulet and de Janvry 1995). The border price is also adjusted to take into account whether the product of interest is an import or export. If the product is an import, the c.i.f. import price should be adjusted by adding handling and transport costs from the border to market and subtracting marketing margins and transport costs from the farm level to the market (Tsakok 1990). If the product is an export, the f.o.b. export price should be adjusted by subtracting handling costs, marketing margins, and transportation costs from the port to the farm (Tsakok 1990).

In Vietnam and Cambodia, the official exchange rate is nominally a floating exchange rate and is generally free of policy distortions. Thus, the exchange rate is not a source of protection on rice production. However, Vietnam does protect the rice sector against imports with a 30 percent tariff and Cambodia has a tariff rate of 7 percent.

Calculations for NPC are presented in Appendix Table 9.1 and calculations for DRC are presented in Appendix Table 9.2. The reference border prices are the prices for Thai rice, f.o.b. Bangkok, for 35 percent, 15 percent, and 5 percent broken; most indications from

¹ The revealed comparative advantage measure is the ratio of a country's exports of a commodity to the world's exports of that commodity divided by the ratio of a country's total exports to the world's total exports.

World Bank study team interviews would suggest that Vietnamese rice is competitive with 15 percent broken rice. In all cases, the NPCs are just over one, implying some protection for producers. Much of this protection, however, is perpetuated by the tariff on rice imports.

Appendix Table 9.1: NPC computations for various provinces and varieties of rice, Cambodia and Vietnam

Cambodia	NPC for 35 percent broken	NPC for 15 percent broken
Takeo	1.26	1.15
Kampong Speu	1.54	1.38
Battambang	1.93	1.71
Vietnam	NPC for 15 percent broken	NPC for 5 percent broken
Average of Mekong River Delta	1.11	1.04

Source: World Bank Study Team interviews, July 2002 in ACI (2002a) and ACI (2002b).

Appendix Table 9.2: DRC computations for Cambodian and Vietnamese rice

Rice variety in Cambodia	DRC value by variety
35 percent broken	0.87
15 percent broken	0.77
Season and production practice in Vietnam	DRC value
Summer-Autumn, traditional	0.56
Summer-Autumn, improved	0.42
Winter-Spring, traditional	0.66
Winter-Spring, improved	0.52

Source: World Bank Study Team Interviews, July 2002 in ACI (2002a) and ACI (2002b).

Most indications from World Bank study team interviews would suggest that Cambodian rice is competitive with 35 percent broken rice. Given the diversity of rice in Cambodia, separate regional NPCs were calculated using the price of dry season rice from Takeo and wet season rice from Kampong Speu and Battambang. In all cases, the NPCs are much higher than one, implying significant protection for producers. Much of this protection, however, is due to poor infrastructure and limited markets than any policy-induced measures.

The domestic resource cost is an indicator of comparative advantage, measuring the ratio of value added from domestic, non-traded activities to the foreign exchange earned or saved from domestic production (Sadoulet and de Janvry 1995). The numerator of the measure is the sum of value added from domestic activities valued at market or shadow prices, while the

denominator is the difference of the border price less value added from tradable inputs. A DRC with a value greater than one implies that production is inefficient and that foreign exchange would be better saved by importing the product rather than producing the product domestically, while a DRC less than one suggests comparative advantage and efficiency in production (Tsakok 1990).

DRCs for Vietnam, using the price and input costs from the Mekong River Delta, are calculated in Appendix Table 9.2. Four different DRCs are computed depending on the season (Winter-Spring and Summer-Autumn) and the production practice (traditional or improved). The border price for 15 percent broken rice was used in all instances. As revealed in Appendix Table 9.2, the DRCs for Vietnamese rice range from 0.42 for improved Summer-Autumn rice to 0.66 for traditional Winter-Spring rice. In all cases, Vietnam has a comparative advantage in rice, with the table showing significant gains in efficiency from improvements in farming practices.

A DRC for Cambodia, using the price and input costs from Kampong Speu province, is calculated in Appendix Table 9.2. The DRC value of 0.87 for 35 percent broken rice and 0.77 for 15 percent broken indicates relative efficiency in production in Cambodia. One should note, however, that the DRC calculations were based on limited production cost data, particularly non-traded costs, and could overstate the efficiency of Cambodian rice.

A brief history of rice in Cambodia and Vietnam

Rice has played a central role in the lives of the people of Vietnam and Cambodia. The development of earliest forms of centralized administration in the Red River Delta in Vietnam may well have been motivated by the need to organize communal tasks related to rice production such as the management of irrigation networks. The Angkorian period in Cambodia from 800-1300 AD was based on rice cultivation with improved irrigation and cultivation period. In both countries, rulers were judged according to their ability to ensure a steady supply of rice to the population.

Collectivization of rice production in both countries has led to stagnant or declining yields and production levels of rice. Under the forced collectivization of the late 1970s, the two countries were plunged into food deficit and hunger—a far cry from the situation of surplus and exports enjoyed during previous periods and even under the French colonial rule.

In 1986, Vietnam began a process of renovation, known as *doi moi*, similar to the process started in China in 1978. The basic production unit in rural areas was deemed to be the household, and production decisions and income earning potential were devolved to that level. This reform, combined with reforms in land tenure and taxation, resulted in a marked increase in agricultural production levels. Rice production increased strongly from the late 1980s, and Vietnam moved from a position of being a net rice importer to being one of the dominant rice exporters in the world by the late 1990s. In addition to policies designed to stimulate domestic production levels, trade policies related to the rice sector in Vietnam have also been liberalized. The major liberalization was the removal of the quota system for rice exports, and the simultaneous encouragement of all sectors of the economy to become

involved in the rice export system. This liberalization did much to increase the level of exports of rice from Vietnam.

In Cambodia, the arrival of the Khmer Rouges in 1975 and the devastation of society and agriculture that followed plunged the country into hunger. The subsequent occupation by the Vietnamese forces after 1979 continued the policy of collectivization with the use of *krom samaki* (solidarity groups) of 20-25 farmers but instituted some market reforms in the purchase and sale of agricultural products (Helmets 1997). The establishment of the State of Cambodia in 1989 instituted a market-orientated system with private land tenure. Trade policy was substantially liberalized.

Past rice sector strategies in Vietnam and Cambodia

Vietnam's sector strategy has been based on increasing rice yields using the "Green Revolution Package" of high yielding varieties (HYV), fertilizers, and irrigation. The government has pushed rice production for years, first through coercion (during the central planning era), and later by providing some market incentives to farmers, subsidizing irrigation schemes, instituting rice land zoning rules (now removed), quotas (now removed), and directing credit to state-owned enterprises.

The country achieved tremendous growth of production. Vietnam came to be the second largest rice exporter in the world. Farmers, including many of the poor, benefited from more exports and higher prices. At the same time, however, years of imposing export quotas, irrigation subsidies, and preferential treatment to state-owned enterprises (SOEs) have imposed large costs on society and arguably on the poor.

In Cambodia, the adoption of market liberalization has been more all-encompassing than in Vietnam. Private ownership of land has been recognized since the early 1990s, and no particular rice land zoning has since been adopted to promote rice production. The government has undertaken relatively little investment in irrigation, and that focused mainly on rehabilitating damaged irrigation schemes. To a large extent, the rice strategy has been to support research and extension (with assistance by USAID) to develop and disseminate HYVs. As a result, yields rose considerably over the 1990s. Indeed, Cambodia has attained rice self-sufficiency, although rice production remains highly dependent on rain.

In exports, the private sector has been able to find a promising niche in high-quality rice varieties and has created a specific value chain for that purpose. But productivity among most smallholders remains low, and heavily dependent on rainfall. Yields average barely 2 tons per hectare. More than 60 percent of rice farmers produce for subsistence needs, yet many are in food deficit for one to two months a year. Export levels still have not regained the level achieved in the 1960s (about one million tons). Also, most of the value-added in rice exports is actually being captured by Vietnam: given milling constraints, paddy from Cambodia is being exported to Vietnam, where it is milled across the border.

Export prospects in the global rice market

The world rice market is characterized by the small share of trade relative to total production. Even though rice production is around 400 million tons, only about 25 million tons are traded internationally (6 percent of total production). Most of rice production in the world occurs in Asia and in most Asian countries rice produced is consumed domestically. The consequence of this situation is volatility in international rice markets. For example, small supply shocks in the major producing countries (China, India, Indonesia, Bangladesh) have noticeable repercussions in world rice markets.

Moreover, the US is the only major exporter that is not in Asia. The other five (Thailand, Vietnam, China, India, and Pakistan) are all in Asia (Appendix Table 9.3). The first six exporters capture 80 of total exports and Thailand and Vietnam together more than 46 percent of the market. Of the six major exporters, only for the US, Thailand, and Pakistan rice exports are a considerable part of production, exceeding 40 percent of total production. For Vietnam, rice exports are close to 20 percent of production, whereas for China and India, rice exports are just a very unstable and small part of total production.

Appendix Table 9.3: World major rice exporters

	Exports in 2001 Share of Total	
	mt	%
Thailand	7,000	30.4%
Vietnam	3,600	15.6%
USA	2,650	11.5%
Pakistan	1,900	8.3%
China	1,800	7.8%
India	1,600	6.9%
Uruguay	700	3.0%
Australia	600	2.6%
Egypt	550	2.4%
Burma	500	2.2%
EU	350	1.5%
Argentina	275	1.2%
Guyana	175	0.8%
Taiwan, China	90	0.4%
Other	1,240	5.4%
World Total	23,030	100.0%

Source: USDA-ERS (2002).

Over the 1990s, while Thailand has maintained and consolidated its leadership in rice exports, Vietnam has risen rapidly to be the second major stable exporter. Indonesia and Philippines and West Africa have become more and more dependent on rice imports. Uruguay Round negotiations have at least put on the table the need to reduce protection to rice and rice subsidies particularly in rich countries, thus suggesting a role for more exports from developing countries. The Farm Bill in 1996 promised to do that in the US, even though

in fact various types of payments and support to rice farmers have remained considerable. The decade of the 2000s will see China's entry into the WTO with the effect that more rice imports of China may become a normal feature of rice trade. At the same time, new exporters such as Cambodia and Myanmar might start to play a more important role.

In contrast to exporters, there are many importers, each with a small share of total imports. Importers are distributed in many different parts of the world. For example, the first six importers represent only 29 percent of the total and include countries in Southeast Asia, Middle East, Europe, and Africa (Appendix Table 9. 4). That implies that in order to capture market share the major exporters will have to display a considerable dose of innovative marketing and use different strategies to meet the requirements of many different customers.

Appendix Table 9. 4: Major rice importers

	Imports in 2001	Share of total
	mt	%
Nigeria	1,600	6.9%
Indonesia	1,300	5.6%
Unaccounted	1,093	4.7%
Iraq	1,000	4.3%
Philippines	950	4.1%
Saudi Arabia	950	4.1%
EU	800	3.5%
Iran	800	3.5%
Senegal	750	3.3%
Japan	700	3.0%
Ivory Coast	650	2.8%
Malaysia	600	2.6%
North Korea	550	2.4%
South Africa	550	2.4%
Brazil	500	2.2%
Bangladesh	475	2.1%
Cuba	450	2.0%
Mexico	425	1.8%
Eastern Europe	352	1.5%
Russia	350	1.5%
Hong Kong	315	1.4%
United	315	1.4%
China	300	1.3%
Turkey	300	1.3%
Canada	260	1.1%
Yemen	215	0.9%
Peru	150	0.7%
Syria	150	0.7%
UAE	75	0.3%
Sri Lanka	30	0.1%
Other	6,075	26.4%
World Total	23,030	100.0%

Source: USDA-ERS (2002).

If countries become more open in the direction indicated by Uruguay Round negotiations, then Japan and Korea should increasingly import, and EU and US should provide less support to their rice farmers. This trade liberalization might imply new opportunities for farmers from countries like Vietnam and Cambodia.

Strategic options for rice production in Cambodia and Vietnam

Different strategic options in the rice sector are possible to increase trade and growth and reduce poverty. For convenience, they can be organized as options related to productivity, post-harvest technology, and infrastructure and chain management.

Green Revolution option. The goal of this approach is to increase rice yields through more widespread introduction of HYVs, such as IR66 in Cambodia. These varieties are photosensitive and need considerable amounts of irrigated water and fertilizer in order to produce the desired results. In Cambodia, they are mostly suitable for cultivation during the dry season, between December and May, when the number of days of exposure to light is not usually compromised by cloudy days. Given that only a small amount of land is irrigated during this season, the introduction of HYVs on a large scale would imply a large increase in investment in irrigation schemes. The technological package (seed, irrigation, fertilizer, pesticide) would also require extension effort. The quality of HYV paddy is usually not as high as local varieties and long-grain fragrant varieties are usually cultivated during the wet season. However, the prospect of increasing average yields to more than 4 tons/ha (as compared to the current 2 tons/ha nationally and to the 3 tons/ha for dry season rice) is attractive despite the high costs suggested by the need for expanded and improved irrigation and agrochemical use.

Traditional varieties options. This approach involves selecting the best traditional varieties, multiplying and distributing them. It is targeted to raising the productivity of rice cultivated during the wet season, and also of rain-fed rice, which is grown in several parts of Vietnam outside of the two main deltas. Most traditional varieties are not photosensitive (so they can be cultivated during the rainy season when more water is available); they are traditionally known to farmers, but currently suffer from low yields. In Cambodia, most of whose farmers are already cultivating these varieties, even small increases in yield would raise production considerably. This approach would require less investment in irrigation schemes than the one based on HYVs. It also would present fewer storage problems, since the traditional varieties are usually harvested at the beginning of the dry season², which is a safer season for storing crops. Moreover, these varieties usually fetch higher prices than HYV rice, because their quality is better and local consumers prefer them.

Post-harvest losses option. Post-harvest losses occur at different stages after harvest and are the results of moisture, pests, rodents, outdated milling technology, and pilferage. The losses at the village level can be substantial, at 5 - 20 percent of production. Methods to improve

² By contrast, HYVs are mostly cultivated during the dry season and harvested at the beginning of the rainy season.

storage and post-harvest operations to reduce losses exist and relatively small investments could prove quite effective in increasing food availability in the country.

Milling technology option. The technology for milling is poor, particularly in Cambodia. Most village mills are using outdated technology and are underutilized for most of the year. Paddy is shipped illegally to Vietnam for milling and re-exporting. Value added is lost in Cambodia because of inappropriate milling technology.

Infrastructure option. Poor level of infrastructure (road, port, electricity) raises the marketing costs of various agents in the chain, thus reducing the volume of trade and also the margins for various actors, particularly smallholder farmers. Clearly improvement in infrastructure benefits not only the rice sector but the economy in general, but in the context of agrarian societies, the initial benefits in rural areas will occur mostly through increases in agricultural income.

Transaction costs option. Apart from marketing costs related to poor infrastructure, other transactions costs in Cambodia and Vietnam arise from lack of transparency, illegal fees captured by local officials during transit from farm-gate to port, at the mill-gate, at the port, in the procurement of inputs (seed and agrochemicals), and in access to irrigation. Innovations such as paddy markets in Thailand could be part of the effort in reducing the transaction costs, so that farmers and other actors in the value chain will be able to share information about prices and perhaps build stronger relations towards forming alliances and associations to defend their common interests. There is some indication that this is starting to happen in Cambodia with the formation of a Federation of Rice Millers and with a Private Sector Forum, which provides an opportunity to the private sector to voice their concerns to the government.

Niche variety option. In this approach, the processing sector (millers) integrates with smallholder farmers in order to ensure that a specific variety of rice is produced and purchased. The variety then is actually branded, milled with the highest technology available, packaged in an appealing and safe manner, and marketed internationally at high prices. The companies establish close relations with farmers, through provision of inputs (seed, fertilizer) and technical advice and contracts with farmers. Farmers receive higher prices for this type of paddy than for alternative types of paddy. As long as farmers have access to suitable land for cultivating the required varieties, there is indication that the niche approach can benefit farmers. The niche option requires relatively little government support. It can promote the image of the country as a producer of a high quality product, which has beneficial effects on the overall exports of the product. Another positive aspect is that it promotes the emergence of a private sector that can compete internationally. The major limitation is that, unless other niches emerge or the sector as a whole improves, then its contribution to overall growth and poverty reduction will remain small.

Level playing field option. This option is relevant when one actor in the value chain is given special treatment relative to other actors. This is the case in Vietnam, where SOE in rice exports are provided with better access to credit and land, and subject to less competitive pressure than the corresponding private sector.

Specific constraints and policy recommendations relating to the rice value chain in Cambodia and Vietnam

Appendix Tables 9.5 – 9.8 for Cambodia and 9 – 12 for Vietnam detail specific constraints and policy recommendations at various links of the rice value chain. They summarize more extensive analysis included in the two background papers for this study: ACI (2000a), “Rice Value Chain Study: Cambodia”, Report Prepared for the World Bank, Agrifood Consulting International, Phnom Penh, September 2002; and ACI (2000b), “Rice Value Chain Study: Vietnam”, Report Prepared for the World Bank, Agrifood Consulting International, Ha Noi, September 2002.

Appendix Table 9.5: Constraints and policy recommendations in rice value chain for Cambodia: farm sector

Constraint	Nature of constraint(s)	Policy recommendations
Seed Constraints	Maintenance of breeder stock requires significant public investment that can be undermined by commercial pressures for breeding centers to be financially viable	Increased public investment to maintain breeder stock of seed. Government commitment to enacting the Seed Law and the appropriate institutional framework to ensure research centers focus on basic research and varietal development while seed companies focus on multiplication and sale of certified seed. Seed certification standards need to be rigorously enforced in order to obtain and keep consumer confidence in improved seed.
Land Tenure Constraints	Limited tenure rights (less than 10 percent of farmers hold land titles) discourages investment in agricultural land.	Improvements in transparency and especially enforcement of land laws combined with greater public awareness of land rights. Government and institutional commitment to the implementation of the land law (Preach Reach Kram No NS/RKM/0801/14).
Fertilizer and Pesticide Constraints	Access to fertilizer and pesticides among small-scale farmers is extremely limited due to income and credit constraints, resulting in sub-optimal use of fertilizer. Knowledge of appropriate input usage technology also limited.	Improved access to affordable credit, through increased numbers of financial intermediaries in rural areas. Development of a Credit Guarantee Fund and development of credit schemes that reduce the costs of microcredit provision. Capacity building and extension to teach poorest farmers in proper input use techniques. Government commitment to implementation of the Agricultural Material Standards sub-decree. There needs to be an appreciation that inappropriate use of agricultural chemicals is a public health issue. Restructuring and privatization of agricultural SOEs. A detailed study of privatization options should be carried out.
Irrigation Constraints	Lack of irrigation in many areas reduces the productivity of rice. Where irrigation is present, operation of water user groups replete with politicization and free rider effects.	Improvements in organization of water user groups. Increased public investment in irrigation in areas where rice production and such schemes are commercially viable.
Profitability Constraints	In many areas rice production is a marginally profitable activity due to technical factors such as climate and soil fertility/salinity	Development of schemes to support the diversification of smallholders into high-valued products. Agricultural Extension and advisory services provided to assist individual farmers and farmer groups to diversify. Use of microcredit schemes to support pilot schemes.
Credit Constraints	There is a lack of access to credit and other financial services in rural areas. Even when credit is available commercial lending requirements dictate that loans are not tailored to agricultural activities or the seasonal nature of agricultural production. Credit application procedures are complex and not tailored to small loans sizes for inputs. Farmers find it difficult to access loans for emergency cash purposes and have to resort to high interest loans from moneylenders.	Improved access to affordable credit, through increased numbers of financial intermediaries in rural areas. Development of a Credit Guarantee Fund and development of credit schemes that reduce the costs of microcredit provision. The appropriateness and feasibility of developing capacity building of farmers in farm financial management by agricultural extension and advisory services need to be investigated.

Appendix Table 9.6: Constraints and policy recommendations in rice value chain for Cambodia: milling sector

Constraint	Nature of constraint(s)	Policy recommendations
Lack of Working Capital	There is a lack of working capital among millers for purchases of paddy at harvest time, due to cash purchases of paddy and sales of milled rice on credit. As a result, rice mills are often idled for periods of time, limiting the amount of paddy that can be domestically milled. Limited capital also precludes improvement in milling technology and expansion in milling capacity.	Reduction in the costs of capital economy-wide. Development of a Credit Guarantee Fund and development of credit schemes that reduce the costs of microcredit provision. The appropriateness and feasibility of developing capacity building of millers in financial management by advisory services need to be investigated.
Low Paddy Quality	Millers are constrained by poor paddy quality, in the form of mixed varieties of seeds from farmers and/or traders and inadequate post-harvest handling (particularly drying). This results in high levels of broken rice and limits entry in world markets.	Encouragement of private sector interaction with farmers and collectors, in terms of seed and input provision, to create incentives for supply of higher quality paddy.
Low Levels of Milling Technology	The majority of mills use old equipment from Viet Nam and China that is inadequate for sophisticated sorting of varieties and results in higher levels of broken rice than more modern machines.	Improved access to capital by millers.
Lack of Market Access	Rice millers have limited access to foreign markets, due to the inability to produce consistent amounts of standardized varieties of milled rice. Market access is also compromised by limited information about foreign market conditions and competitive factors.	Capacity building (private and public) in marketing information services to improve knowledge among actors in the rice marketing system. Improvements in milling technology through greater access to credit. Encouragement of private sector interaction with farmers and collectors, in terms of seed and input provision, to create incentives for supply of higher quality paddy.

Appendix Table 9.7: Constraints and policy recommendations in rice value chain for Cambodia retail sector

Constraint	Nature of constraint(s)	Policy recommendations
Poor marketing and distribution Systems	The distribution of rice is hampered by an inadequate infrastructure and distribution network, which hampers the ability of retailers to obtain rice, particularly in remote provinces.	Improvements in physical infrastructure.
Low margins in retail sector	Retailers receive low margins on rice sales, due to significant competition among rice retailers and limited competition among distributors.	Strengthening of the Market Information System.

Appendix Table 9.8: Constraints and policy recommendations in rice value chain for Cambodia export sector

Constraint	Nature of constraint(s)	Policy recommendations
High transactions costs/lack of transparency	Exports are constrained by numerous transactions costs in transportation and port charges. Nearly 50 percent of transportation fees are unofficial costs. Port charges and procedures lack transparency and add sizable costs to exports. These unofficial and other costs significantly impede the competitiveness of rice in world markets.	Institution of transparent rules for export clearance. Greater capacity building in legal institutions to facilitate export transactions. Public investment in physical infrastructure, particularly roads, rail linkages, and port facilities. Reduce unofficial fees by police, army, and others.
Limited volumes of standardized qualities of milled rice	Exports are limited by the inability of exporters to obtain consistent amounts of a standardized quality of milled rice.	Encourage the formation of Farmer Associations linked with millers and processors along the lines of the Angkor Kasekam model.
Poor infrastructure	Exporters are constrained by poor road and rail infrastructure that limits the ability to procure paddy from remote areas and efficiently transport rice exports to world markets.	Public investment in physical infrastructure, particularly roads, rail linkages, and port facilities.

Appendix Table 9.9: Constraints and policy recommendations in rice value chain for Vietnam farm sector

Constraint	Nature of constraint(s)	Policy recommendations
Land use constraints	Institutional and sustainability difficulties with conversion of rice land to alternative uses.	Further research into the policy and economic implications of alternative land use options. Further research into alternative land use practices including economic analysis of different options. Dissemination of research findings to farmers through extension and advisory services.
Credit constraints	Difficult borrowing procedures and unsuitable repayment schedules limit access to appropriate credit	Give the Vietnam Bank for Agriculture and Rural Development more flexibility in setting interest rates, allowing VBARD to profitably lend to an expanded set of borrowers. Discontinue practice of preferentially directing loans to state-owned enterprises. Facilitate the sustainable expansion of People's Credit Funds. Encourage the use of commercial lending practices that do not discriminate on the basis of the type of borrower (private vs. SOE) but rather on the basis of the level of risk of the proposed loan. The appropriateness and feasibility of developing capacity building of farmers in financial management by agricultural extension and advisory services needs to be investigated.
Seed constraints	Availability of high-grade seed is limited. Low quality assurance and a lack of standardized specifications of seed inputs have led to a lack of producer confidence.	Research institutes and universities should focus on basic research, varietal development, and foundation seed production, while seed companies focus on multiplication and sales of certified seed to distributors and farmers. Research institutes should gradually phase out seed production activities as the level of funding increases. Seed certification should be carried out by a public institution with no involvement in seed production. Seed certification should be voluntary, but the reputation of the certification agency ensures that seed companies are willing to pay for the service.
Irrigation constraints	Producers are charged irrigation fees regardless of the quantity of water that is utilized by the individual producer. Payment options restrict producer choice in cropping activities. Poor service delivery constrains the effectiveness of the irrigation system	Improvements in the organization of water user groups. The relationship between the provincial authorities and the Irrigation Management Committees should be clarified and formalized, with a specific division of labor between the two. Irrigation user fees should be sufficient to cover both capital costs and operations and maintenance, reducing the Irrigation Management Committees dependence on the government. Irrigation fees would be set on the basis of metered water use rather than simply the area irrigated. Even if this is not feasible at the farm-level, it should be possible for small groups of farmers. This would increase incentives for farm-level conservation and canal maintenance. New irrigation schemes should only be approved on the basis of economic viability and financial sustainability. Research into the use of small-scale irrigation schemes as a replacement for large-scale irrigation works should be promoted.

Appendix Table 9.10: Constraints and policy recommendations in rice value chain for Vietnam milling sector

Constraint	Nature of constraint(s)	Policy recommendations
Quality constraints	<p>The quality of rice is hampered by the fragmented structure of the marketing chain.</p> <p>Millers and exporters have difficulty in accessing high quality and consistent inputs due to the structure of distribution and presence of multiple layers between producers and millers/exporters.</p>	<p>Encouragement of private sector interaction with farmers and collectors, in terms of seed and input provision, to create incentives for supply of higher quality paddy.</p> <p>Rationalization of the marketing chain, particularly in the milling sector. This should be weighed carefully against the structural adjustment and employment effects of such policies.</p>
Credit constraints	<p>Credit constraints limit the ability of millers to purchase sufficient paddy to fulfill orders.</p>	<p>Reduction in costs of capital economy-wide.</p> <p>The appropriateness and feasibility of developing capacity building of millers in financial management by advisory services needs to be investigated.</p> <p>Promote conditions that allow greater private involvement in the export of rice, such as comparable credit arrangements between state-owned enterprises and private enterprises.</p>
Infrastructure constraints	<p>Millers, particularly small millers, are constrained by limited quantities of storage. Availability of electricity is a problem for some millers.</p>	<p>Improvements of storage facilities to allow exporters to better manage price risk from government-to-government contracts.</p> <p>Expanded access to credit for infrastructure and technology upgrades</p> <p>Increased Government expenditure on general infrastructure services such as transportation and energy.</p>
Lack of market access and volatility constraints	<p>A reliance on a small number of markets increases the risk of adverse economic conditions and increases price instability.</p>	<p>Government programs to assist traders and exporters deal with fluctuations in prices should be structured as self-financing insurance schemes and should not receive state subsidies.</p> <p>Increased market promotion activities in overseas markets to diversify sales away from government-to-government contracts and towards working with a greater variety of overseas distributors.</p>

Appendix Table 9.11: Constraints and policy recommendations in rice value chain for Vietnam retail sector

Constraint	Nature of constraint(s)	Policy recommendations
Poor marketing and distribution systems	In areas outside of the Mekong River Delta the distribution of rice is hampered by inadequate infrastructure and distribution networks. This hampers the ability of retailers to obtain rice, particularly in remote provinces.	Improvements in physical infrastructure in areas outside the Mekong River Delta. Particularly in remote and mountainous regions.
Low margins in retail sector	Retailers receive low margins on rice sales, due to significant competition among rice retailers and limited competition among SOE distributors.	Strengthening of the Market Information System

Appendix Table 9.12: Constraints and policy recommendations in rice value chain for Vietnam export sector

Constraint	Nature of constraint(s)	Policy recommendations
Market structure	Millers and exporters have difficulty in accessing high quality and consistent inputs due to the structure of distribution and presence of multiple layers between producers and millers/exporters	Eventual equitization of SOEs will assist the rationalization of the industry. This must be done in a way that takes into consideration the structural adjustment and employment effects of such a rationalization.
Lack of risk management	Government-to-Government export contracts negotiated by VINAFOOD may expose provincial food companies to significant price risks.	Financial accountability for SOEs and the removal of government underwriting of activities will enhance management's role in negotiating contracts. Equitization will increase incentives for greater financial accountability.
Reliance on a small number of export markets	Rice exports from Vietnam are relatively non-diversified, with a concentration on exports of low quality rice through a small number of distributors and the majority of sales being made through Government-to-Government contracts. This lack of diversification means that the export sector has a high degree of vulnerability	Development of overseas trade promotion activities. Encourage the development of alternative outlets for exports.
Credit constraints	Private exporters are also at a significant disadvantage relative to state-owned exporters, as the former are limited to borrowing up to 70 percent of their collateral while the latter can receive a loan for the entire value of the contracted shipment of rice.	Removal of preferential credit arrangements for SOEs. Loans to be based on financial viability of business plans Allow SOEs to borrow money based on actual borrowing needs rather than through targets set by People's Committees.

The global cashmere market

Over the last five years the market for raw cashmere has become increasingly concentrated. In 1996, the top cashmere importers accounted for 58.5 percent of the market, but by 2001, the top three importing countries accounted for more than 66 percent of the market (Appendix Table 9.13). Italy and Germany remain the largest importers of fine animal hair/cashmere products, while Japan has slipped from third place in 1996 to 12th in 2001. China, itself a big exporter of fine animal hair, is also a significant importer of fine hair/cashmere, moving from 7th place to 4th place.

World demand for finished cashmere articles, which are regarded as luxury items, is highly income elastic and more resistant to cyclical shocks than demand for most other goods. This is mainly due to the fact that the buying power of luxury goods consumers is often good even in difficult times. Luxury goods are not-recession proof but are very resilient and demand for them tends to recover quickly.

Demand for luxury goods is growing worldwide and is well balanced globally. The main factor driving increased demand for luxury goods is favorable demographics and consumer trends as well as the success of many luxury goods companies in capitalizing on their brand value. Baby boomers—people between the ages of 36-56—represent the largest population group in the developed world and also have the largest buying power. Quality and brand awareness of consumers have increased in the past years, so consumers buy less but buy better quality goods. Relative to the size of the economy, demand is strongest in Asia. Japanese consumers buy 30-40 percent of all luxury goods worldwide.

The demand for luxury goods such as cashmere remains high and industries in the luxury goods apparel sector continue to be very profitable. Cashmere demand is bound to increase further with improved world economic conditions. In addition, as China gains greater access to new markets for finished products as a result of its recent entry into WTO, its demand for cashmere inputs will increase. This comes at a time when China has started to impose limits on the growth of its goat herds. Mongolia's proximity to China's rapidly growing cashmere processing industry gives it a ready market for its product with limited transport costs.

Cashmere quality and grading

The quality of Mongolian cashmere has declined significantly over the last 15 years, largely for economic reasons. Since 1991 there has been an annual increase in fiber thickness to about 17.9 microns. Leading international cashmere processors place an upper limit on mean fiber diameter of 19 microns and prefer a fiber of 17.5 microns or less; the finest cashmere has a diameter of less than 16.5 microns, and a down length of about 43 mm. Unless herd quality is improved, it is projected that by 2010 the fiber thickness for the Gobi Gurvan Saikhan, Uuliin bor breeds and their crossbreeds will increase by about 2 microns.

To increase penetration into the world market Mongolia must regulate and align the quality and standards of its cashmere with international processor and consumer needs. This will also help in protecting its reputation and market share. Grades that signal product characteristics

and quality based on commonly acceptable measures, and the standards by which they are measured, are essential to the efficient operation of a competitive market that handles generic commodities, especially in a luxury goods industry. Grades provide the language essential for commodity information about value and encourage price competition in the market.

Mongolia's National Center for Standardization Metrology (NCSM) undertakes cashmere testing and issues quality certificates that have been compulsory for cashmere exporters since 1996. NCSM uses three commercial cashmere processors to test the quality of fiber destined for export. The government recently developed and introduced a cashmere classification and grading system that expands the definition of cashmere to include thicker fibers. Attempts such as these to redefine fiber into cashmere are counterproductive as they provide the wrong product information to the herders—and are unlikely to attract international buyers. They will only result in decreased prices for Mongolian cashmere. At best, processors who purchase Mongolian cashmere will factor in the cost of doing their own re-testing, and quality processors may be deterred from purchasing Mongolian cashmere.

The potential for herd—and product—improvement by introducing superior genetic material (stud goats) is significant. The only significant source of this genetic material is China, but China has an informal ban on the export of stud goats to Mongolia. The relaxation of this ban through WTO-sponsored negotiations represents a major trade objective for Mongolia. China stands to benefit from long-term increased reliable supply of good quality raw and dehaired cashmere, particularly as there is a move to limit Chinese production of cashmere by the 2006 Olympics. China produces more males than are required in the national market and Chinese goats would be readily adaptable to Mongolian conditions. Mongolia might well be able to negotiate access to China's superior breeding stock by agreeing to remove its export tax on exports of raw cashmere.

Index-based livestock insurance in Mongolia

Under the Sustainable Livelihoods Project supported by the World Bank, the proposed livestock insurance program is a public-private initiative for the purposes of developing a risk index, on the basis of which private insurance companies would offer insurance to livestock owners to cover risks arising from the drought, or other weather-related events. The index, based on objective third-party verifiable indicators such as weather data, livestock mortality rates, and indices of range vegetation conditions would differentiate relative risk at a generally acceptable and pre-determined level (most likely the sub-districts) based on historical data.

Indemnities under the scheme would be triggered once the index exceeded a given threshold. Insurance cover would be for productive activities including: the replacement value of livestock; the value of goods or services to support risk preparedness or enhance livestock productivity, such as hay and fodder production or purchase, acquisition of veterinary drugs and services, construction of livestock shelters, and breeding services, and the value of goods and services to allow policy holders to engage in alternative or supplementary livelihood strategies.

Payments to participating insurance companies, for claims paid to policy holders against covered risks and for such productive activities, would be made when the aggregate amount of those claims exceeds the agreed level of liability, as specified in a stop-loss agreement between the government and the insurance companies. The project would also finance training workshops for participating insurance companies and public officials, and a nationwide information campaign to publicize the scheme and attract policyholders.

The scheme would be launched during the second phase of the Sustainable Livelihood Project, and would be expected to become profitable by its end. The role of government during the startup phase of the scheme (project years 2 to 4), would be to assume liability beyond the level agreed with participating insurance companies by undertaking to finance the stop-loss payments from the proceeds of the IDA credit. This stop-loss provision would take the place of international reinsurance, which would be unlikely to be attracted until commercial viability of the scheme could be demonstrated. Under the second phase of the program, the index-based insurance scheme would be expected to operate in a financially and institutionally sustainable manner, without the need for government to offer a stop-loss provision. Insurance companies offering index-based livestock insurance would then be expected to seek international reinsurance.

Appendix Table 9.13: Exports of fine animal hair, not carded or combed, by country*(US\$ '000)*

No.	1996		1997		1998		1999		2000		2001	
1	CHN	61.3	CHN	60.79	CHN	59.43	CHN	61.5	CHN	58.0	CHN	64.1
2	MNG	8.4	MNG	8.57	MNG	7.32	MNG	6.5	GBR	7.4	MNG	7.7
3	GBR	5.5	GBR	4.50	GBR	6.34	GBR	6.3	MNG	6.3	GBR	5.6
4	DEU	3.3	DEU	3.66	DEU	3.62	IRN	3.4	AFG	5.2	BEL	4.6
5	BLX	3.2	IRN	3.26	IRN	2.89	DEU	3.1	IRN	5.1	DEU	3.9
6	AFG	2.9	AFG	3.05	AFG	2.87	USA	2.7	DEU	3.7	IRN	2.8
7	IRN	2.6	BLX	2.24	ZAF	2.69	ZAF	2.4	BEL	2.5	ZAF	2.2
8	ZAF	2.1	ZAF	2.12	ESP	2.05	HKG	2.3	ZAF	2.4	ITA	1.9
9	HKG	2.0	HKG	1.90	USA	1.79	AFG	2.3	USA	2.3	AFG	1.2
10	USA	1.8	ESP	1.78	BLX	1.63	BEL	1.7	ITA	1.1	USA	0.9
11	ESP	1.2	USA	1.45	HKG	1.59	ITA	1.0	AUS	0.7	TUR	0.8
12	ITA	0.7	PER	0.73	ITA	1.13	ESP	1.0	HKG	0.7	AUS	0.5
13	NLD	0.6	FRA	0.68	RUS	1.00	AUS	0.7	ESP	0.6	PER	0.5
14	AUS	0.5	ITA	0.60	CHE	0.68	RUS	0.7	PER	0.5	ESP	0.4
15	FRA	0.4	CHE	0.52	PER	0.60	LVA	0.6	NLD	0.5	ARG	0.4
16	ARG	0.4	AUS	0.47	NZL	0.54	NLD	0.6	UNS	0.4	KAZ	0.3
17	PER	0.4	URY	0.36	NLD	0.53	PER	0.5	CHE	0.4	UNS	0.3
18	UNS	0.3	NZL	0.33	ARG	0.50	CHE	0.4	ARG	0.3	NLD	0.3
19	NZL	0.3	NLD	0.33	FRA	0.49	UNS	0.4	KAZ	0.3	CHE	0.3
20	CHE	0.3	TUR	0.32	AUS	0.42	ARG	0.3	TUR	0.3	PRT	0.3
21	TUR	0.2	UNS	0.30	PRT	0.28	FRA	0.3	PRT	0.3	HKG	0.2
22	RUS	0.2	ARG	0.28	LVA	0.25	PRT	0.2	LTU	0.1	MEX	0.1
23	CHL	0.2	KAZ	0.20	KAZ	0.20	KAZ	0.2	FRA	0.1	HUN	0.1
24	PRT	0.1	PRT	0.16	HUN	0.20	TUR	0.2	NZL	0.1	CYM	0.1
25	KOR	0.1	HUN	0.14	TUR	0.20	NZL	0.2	URY	0.1	NZL	0.1
Total	WLD	99.146	WLD	98.769	WLD	99.203	WLD	99.406	WLD	99.382	WLD	99.410

Appendix Table 9.14: Imports of fine animal hair, not carded or combed, by country

(US\$ '000)

No.		1996		1997		1998		1999		2000		2001
1	ITA	31.0	ITA	33.2	ITA	39.9	ITA	39.1	ITA	36.27	ITA	39.49
2	GBR	19.2	GBR	14.8	GBR	13.7	GBR	19.0	CHN	20.42	GBR	20.92
3	JPN	8.3	FRA	9.5	FRA	8.4	CHN	7.2	GBR	17.81	DEU	6.24
4	USA	6.8	USA	9.3	DEU	7.8	ZAF	6.1	DEU	5.34	UKR	5.10
5	KOR	4.8	KOR	6.8	USA	5.1	DEU	5.8	UKR	3.27	CHN	4.60
6	DEU	4.5	DEU	5.1	BLX	3.6	FRA	3.8	ZAF	2.72	FRA	3.80
7	CHN	4.1	CHN	4.1	CHN	2.9	USA	3.6	FRA	2.20	BEL	3.02
8	FRA	3.5	JPN	3.5	KOR	2.6	BEL	3.0	USA	1.88	CHE	2.87
9	HKG	3.1	BLX	2.4	CHE	2.3	JPN	1.6	BEL	1.62	USA	2.38
10	IND	2.6	HKG	1.4	ZAF	2.0	CHE	1.3	HKG	1.01	ZAF	1.63
11	CHE	2.4	ARG	1.3	JPN	1.6	HKG	1.1	JPN	0.78	IND	1.20
12	ZAF	1.2	IND	1.3	HKG	1.5	KOR	0.8	ESP	0.65	JPN	0.94
13	BLX	1.1	ZAF	1.2	ESP	1.2	NLD	0.7	MNG	0.58	HKG	0.91
14	ARG	1.1	CHE	1.2	ARG	0.9	ARG	0.6	IND	0.52	ARG	0.69
15	NLD	0.9	ESP	0.6	IND	0.8	IND	0.6	ARG	0.52	MEX	0.65
16	ESP	0.8	NLD	0.5	LTU	0.7	ESP	0.6	MEX	0.36	ESP	0.61
17	LTU	0.8	LTU	0.5	AUT	0.6	MEX	0.5	CHE	0.33	AUT	0.42
18	TUR	0.4	BRA	0.4	BRA	0.5	AUT	0.5	LTU	0.33	PRT	0.41
19	AUT	0.4	TWN	0.3	PRT	0.4	BRA	0.4	CZE	0.29	BRA	0.41
20	BRA	0.3	AUT	0.3	NLD	0.4	TWN	0.4	MUS	0.28	KOR	0.41
21	PRT	0.3	MAC	0.2	MUS	0.4	LTU	0.3	AUT	0.28	NLD	0.37
22	NPL	0.2	UKR	0.2	CAN	0.3	AUS	0.3	IRN	0.28	LTU	0.37
23	NZL	0.2	COL	0.2	MNG	0.3	CZE	0.3	PER	0.22	TWN	0.34
24	COL	0.2	PRT	0.2	NPL	0.3	NPL	0.3	PRT	0.22	MAC	0.24
25	TWN	0.1	IRL	0.1	COL	0.2	PER	0.2	RUS	0.21	PAK	0.16
Total	WLD	98.314	WLD	98.515	WLD	98.510	WLD	98.279	WLD	98.390	WLD	98.191

Chapter6 supplementary 032203

3/23/03 3:10 AM