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The Challenges of Water Resources Management in Cambodia

Dr Thun Vathana and Chem Phalla discuss some of the main topics concerning water management in Cambodia at the recent WRMRCDP launching workshop.*

Owing to its geographical location and tropical rainfall, Cambodia has an abundance of water for transport, industry, agriculture, aquaculture and domestic purposes. There are, however, concerns about the management and development of water resources for the promotion of agricultural production and poverty reduction. Agriculture is one of the important elements contributing to poverty reduction as stated in both the government's Rectangular Strategy and National Strategic Development Plan 2006-2010 (NSDP). Irrigation is vital for increasing agricultural production and productivity. Irrigation development also increases land values and provides indirect benefits, such as improved nutrition throughout the year, a more active rural labour market resulting in reduced out-migration, and reduced agricultural pressure on marginal land.

In 2005, agricultural production increased by 16.6 percent, while crop production increased by 28.0 percent. According to the Ministry of Agriculture, Forestry and Fisheries (MAFF), one reason for this increase was the expansion of irrigation facilities. Despite the important role that it plays in agriculture, irrigation still gets little investment from either the state or the private sector. The World Bank's 2006 Cambodia Poverty Assessment emphasises the important role of improved infrastructure in increasing productivity, and argues that more public investment is needed in order to strengthen water management.

Recognising the important role that irrigation



Irrigated rice fields in Trapaing Trabek, Kompong Chhnang Province

and sustainable water resource management plays in development, CDRI, in collaboration with the University of Sydney (UoS) and the Royal University of Phnom Penh (RUPP), has developed a Water Resource Management Research Capacity Development Programme (WRMRCDP) with support from AusAID.¹ The project, focusing on research capacity development over a five year period from July 2006, was officially launched in early December 2006. At the launching workshop, a number of important issues pertaining to water resource management in Cambodia were identified. These

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included scale of irrigation system and related financial issues, water governance including Farmer Water User Community (FWUC) and issues related to catchment area and river basin management. This article discusses some of the main points relating to these issues.

Irrigation scale

Irrigation schemes in Cambodia are classified according to scale as small, medium or large and in three major agro-ecological areas – flood, lowland and highland. The scale of an irrigation scheme is defined by its command area as follows: up to 200ha is considered small; from 200ha to 5,000ha medium; and above 5,000ha large. The most common irrigation techniques used in Cambodia include traditional lifting, mobile pumping stations, gravity or a combination of these methods. Some small scale irrigation systems, and most medium and large scale irrigation systems, have reservoirs to store water and irrigation distribution canal systems. Currently, MOWRAM estimates that there are more than 2,000 irrigation schemes (1,415 small, 955 medium and 33 large), which can potentially irrigate more than one million hectares, approximately 40 percent of the total paddy land area.

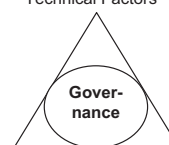
During the 1980s and early 1990s, most irrigation development focused on small scale schemes. Following the establishment of MOWRAM in 1999, the focus shifted to medium and large scale projects due to a greater availability of funds from both the government and donors. At the launching workshop, participants discussed the suitability, efficiency and effectiveness of the different sized schemes in terms of management and economic viability, both of which depend largely on governance. The answer is likely to vary depending on different circumstances, and this article does not judge which scale is most suitable for investment. Rather, the article aims to identify some factual considerations and questions for future research identified at the launch.

The table below suggests that both small and large scale irrigation projects each have their own comparative advantages and disadvantages. There are discussions on the advantages and disadvantages of small versus large scale irrigation projects in terms of water governance.

Comparison of irrigation categories – small and large²

Item	Small scale irrigation	Large scale irrigation
Investment cost	Low	High
Command area	Small	Large
O&M costs	Low	High
Water distribution	Simple	Complex
Beneficiaries	Less	More
Fisheries	Less	More
Management	Community / FWUC	provincial / national
Conflicts and solutions	Within community	Across communities
Technical know-how	Simple	Complex / advanced

Technical Factors



FWUC Functionality:
roles and structure

Management Challenges and
conflict resolutions

Water governance

Water governance refers to social, political and economic organizations and institutions that are related to water management and development within and across community boundaries who share the same water source. Governance is concerned with how institutions make and enforce rules and regulations that affect the efficient and equitable allocation of water resources.

In irrigation, water governance is generally a function of technical design, management, and institutional arrangements, particularly the performance of the FWUC. A simple model, illustrated above, is introduced for the purpose of analyzing the relationships between the technical design of an irrigation system, the functionality of the FWUC and water management challenges and conflict resolution.

Technical Factors

Crop productivity relies on soil quality and seeds, as well as the amount of water available for a particular crop. Small scale irrigation is technically less complex and cheaper in terms of construction, rehabilitation, and operations and maintenance (O&M), but its coverage and number of beneficiaries is limited. Owing to a better understanding of soil quality due to smaller specific sites and because crop productivity is correlated with water and soil quality, small irrigation may contribute more to improving productivity.

Large scale irrigation, on the other hand, is generally more technically complex and requires a larger amount of investment capital. Since the land coverage is larger there is a greater variation in soil quality, bringing into question the level of contribution of water to productivity increase. This said, there is no doubt there is a larger impact in terms of overall production and the number of people served.

As for technical design, it is important to bear in mind the financial capacity of local communities to meet maintenance costs. If farmers and local communities fail to meet maintenance costs, O&M problems will become the government's responsibility. Moreover, the system design should meet technical standards and be followed by routine maintenance and water supply planning with well scheduled shifts and the involvement of the entire system's user community. Good irrigation system design will contribute to the success of water management.

Poor and incomplete irrigation infrastructure, on the other hand, causes problems in water management for

several reasons: (1) the waste and inequitable distribution of water; (2) increased competition among users for water; (3) low irrigation service collection; and (4) lack of participation. All these issues can cause conflicts within and between communities, which can cause social unrest and adversely affect FWUC functionalities.

Management Challenges and Conflict Resolution

The availability of water through improved irrigation infrastructure alone cannot fully guarantee the efficient use of water as there also exists a need to provide effective water management. For example, one of the most important tasks in water management is operating water gates. Gate operation often gives rise to problems of timing, fair water distribution, and allocation (e.g., timing and amounts of water to be allocated to upstream uses, to downstream uses and fishery management issues). Apart from technical design, gate operators require technical knowledge in order to manage gates in a way that reduces conflicts among water users. Knowledge of technical aspects (e.g. the magnitude of low flow), local community organization and other forms of social operation also play a role in managing conflicts.

Depending on the size of the irrigation scheme, different degrees of capacity are required in order to manage irrigation water effectively and efficiently. Small irrigation projects may be easier to manage for local communities, where social capital enables local people to cooperate on water management. Problems can often be solved by FWUC or at commune level. The management of large scale irrigation is more complicated and may, therefore, be beyond the capacity or mandate of individual communities. This requires more input of institutional capital and financial investment, which often requires interventions and support from outside, at provincial and national levels. Without effective institutional and organizational management, water is neither well managed nor properly allocated, leading to the waste of water and the creation of conflicts. These issues result in low productivity of land and water, casting doubt over the economic viability of the project.

Since there is recognition that irrigation water is provided to farmers with better results when operated by decentralized organizations, the policy of the Royal Government of Cambodia (RGC) is to devolve responsibility for all aspects of irrigation management to FWUC. The policy emphasises community participation via FWUC in order to operate and maintain irrigation facilities. The transfer of responsibility to FWUCs of irrigation project management, including raising and collecting Irrigation Service Fee (ISF), will relieve the Royal Government's administrative burdens. One effect this policy is that the FWUC can influence the quality of the services provided to their members.

FWUC: roles and structures

It has been observed that much water is lost during operation because of poor water management by farmers and poor irrigation facilities. This results in a lack of water, which is one of the causes of conflicts amongst water users. To improve this, the Royal Government is strengthening the national policy on sustainable water management, including FWUCs. These organizations include all farmers who use water from the irrigation project in the irrigated area. The FWUC has its own committee, whose main roles concern day-to-day activities including O&M, ISF collection, water distribution, problem solving and external relations.

The legitimacy of the FWUC, based on the concept of ownership, is recognized by MOWRAM, which standardises FWUC by choosing farmers' representatives through election to form the FWUC committee. The committee, with one chairman, two deputy chairs and several members, is expected to serve the interests of its members and remain free of political corruption, although practically, remaining free of political interference is difficult due to financial constraints and other circumstances. Sustainability of FWUC does not, however, depend on periodic support seen especially before important elections. In fact, it depends more on regular financial support, capacity strengthening of the committee and participation from community members. A properly functioning legislative FWUC also relies on members being freely and fairly elected, the presentation of different parties and popular participation and accountability.

According to Prakas 306, the government budget is supposed to cover O&M costs and then gradually decrease over time by giving more responsibility to the FWUC. Unfortunately, the government budget provides for emergency cases rather than for O&M, with the cost of O&M mainly being met by individuals, politicians, pagodas and a small amount from ISF. In a market economy, cost should be charged to consumers according to the amount consumed. But when it comes to practices in irrigation there are problems with this approach as water is a complicated natural, economic and political resource, and paying ISF is not customary in Cambodia. In order to increase the willingness to pay ISF, there are three aspects to consider: (1) ISF should be set from the start at a realistic level according to locality and gradually increased to the level of operation and maintenance costs; (2) it is important to help farmers understand the link between ISF and O&M; and (3) a simple cost and benefit analysis should be made to help farmers see a reasonable profit. Moreover, there is a need to increase crop productivity by providing support services, including credit, agricultural extension, new technologies

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Is Tourism in Siem Reap Pro-Poor?

*TUOT Sokphally and HING Vutha provide an update on tourism development in Cambodia, discuss the economic impacts of tourism in Siem Reap on local people, and offer policy recommendations for directing a greater share of tourism benefits to local communities and to the poor.**

The tourism industry in Cambodia has been growing rapidly for the last decade and has become the second main source of growth after the garment sector. In 2007, it is expected to generate USD718.3 million of direct economic activity, or about 9.3 percent of GDP, and USD1,561.9 million of both direct and indirect economic activity. In terms of employment, the sector is expected to create approximately 1,108,000 direct and indirect jobs, representing 15.8 percent of total employment in the same year.¹ Siem Reap, with Angkor Wat as the most well-known tourist attraction, has experienced rapid development in tourism in terms of the number of tourist arrivals, city landscape, tourism facilities and services. It received 856,510 foreign visitors in 2006, or about 50 percent of total foreign visitors arriving in Cambodia, a rapid increase from 264,000 visitors in 2001 (MoT, 2006).

Despite such rapid growth, some argue that the distribution of benefits from tourism in Siem Reap is uneven among different social groups, different economic activities and across different locations (Ballard, 2005; Economic Institute of Cambodia, 2005 in World Bank, 2006). The poor benefit less from tourism development, and thus the contribution of the tourism sector to poverty alleviation in the province has not been as significant as one would expect. As a result, Siem Reap remains one of the poorest provinces in the country. In order to better understand this dilemma, CDRI has analyzed the distribution of benefits from tourism by exploring the following questions: (i) What are the structure and nature of linkages between the tourism industry and the local economy? (ii) What are the transmission mechanisms of tourism impacts on local communities? And (iii), what role could national and local governments as well as civil society, donors and the private sector play in enhancing tourism benefits for local communities and the poor? The following is a summary of key findings from this study.

* TUOT Sokphally is a research associate and HING Vutha is an acting research manager at CDRI.

Overview of Tourism Development in Cambodia *Tourism Development and Policy*

The tourism industry in Cambodia has shifted from being a passive, quiet sector, playing only a minor role in the development of the country in the late 1980s-early 1990s, to being a dynamic engine of Cambodia's economy. The number of international tourists increased dramatically during 1995–2006 at an average annual rate of 20.4 percent, from 0.29 million persons in 1995 to 1.70 million in 2006. Tourism facilities and services, including hotels, guesthouses, tour agencies and restaurants also expanded rapidly (See Table 1). The development of this sector is attributed to: (i) the attainment of peace and stability since early 1990s, (ii) the diversity of tourism attractions (e.g., cultural tourism, ecotourism, natural tourism), (iii) an increase in international and domestic travel, and (iv) the government's development policies with particular focus on tourism development, such as the open sky policy, visas on arrival, and visa exemptions for Cambodians living abroad (NIS, 2005).

Tourism policy in the early 1990s was primarily designed to attract more tourists, focusing on developing tourism products, improving and facilitating access into

Table 1: Tourists and Tourism Services: 1998–2006

	1998		2001		2006	
	Overall	Siem Reap	Overall	Siem Reap	Overall	Siem Reap
International Tourists (in thousands)	290	-	605	264	1700	856
Hotels	216	24	247	47	351	91
Guesthouses	147	23	370	112	742	171
Tour Agencies	137	-	226	88	382	163
Tour Guides	369	280	727	603	2712	1978

Sources: Statistical Yearbook 2005, NIS and Annual Report of Tourism Statistics, MoT

and within the country, developing international markets, and strengthening human resource development of the government tourism administration. As the sector has grown rapidly and as poverty reduction has become a major objective in the government's socio-economic development plans, the current tourism strategy focuses not only on promoting growth, but also on better distribution of tourism benefits to the local communities and to the poor. In this context, the current tourism plan is based on the principle that tourism development must contribute to reducing poverty and ensure the equitable distribution of tourism revenues in a well planned and managed manner.

Tourism, Economic Growth and Poverty Reduction

Growing at a steady rate, Cambodia's tourism sector is playing an important role in boosting economic growth. Tourism's contribution to GDP in terms of Gross Value Added (GVA) has grown rapidly during 1993–2004, with an average annual growth of 28 percent. Tourism GVA

in constant 2000 prices in 2004 was 2,022.49 billion Riel (USD 503.61 million), or 11.2 percent of GDP, compared to 177.13 billion Riel (USD 64.48 million), or 2.1 percent of GDP in 1993.² Tourist expenditure was estimated at USD 744.51 million in 2004. As tourism is expected to continue to grow, this sector will become increasingly significant for sustaining economic growth in Cambodia.

Table 2: Tourism Gross Value Added and Tourist Expenditure

	1994	1998	2001	2004 ³
Tourism GVA in USD millions	87.69	106.1	340.6	503.6
Tourist Expenditure in USD millions	88.19	121.04	427.5	744.5
Share of GVA to GDP	2.4%	3.5%	9.0%	11.2%

Source: Statistical Yearbook 2005, NIS

Although tourism has been an engine of growth, its impacts on the local economy and poverty reduction have been limited. Ballard (2005) argued that the distribution of benefits from tourism is uneven, and people benefit more from employment in construction, services, and handicraft sectors than in agriculture. EIC (2005) in World Bank (2006) found that most of the jobs available for local people were unskilled casual construction work, while the more permanent jobs in other sectors have been much less significant.

Impacts of Tourism on Local People around Siem Reap

The findings in this section are based on a survey of 506 households and 10 focus group discussions (FGDs) conducted in eight villages in Siem Reap: Ta Check, Srah Srang Khang Cheung, Tek Thla, Sandan, Preah Dak, Ta Trai, Lor Ley, and Kork Trach. The study examines the impacts of tourism on local people in these communities in terms of *employment, income, land markets and general well-being*. The analysis focuses on the scope and scale of tourism impacts on different social groups (defined as *poor and non-poor*⁴), and on different types of communities based on distance to Siem Reap town or temple sites (defined as *the Near and the Far*⁵).

Employment Impacts

From the sample, tourism has generated some new employment, shifting the structure of employment from agriculture to manufacturing and services around Siem Reap. The extent of the shift is, however, modest. More than a third of individual earners in the surveyed households are involved in tourism jobs, which include construction work, hotel and restaurant staff, tour operators, recreation, petty trade, transport, handicraft/souvenir production and marketing, staff in temples or tourist site management, and some agriculture work for

the tourism market. The Near communities have a larger proportion of individuals working in tourism than the Far, while the poor are involved more than the non-poor. The bulk of employment that the poor group and the Near community receive, however, is in low paid jobs, such as unskilled construction, temple guards, cleaners, and petty traders.

Table 3: Employment Structure by Tourism Category, 2002-2006

Activity	Tourism		Non-Tourism	
Year	2002	2006	2002	2006
Community Type	in percent			
<i>Near</i>	43	47	57	53
<i>Far</i>	20	26	80	74
Well-Being Class	in percent			
<i>Poor</i>	32	39	68	61
<i>Non-Poor</i>	30	34	70	66
Overall	31	36	69	64

Source: CDRI's survey of 506 households in Siem Reap, May 2006

Between 2002 and 2006, the overall employment structure has not significantly changed. Forty-five percent of local earners worked in agriculture in 2006, declining from 49 percent in 2002. Meanwhile, 18 and 37 percent worked in the manufacturing and service sectors in 2006, rising from 16 and 35 percent, respectively, in 2002. There are two main reasons for these modest changes. Firstly, the study period is very recent, and we suspect that the most significant structural changes in employment had already occurred before the survey was undertaken. Second, the bulk of new employment generated by tourism is absorbed by migrants from other areas of the country. For example, jobs like moto-dup and tuk-tuk drivers are filled by non-local people, mostly from Kompong Cham, Kandal, Battambang and Prey Veng.

Income Impacts

Tourism is one of the major livelihood activities of local people. According to the survey, the average income from tourism represented about 47 percent of the total household income in 2006, which is quite high.⁶ The Near are more impacted by tourism than the Far communities, both in terms of sheer income from tourism and tourism income as a share of total income. While the poor tend to depend more on tourism than the non-poor, their absolute income from tourism is much less than the non-poor.

Tourism is also one of the most important factors contributing to the improvement of local households' total income. According to people's perceptions in the survey, about 50 percent of households reported an improvement in their income level in the period of 2002–2006. Nearly 50 percent of the reasons were related to tourism, including an increase in the number of family earners working in tourism jobs, increased agricultural production for the

Table 4: Household Income and Tourism Indicators

Community Type	Average income/household in ten thousand riels	Average tourism income/household	Tourism Income Share in percent
<i>Near</i>	830.1	334.2	49
<i>Far</i>	393.2	161.7	45
Well-Being Group			
<i>Poor</i>	316.6	154.3	49
<i>Non-Poor</i>	813.6	310.4	45
Overall	600	243.3	47

Source: CDRI's survey of 506 households in Siem Reap, May 2006

tourism market, an increase in new tourism jobs, and an increase in land values. It is important to also observe that that 26 percent of households⁷ reported income declines during 2002–2006, but the explanatory factors were social and not related to tourism, such as sickness, debts and family crises.

Land Impacts

Tourism has had a significant impact on land values in and around Siem Reap as indicated by the increasing number of land transactions, especially since late 1990s, which have led to a dramatic increase in land prices. The survey reveals that about 27 percent of households have sold some portion of land, while about 14 percent of households have purchased some land. The major reasons for land sales include renovating houses, basic family consumption and expenses, investing in higher productive businesses and assets, and non-productive farming.

Land sales can have both positive and negative effects on local people depending on how the money earned from selling land is used. If the money is used productively, i.e. buying productive assets or being used as capital to fuel other businesses or invested in children's education, then selling land can help improve a family's well-being.

Table 5: Land Transactions

	Land Sales		Land Purchases	
	% of household	average area/household (m ²)	% of household	average area/household (m ²)
Poor	21.7	4389.6	8.3	10438.9
Non-Poor	31.3	5636.1	18.1	11505.1
Overall	27.1	5208.5	13.9	11230.9

Source: CDRI's survey of 506 household in Siem Reap, May 2006

Box 1: A Household Becoming Worse off after Selling Agriculture Land

A poor couple in Ta Check village has three sons (aged 23, 21 and 17) and a daughter aged 14. The oldest son has married and has his own family outside the village. The younger son has left for Phnom Penh and his situation is unknown. The parents have very little education and only the daughter is currently in school.

Before 2002, this family grew paddy twice a year. Paddy production was more than adequate for household consumption, but did not allow them any savings. In 2002, the oldest son got married and this was the turning point of the family's fortune. In order to pay the dowry for his son's marriage, they sold all agricultural land (about one half of a hectare) for about USD 800. The husband left agricultural work and entered daily construction work. He is unhealthy so can work only about 20 days per month and earns 8,000 riels per working day. Later, their youngest son followed him to work and earns 7,000 riels per day. They occasionally borrow money to cope with daily expenses and health treatments.

Source: CDRI's Qualitative Field Work in Siem Reap, May-July 2006

Otherwise, selling land, especially farm land, can be detrimental as the family could lose a livelihood source, especially in the absence of alternative employment. From the point of view of local people, land

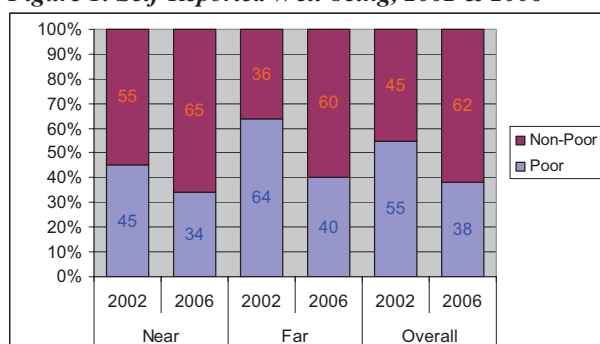
sales are very welcome and reportedly have had positive impacts on local people and communities. In dynamic land markets such as Ta Check village, for example, people reported an improvement in the quality of housing and increased numbers of motor bikes. Some of the land sellers buy larger areas of land in other areas away from the villages for agriculture production and become wealthier. The poor, however, tend to use all the money earned from land sales for family consumption, such as housing improvement, purchasing non-productive assets, or paying for the marriage of children. They end up leaving agricultural work and become dependent on high-risk day labour and casual jobs.

Well-being Impacts

Tourism development has contributed to the improvement of local people's well-being. According to people's perceptions, half of households reported that their well-being improved compared to the last 5 years. This improvement resulted in a significant decrease in the percentage of poor households in 2006 as compared to 2002. Thirty eight percent of households in 2006 perceived themselves as poor compared to 55 percent in 2002. A larger proportion of households reporting improvements in their well-being has been observed in the poorer communities, i.e., the Far community compared to the Near community. The factor that explains this phenomenon is the predominance of the poor in the Far community in the base year (2002) with a low-income base. Thus, an increase in income, even at smaller amounts, leads to the perception of greater improvement in well-being.

For all households, the well-being improvement was mainly explained by tourism factors, such as increases in income largely from tourism, better housing, better infrastructure, and higher land prices/values.

Figure 1: Self-Reported Well-being, 2002 & 2006



Source: CDRI's survey of 506 households in Siem Reap, May 2006

There are also a number of households that reported becoming worse off. According to the survey, 22 percent of households reported that their well-being declined, especially among the poor. This is mainly due to family and social factors, such as income decline because of a decrease in the number of earners, family shocks and crises, more dependent family members, and increases in goods prices. Most of these households are in the group reporting an income decline.

Conclusion and Recommendations

The growth of tourism in Siem Reap has had some positive economic impacts on local communities through employment generation, raising incomes and improving livelihoods. The benefits from tourism, however, are unevenly distributed among the various groups and are skewed in favour of the non-poor. The poor frequently face various barriers in obtaining greater benefits from tourism, including lack of education and skills, lack of capital or social networking and weak family structure. As a result, the poor have not benefited as much as expected from this phenomenon; and therefore, tourism development in Siem Reap does not appear to have a sufficient pro-poor nature.

In this sense, tourism policy and strategies should focus not only on promoting tourism growth, but also on enhancing benefits for the poor. In order to direct a greater share of tourism benefits to local communities and to the poor, the following recommendations are offered:

(i) Diversifying tourism attractions, destinations and activities
Increase tourist attractions and destinations in rural communities. An increase in the number of tourist destinations could increase the opportunities for local communities, including the poor, for involvement in the tourist industry, thus increasing their participation

in benefit sharing. Pradak village is a good example of this type of tourism approach where tourists are brought to see the palm-sugar production while travelling to Banteay Srey temple. The presence of tourists lead to the emergence of souvenir trade and other small businesses along the road, and consequently better livelihoods.

(ii) Redistribution of tourism benefits to the poor

Another measure concerns macroeconomic policies that provide national and local governments sufficient financial resources to introduce benefit redistribution to the poor. An appropriate and effective taxation policy could be a powerful tool to generate and enhance revenues from tourism. Part of revenues could be used to preserve tourism assets and environments, while another part could be used to implement some key components in the poverty reduction strategy. Those components, which are necessary in helping the poor participate further in the tourism development process, include: *education and skills training for the poor, health care, clean water and improved services for the poor, and improved access of the poor to tourism markets.* A greater share of Angkor Park entrance fees could be, for instance, used to fund projects that have pro-poor impacts.

The effective implementation of all the above measures requires tourism organisations, in particular the Ministry of Tourism and the Provincial Tourism Department, to develop sufficiently capable human resources, certain levels of authority and responsibility in planning and decision making, and revenue generation opportunities from tourism. It is also imperative to have deeper partnership and continuous support from the donor community, NGOs and the private sector to promote tourism growth and enhance equitable distributions of benefits to the poor.

Endnotes

1. The projection for 2007 is by World Travel & Tourism Council
2. Statistical Yearbook 2005, NIS
3. The calculation of Gross Value Added from tourism sector in 2004 is the most recent available data.
4. These social groups are defined by FGDs who base generally on the size of land, the type of housing, the possession of big assets, and the type of occupations. For example, the 'poor' are described as households who have no or own little agriculture land and less agriculture productive assets, by which paddy production is not sufficient for family consumption. The poor are also those who have low-income earning occupations such as farm workers, unskilled construction workers, cleaners or guards at temples or hotels, petty vendor, and scavenger.
5. The Near defined as communities with average distance of 8 kilometres from Siem Reap town or temple site for, while the Far are communities with average distance of 14-16 kilometers.

6. The degree of local people's dependency on tourism depends on tourism income share, which is calculated by average income from tourism divided by average total income. Tourism is a risky industry. It is assumed that households having tourism income of at least 40 percent of their total income would have difficulty if income sources from tourism disappeared.
7. Out of 130 households who reported income decline, 51 percent are poor and 84 percent earn some money from tourism.

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and access to agricultural inputs that can be provided by NGOs and the private sector.

Issues Related to Catchment Area

The term watershed is here defined as: "...an area of land that drains downslope through a network of drainage pathways, both underground and on the surface. Generally, these pathways converge into streams and rivers, which become progressively larger as the water moves on downstream, eventually reaching an estuary and the ocean. Watersheds can be large or small. Every stream, tributary, or river has an associated watershed, and small watersheds join to become larger watersheds". The impact of activities in the catchment area on river flow conditions and water quality are key areas for research. Deforestation and other development activities (e.g., mining exploitation) in upstream areas have caused problems both upstream and downstream. Potential issues that require attention are soil erosion, sedimentation, ecologic consequences of changing flow regimes, impacts on fisheries and aquaculture. In-depth study of catchment areas will provide information and data necessary for a cost-benefit analysis of any proposed development in the future.

Land and water use directly affects the flow of water, sediments and nutrients, and thus contributes to the alteration of aquatic systems downstream. Watershed management is far from limited to physical parameters as the application of social, ecological, and economic sciences has been proven to be absolutely essential. In order to promote sustainable management, a complex set of water governance issues must be developed among people of diverse social backgrounds and values and by drawing on experience from outside. The decision making process must not only consider physical and ecological issues, but also include the social and economic benefits and costs of alternative actions.

Concluding Remarks

The complexity of managing irrigation varies according to the size of the scheme. Larger schemes have a greater impact in terms of area and the number of households served, but require high investment and governance capacity. Water governance for all sizes of schemes depends on technical design, institutional arrangement and functionality in operating and maintaining the system. Well designed systems provide efficient water usage, which results in increased agricultural production and popular participation. The proper institutional arrangement should represent different communities who share water resources to solve the problems of over water usage within and across community boundaries. The operation and maintenance of the system will depend on the functionality of a decentralized organization, in which the members should be fairly and freely elected, share common interests and work independently from political interference.

Watershed management is a new concept in Cambodia and only limited experience with this form of integrated management exists and a number of difficulties have been encountered by those initiatives implemented or planned. There is a real need to document experiences and lessons learned and to build capacity among government agencies and relevant stakeholders.

Endnotes

1. The project also involves MOWRAM, MAFF and donor agencies such as Australian Government Overseas Aid Program (AusAID), and Agence Française de Development (AFD).
2. For the purpose of comparison and making the discussion more direct, the article will focus on small schemes versus large schemes. As 200-5,000ha is a significant interval in terms of size, some points of medium scale projects may be defined as small scale while some others may be defined as large scale,

The Economic Impact Analysis of Border Fees on Maize Production in Western Cambodia

*Nou Keosothea describes the potential to develop maize production and examines the importance of border fees on its cost-effectiveness.**

Cambodian agriculture accounts for around 30 percent of GDP, with garments, tourism and services making up most of the rest. At present, the area under cultivation is about 36,000 square km, which accounts for 20 percent of the total land area of the country. The major agricultural products include rice, rubber, maize, soybeans, sugar cane, cassava, bananas, timber and marine products.

Cambodia has the potential to develop the maize industry as a result of geography, land fertility and land availability. This has been recognised and prioritised in major national planning documents, including the Socio-Economic Development Plan II (2001–2005) and the National Poverty Reduction Strategy (2002–2004). In terms of cost competitiveness, Cambodia appears to have a potential comparative advantage in the production of maize relative to Thailand and Vietnam (Nou, 2005).

This potential, however, is not being realised because of many production and marketing constraints. Production constraints include lack of quality seed, technology, information and credit. Marketing constraints include lack of market information, high transportation costs and fees, and poor relationships and mistrust between farmers and buyers. Most agricultural exports are raw products because Cambodia has a very limited agro-processing capacity, and exports are informal in nature¹ and subject to high informal fees² at border crossings. This paper aims to analyse the economic impacts of border fees both at the aggregate level (i.e., foregone exports, aggregate income losses) and at the individual level (i.e., loss in net farm income) in western Cambodia.

* This article is based on a research project titled “Improving the Marketing System for Maize and Soybean in Cambodia” funded by ACIAR. The findings in this article were presented and agreed to at a Workshop on Improving the Marketing System for Maize in western Cambodia, Chamber of Commerce, Battambang, June 14, 2006. Nou Keosothea is a research associate at CDRI and currently studying for a PhD at the University of Canberra, Australia.

Maize production in western Cambodia

Banteay Meanchay (Malai), Battambang and Pailin are the maize production areas in western Cambodia. Tables 1 through 3 summarize the harvested area, production and yield in these regions in recent years.

Table 1: Harvested Area of maize in western Cambodia, 2002 to 2005

Western Cambodia	Harvested Area (hectare)				
	2002	2003	2004	2005	Average
Battambang	32,409	43,126	35,874	39,233	37,661
Pailin	1,611	4,301	9,647	16,653	8,053
Banteay Meanchay	8,435	7,745	4,647	3,167	5,999
Total	42,455	55,172	50,168	59,053	51,712

Source: MAFF, Agricultural Statistic 2002–2005

Table 2: Production of maize in western Cambodia, 2002 to 2005

Western Cambodia	Production (tonnes)				
	2002	2003	2004	2005	Average
Battambang	92,778	236,295	155,030	108,018	148,030
Pailin	4,833	17,204	43,354	66,606	32,999
Banteay Meanchay	9,329	15,133	10,489	9,554	11,126
Total	106,940	268,632	208,873	184,178	192,156

Source: MAFF, Agricultural Statistic 2002–2005

Table 3: Yield of maize in Western Cambodia, 2002 to 2005

Western Cambodia	Production (tonnes/hectare)				
	2002	2003	2004	2005	Average
Battambang	2.86	5.48	4.32	2.75	3.85
Pailin	3.00	4.00	4.50	4.00	3.87
Banteay Meanchay	1.11	1.95	2.26	3.02	2.08
Total	2.52	4.87	4.16	3.12	3.67

Source: MAFF, Agricultural Statistic 2002–2005

Although the data presented in Tables 1 through 3 are from official Ministry of Agriculture, Forestry and Fisheries (MAFF) data, there have been suggestions that these data underestimate true maize production in western Cambodia. A survey of commune heads in western Cambodia provides very different and higher estimates of maize yield (See Table 4, column 5, below).

Maize is grown by about 11 percent of households in the three maize-growing regions of western Cambodia. However, as shown in Table 4, the percentage is much higher in the region around Pailin City (73 percent) than it is in Battambang Province (9 percent) or Banteay Meanchay (8 percent).

To obtain an estimate of the importance of border fees for farm households that depend on growing maize for sale, it is necessary to estimate the net return per hectare.

Table 4: Maize producing household and average yield

Western Cambodia	Total households	Maize producing households*	Maize H/holds Share (%)	Average yield* (tonnes/ha)
Battambang	163,734	14,946	9.1	3 - 5
Pailin	10,331	7,496	72.6	4 - 6
Banteay Meanchay	123,917	9,471	7.6	2 - 3
Total	297,982	31,913	10.7	-

* Data based on estimates by commune heads

Table 5: Production costs and return of maize per hectare (ha) in Battambang

Income and Expenditure Items	Value (USD/ha)
Expenditure	
Land rent	30.0
Seed	33.6
Land preparation	40.0
Planting	5.0
Fertiliser	-
Pesticides	-
Herbicides	10.0
Irrigation	-
Harvesting	20.76
Other	-
Total costs	139.36
Income (3.5 ton/ha)	175.00
Net Return	35.64

Source: Nou Keosothea, survey 2006

Estimates of net returns from maize production were obtained in a recent survey conducted in Battambang. The results are summarized in Table 5 below.

Table 5 shows that the average net return per hectare is estimated to be USD35.64. This figure includes the effects of the existing border fees.

The main distribution channels for maize in Western Cambodia

About 95 percent of maize produced in western Cambodia is exported to Thailand. The remainder is either destined for domestic consumption, mainly for the CP Group in Phnom Penh, or in some years is exported to Vietnam. When they do occur, shipments to Vietnam tend to be small, because of the distance and the poor road conditions, especially in western Cambodia. There are four levels of traders involved in the export of maize from western Cambodia to Thailand: collectors, wholesalers, silo or small driers and Thai traders³ (Figure 1).

Fees for exporting maize from Western Cambodia to Thailand

Maize in western Cambodia is mainly exported to Thailand through Battambang and Pailin. Maize produced in Malai in Banteay Meanchey is also exported through Battambang. Tables 6 and 7 show the fees imposed on traders for exporting maize from western Cambodia to Thailand.

These border fees exist in spite of the AISP (ASEAN Integrated System of Preferences) Agreement which was signed in 2003 between Thailand, Malaysia, Indonesia and Brunei and Vietnam. Under the AISP Agreement, there is to be no tax for exporting agricultural commodities from Cambodia to those countries. And the only cost is an administration fee to be levied by the Ministry of Commerce for an AISP certificate. Even if an exporting company obtains the AISP Certificate, however, they apparently are still required to pay fees to the Cambodian and Thai border authorities at a similar level to those described in Tables 6 and 7. One exporter reported there was no benefit from AISP. In fact, as a company registered for the AISP certificate it was also liable for income tax (1 percent) and profits tax (10 percent). Anecdotally, there are allegedly companies that do not register for AISP Certificates and so do not pay income or profits taxes.

The economic impacts of border fees at the aggregate and individual level

Table 8 and 9 provide estimates of the economic impacts

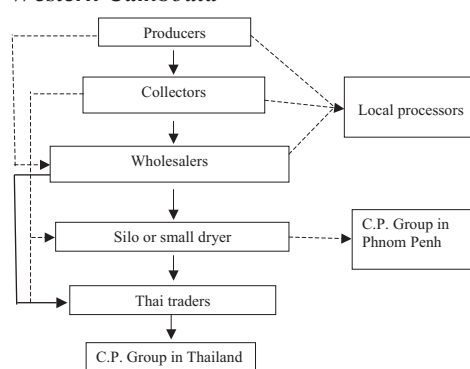
Figure 1: Marketing System of Maize and Soybean in Western Cambodia

Table 6: Fees to Transport Maize from Kamrieng Commune in Battambang province to Thailand (about 30 km from the border) 2005

Item	USD/tonne	Share of Total (%)
Fee on Cambodian side	3.70	45.8
Fees along road (30–40 baht at each place)	0.24	3.0
Fee imposed on truck	0.48	5.9
<i>Pheasy (fee)</i> on Cambodian side of border*	2.38	29.5
Fee for border police	0.24	3.0
Road contribution to transport authority	0.36	4.5
<i>Pheasy (fee) on Thai side of border **</i>	4.37	54.2
Total fees	8.07	100.0

* The distribution of *pheasy* on the Cambodian side of the border is not clear, but is believed to be for: administration fee, migration fee, Cambodian police at the border, soldiers at the border, commune/district at the border, Battambang Province and Ministry of Commerce. It accounts for 46 percent of total fees.

** The distribution of *pheasy* on the Thai side of the border is for administration fee, customs tax, police at border, soldiers at the border and commune at the border. It accounts for 54 percent of total fees.

Source: Nou, 2005

of border fees both at the aggregate and the individual level. In these calculations, it is assumed that all of the impact of the border fees is felt at the farm level as the farmer is the residual claimant on net income earned by the supply chain. The return to the farmer is what is left after all the costs in the supply chain, including the border fees, are taken out. It is assumed that other participants in the supply chain operate on a cost-plus basis. Table 8 begins with the estimated total production in each maize producing region of western Cambodia for 2005 using the data in Table 2. This is multiplied by an assumed export percentage of 95 percent⁴ to obtain an estimate of total exports. These export estimates are then multiplied by the estimated border fees obtained in Tables 6 and 7 to obtain an aggregate border fee estimated to be approximately USD1.2 million per year. The figures for total export fee are then divided by the number of farm households growing maize (Table 4) to obtain an estimate of the cost of the border fee for the average farm in each region.

It is perhaps more instructive to estimate the impact of the border fee on a per hectare basis. This is shown in Table 9. The estimated net income per hectare is presented for Pailin and Battambang/Banteay Meanchey in Column 2. These figures include the effect of the border fees. Column 3 presents the estimated border fees from Tables 6 and 7. These estimated fees/tonne are then multiplied by the estimated yield per hectare to obtain estimates of the border fees per hectare in Column 4. Column 5 represents the estimated change in net income per hectare by subtracting the cost of the border fee per hectare from the net income per hectare.

From Table 9, Column 5 it appears that the border fees have a substantial impact on the net income from commercial maize production. It is estimated that in Pailin, the net income per hectare would increase by about 44 percent, while in Battambang/Banteay Meanchey the net income per hectare would increase by nearly 80 percent in the absence of the border fees.

Continued on page 19

Table 7: Fees to Transport Maize from Pailin to Thailand

Item	USD/tonne	Share of Total (%)
Total fees on Cambodia side of border	2.07	43.4
International police	0.36	7.5
Customs	0.54	11.3
CAMCONTROL	0.18	3.8
Economic police	0.09	1.9
Soldier	0.09	1.9
Border authorities	0.36	7.5
Military police	0.09	1.9
Facilitation of bilateral border	0.36	7.5
Total fees on Thai side	2.70	56.6
Total fees	4.77	100.0

Economy Watch—External Performance

World Economic Growth

US real GDP increased at an annual rate of 2.2 percent in the third quarter of 2006, compared to 2.6 percent in the second quarter. This primarily reflected an increase in imports and downturns in residential investment, inventory investment, consumer spending on services and federal government spending.

The real GDP of the Euro zone in the third quarter grew by 2.6 percent compared to the same period a year earlier and by 0.5 percent compared to the previous quarter. Japanese real GDP grew by 2.7 from a year earlier and by 0.7 percent compared to the previous quarter.

Economic growth in China slowed to 10.4 percent in the third quarter, down from 11.3 percent growth in the previous quarter. Industry continued to grow at a faster pace than services and agriculture, while investment and exports remained the main drivers of this growth. The real GDP of South Korea in the third quarter grew by 4.8 percent from a year earlier and by 1.1 per cent compared to the previous quarter. The real GDP of Taiwan and Hong Kong in the third quarter grew by 5.0 percent and 6.8 percent, respectively, compared to the same period a year earlier.

The Malaysian economy in the third quarter grew by 5.8 percent compared to the same period a year earlier. The manufacturing sub-sector and the service sector grew by 7.1 percent and 6.5 percent, respectively, while agriculture grew by 6.2 percent. On the expenditure side, growth of final consumption expenditure and exports expanded by 7.1 percent and 10.5 percent, respectively, from a year earlier.

The Singapore economy in the third quarter grew by 7.1 percent compared to the same period in 2005. Manufacturing grew by 10.0 percent, while services grew by 6.6 percent. The moderate growth in manufacturing was due to slower growth in biomedical manufacturing, electronics and chemicals.

Thai real GDP in the third quarter grew at 4.7 percent compared to the same period in 2005. Agriculture grew by 5.2 percent, less than in the previous quarter, due to a slowdown in crops and livestock production. The non-agricultural sector grew by 4.7 percent from a year earlier, compared

to 4.9 percent growth in the previous quarter. The slower growth in non-agriculture was due to a slowdown in the raw material industry, capital goods and high technology.

World Inflation and Exchange Rates in International Markets

The softening in world crude oil markets was the common factor that helped keep inflation in check in the world's largest economies during the third quarter of 2006. Consumer prices rose in the 12 months by 3.3 percent in the US, 0.6 percent in Japan and 2.1 percent in the EU area, a deceleration from 4.0 percent, 0.7 percent and 2.3 percent respectively a quarter earlier. Inflation was also basically stable in the ASEAN economies. In Malaysia, Singapore and Thailand, inflation was 3.6, 0.7 and 3.6 percent, respectively, in the third quarter, compared to 4.1, 1.2 and 6.0 percent, respectively, in the previous quarter.

The US dollar advanced against the Japanese yen but continued to depreciate against most other currencies. The US dollar bought JPY116.3, a 4.6 percent appreciation from the previous quarter. However, during the same period, it traded at EUR0.78, depreciating from EUR0.80 a quarter earlier. The US dollar also dropped against the South Korean won, the Chinese yuan and the Singapore dollar.

Commodity Prices in World Markets

In the third quarter, the prices of rice, maize, palm oil, soy beans and crude oil rose, while the price of gasoline and diesel went down. The price of white rice, Thai 100% B second grade, in the Bangkok market was USD289.91/tonne, up from USD283.86 in the second quarter. Palm oil sold at USD446.85/tonne, up from USD397.87, while maize and soy beans sold at USD108.67 and USD207.38/tonne, respectively. The price of crude oil in the third quarter rose by 3.0 percent from the previous quarter to USD67.00/barrel. The prices of gasoline and diesel went down from the previous quarter, by 5.7 percent and 0.4 percent, respectively. Gasoline sold at US 52.70 cents/litre and diesel at US 55.66 cents/litre.

Prepared by Hing Vutha and Phim Runsinarith

Economy Watch—External Performance

Table 1. Real GDP Growth of Selected Trading Partners, 2001–2006 (percentage increase over previous year)

	2001	2002	2003	2004	2005	2006			2005	
					Q3	Q4	Q1	Q2	Q3	
Selected ASEAN countries										
Cambodia	6.7	4.8	7	7.7	-	-	-	-	-	13.4
Indonesia	3.8	3.8	4.9	5.1	5.3	4.9	4.6	5.2	5.5	5.6
Malaysia	0.5	5.6	5.4	7	5.3	5.2	5.5	5.9	5.8	5.2
Singapore	-2.3	2.6	1.4	8.5	7	7.7	10.7	8.0	7.1	5.7
Thailand	1.9	6.1	6.9	6	5.3	4.7	6.0	4.9	4.7	4.5
Vietnam	6.0	6.7	7	7.5	-	-	-	-	-	8.4
Selected other Asian countries										
China	7.5	8.1	9.9	9.5	9.4	9.9	10.9	11.3	10.4	9.6
Hong Kong	0.5	5.0	3.2	8.3	8.2	7.6	8.2	5.2	6.8	6.5
South Korea	3.0	6.1	3	4.7	4.4	5.2	6.1	5.3	4.8	4.7
Taiwan	-2.2	4.2	3.1	5.7	-	6.0	4.9	4.6	5.0	-
Selected industrial countries										
Euro-12	1.4	0.7	0.5	1.8	1.5	1.8	2.0	2.4	2.6	1.5
Japan	0.4	0.4	2.6	3.4	2.9	4.5	3.0	2.2	2.7	2.5
United States	1.2	2.4	3.1	4.4	4.1	1.1	5.6	2.6	2.2	3.0

Sources: Economist, countries' national statistics offices and central banks and ADB's Asia Regional Information Centre

Table 2. Inflation Rate of Selected Trading Partners, 2001–2006 Q1 (percentage increase over previous year—period average)

	2001	2002	2003	2004	2005	2006			2005	
					Q3	Q4	Q1	Q2	Q3	
Selected ASEAN countries										
Cambodia	-0.6	3.2	1.2	4.0	4.6	6.6	6.1	4.5	4.9	5.8
Indonesia	11.5	13.2	8.3	8.3	12	17.3	25.1	23.4	22.9	10.5
Malaysia	1.4	1.8	1.1	1.6	3.4	3.4	3.9	4.1	3.6	3.1
Singapore	1.0	-0.4	0.5	1.7	0.5	1.1	1.4	1.2	0.7	0.5
Thailand	1.7	0.6	1.8	2.7	5.6	6.0	5.7	6.0	3.6	4.5
Vietnam	-0.4	3.8	3.1	7.8	7.5	10.0	10.3	-	-	8.2
Selected other Asian countries										
China	0.9	-0.7	1.2	3.9	1.3	1.4	1.2	1.4	1.4	1.8
Hong Kong	-1.3	-3.0	-2.6	-0.4	1.4	1.8	2.0	2.1	2.3	1.1
South Korea	4.4	2.7	3.5	3.5	2.4	2.5	2.4	2.3	2.5	2.8
Taiwan	-0.01	-0.2	-0.3	1.6	3.0	2.5	1.4	1.5	-0.3	2.3
Selected industrial countries										
Euro-12	2.6	2.2	2.1	2.2	2.3	2.4	2.3	2.3	2.1	2.2
Japan	-0.6	-0.9	-0.3	Nil	-0.3	-0.5	0.4	0.7	0.6	-0.3
United States	2.8	1.6	2.3	2.7	3.8	3.7	3.7	4.0	3.3	3.4

Sources: International Monetary Fund, Economist and National Institute of Statistics

Table 3. Exchange Rates of Selected Trading Partners against US Dollar, 2001–2006 Q1 (period averages)

	2001	2002	2003	2004	2005	2006			2005	
					Q3	Q4	Q1	Q2	Q3	
Selected ASEAN countries										
Cambodia (riel)	3,916.3	3,912.1	3,973	4,016.3	4,134.3	4,154.3	4,081.3	4,095.3	4,145.3	4,092.5
Indonesia (rupiah)	10,261	9,311	8,577	8,938	9,994	9,999	9,175	9,115	-	9,705
Malaysia (ringgit)	3.80	3.80	3.80	3.80	3.77	3.78	3.73	3.65	3.67	3.79
Singapore (S\$)	1.79	1.79	1.74	1.69	1.68	1.69	1.63	1.59	1.58	1.66
Thailand (baht)	44.4	42.9	41.5	40.2	41.3	41.02	39.3	38.1	37.7	40.2
Vietnam (dong)	14,725	15,280	15,510	-	15,878	15,907	15,921	-	-	15,859
Selected other Asian countries										
China (yuan)	8.28	8.28	8.28	8.28	8.14	8.08	8.05	8.01	7.97	8.19
Hong Kong (HK\$)	7.80	7.80	7.78	7.79	7.77	7.75	7.76	7.76	7.78	7.78
South Korea (won)	1,291	1,251	1,192	1,145	1,029	1,036	976	949	955	1,024
Taiwan (NT\$)	33.8	34.5	34.4	33.6	32.3	33.4	32.3	32.2	32.8	32.1
Selected industrial countries										
Euro-12 (euro)	1.12	1.06	0.89	0.80	0.81	0.84	0.83	0.80	0.78	0.80
Japan (yen)	121.5	125.4	115.9	108.2	111.2	117.2	116.9	114.5	116.3	110.2

Sources: International Monetary Fund, Economist and National Bank of Cambodia

Table 4. Selected Commodity Prices on World Market, 2001–2006 (period averages)

	2001	2002	2003	2004	2005	2006			2005	
					Q3	Q4	Q1	Q2	Q3	
Maize (USNo.2)—USA (\$/tonne)	81.18	89.98	95.42	110.65	90.61	90.64	95.37	99.95	108.67	89.19
Palm oil—north-west Europe (\$/tonne)	259.13	353.91	402.03	427.47	376.41	391.52	395.75	397.87	446.85	381.32
Rice (Thai 100% B)—Bangkok (\$/tonne)	160.81	178.59	182.22	221.67	255.77	259.40	275.12	283.86	289.91	262.88
Soybeans (US No.1)—USA (\$/tonne)	163.89	182.58	218.86	262.03	214.37	210.42	210.96	207.02	207.38	224.25
Crude oil—Dubai (\$/barrel)	22.8	23.9	26.8	33.5	57.27	52.99	57.89	65.03	67.00	50.14
Gasoline—US Gulf Coast (cents/litre)	19.5	19.1	23	30.9	52.37	42.29	41.18	55.89	52.70	42.19
Diesel (low sulphur No.2)—US Gulf Coast (cents/litre)	18.72	17.85	21.63	29.48	50.02	49.90	47.72	55.89	55.66	44.35

Sources: Food and Agriculture Organisation and US Energy Information Administration

Note: All prices have been converted from US\$/ton to US\$/tonne, which 1 ton = 0.907 tonne.

Economy Watch—Domestic Performance

Main Economic Activities

In the third quarter 2006, private investment approvals significant decline, while tourism, construction project approvals and trade balance increased.

In the third quarter 2006, Cambodia's private investment project approvals, including expansion project, decreased sharply by 34 percent from the same quarter 2005 and by 89 percent from the previous quarter to USD 266.2 m. The decline was primary due to a slowdown in fixed asset agriculture sector and service sector approvals. The agriculture sector approvals fell from USD 216.9 m in the preceding quarter to nil in the third quarter. Service sector approvals declined by 95 percent to USD 94.5 m, compared to the preceding quarter. The fall caused by the drop of construction services, and hotel and tourism sub sector approvals of 100 percent and 87 percent (to USD 3.5 m), respectively. Meanwhile, industries investment approvals doubled to USD 171.7 m. The drivers of the increase in industries investment approvals were fix asset garment sub-sector, doubled to USD 23.2 m and "cement product" attracted large investment of USD 132.0 m. However, from these project approvals in this third quarter, 14 projects of industries sector can absorb 22,588 persons to work and 6 projects of service sector need 1,059 of labors.

Construction project approvals in Phnom Penh continued to increase in the third quarter 2006. The total value of approvals was USD 95.5 m, 25 percent higher than in the same quarter last year and 16 percent more than the previous quarter. The increase was due to the rise in approvals in villa and house construction (33 percent) and in flat construction (30 percent). Compared to the same period 2005, flat and other type construction rose by 62 percent and 30 percent, respectively, while villa and house constructions fell by 60 percent.

The trade balance in the third quarter 2006 experienced a surplus of USD 23.2 m, following a deficit of USD 122.4 m in the preceding quarter. The surplus was 76 percent lower than the same quarter last year; however, Cambodia's exports were up. Although total imports expanded but it was 97 percent of total exports, it means that exports sufficient to pay for imports in this quarter. Total exports were USD 807.5 m, 10 percent more than the same quarter last year and 24 percent higher than the amount in the preceding quarter. Garment exports rose by 24 percent to USD 782.0 m, of which 67 percent were exported to the US, an increase of 19 percent, and 24 percent to EU, a 32 percent increase. Exports of clothing products were USD 758.5 m, a 27 percent increase from the previous quarter. Exports of shoes products and other textile products were USD 18.9 m (59 percent up) and USD 4.5 m (50 percent rise),

respectively. The trade agreement limits US imports of Chinese textiles, has provided temporary safeguard to Cambodia garment exports which continued to see growth until this agreement expires in December 2008. Therefore, increase in garment exports indicate short-term prospect of Cambodia's garment industry; the long-term prospects, however, remain uncertain. Agriculture exports in the third quarter 2006 rose by 26 percent to USD 25.5 m. Rubber exports rose by 39 percent and fish exports increased by 38 percent, while wood exports and other exports also increased by 8.7 percent and 10 percent, respectively, from the previous quarter.

Cambodia's imports continued to grow in the third quarter 2006. There was a slight increase of 1.2 percent from the previous quarter to USD 784.3 m. Compared to the same quarter 2005, total imports rose by 24 percent. Gasoline and construction material rose by 5.6 percent to USD 13.1 m and by 8.7 percent to USD 42.5 m, respectively, while diesel imports dropped by 6.5 percent to USD 30.1 m. The volume of gasoline imports was 41,900 tonnes, up 5.3 percent and diesel imports were 120,700 tonnes, up 4.8 percent.

Total visitor arrivals in the third quarter 2006 increased slightly by 3.5 percent to 370,620. This number is expected to increase further in subsequent months due to the organization of Cambodian-Korean Culture Exhibitions in Siem Reap province between November 2006 and January 2007. The number of holiday visitor arrivals was 322,380 persons, 10 percent more than the previous quarter and 87 percent of the total visitor arrivals to Cambodia. Of the total visitors, arrivals by air rose by 9.7 percent to 224,202, of which Phnom Penh airport received 101,575 persons and Siem Reap direct flights were 122,627 persons. Visitor arrivals by land and water rose by 4.7 percent to 146,418; arrivals by land were 137,411 and by water accounted for 9,007. Total visitor arrivals to Siem Reap province in the third quarter were 186,740, and to Phnom Penh and other destination were 183,880. Korea accounted for the largest number of arrivals at 53,686 or 14.5 percent of total foreign visitors, followed by Japan at 11 percent, or 40,079 persons.

Public Finance

The government's budget deficit was KHR 191.9 bn in the third quarter 2006. The deficit declined by 32 percent from the second quarter. Budget revenue collection increased, while budget expenditure declined. Capital revenue increased by four times from the preceding quarter to KHR 15.4 bn due to privatization receipts, while current revenue was KHR 716.8 bn, a 1.4 percent

Economy Watch—Domestic Performance

decline. Non-tax revenue decreased by 10 percent from the preceding quarter to KHR 151.0 bn. The drivers of the decrease in non-tax revenue were the dramatic decline of forest exploitation, and post and telecommunication, of 57 percent (to KHR 0.3 bn) and 61 percent (to KHR 11.7 bn), respectively, and slight decrease in quota and export licenses receipts, and tourism receipts by 2.6 percent (to KHR 30.2 bn) and 8.8 percent (KHR 12.4 bn), respectively. Meanwhile, tax revenue increased by 1.3 percent to KHR 565.8 bn, or 77 percent of the total revenue collection. Revenue collection from VAT, custom duties and excise duties increased slightly by 9.6 percent (KHR 216.3 bn), 3.6 percent (KHR 157.2 bn) and 0.3 percent (KHR 103.3 bn), respectively.

Budget expenditure declined by 8.7 percent from the second quarter to KHR 924.0 bn in the third quarter 2006. Current expenditure, which accounted for KHR 606.9 bn, or 66 percent of the total expenditure, dropped by 3.0 percent and capital expenditure fell by 18 percent to KHR 317.2 bn. Expenditure in education and health, and other social and administrative services decreased by 26 percent to KHR 155.3 bn and 1.6 percent to KHR 301.5 bn, respectively, while defense and security spending rose by 33 percent to KHR 155.3 bn. Following the payment to current expenditure, capital spending also dropped by 18 percent from the earlier quarter to KHR 307.2 bn. Funds for capital expense included 74 percent were provided from external funded and 26 percent from domestic financing.

Inflation and Foreign Exchange Rates

Consumer prices in Phnom Penh in the third quarter 2006 increased by 3.1 percent from the second quarter. Food prices, and transportation and communication costs rose by 4.6 percent and 2.5 percent, respectively, from the preceding quarter. Compared to the same quarter in 2005, overall prices grew by 4.9 percent, while food prices, and transportation and communication costs grew by 5.8 percent and 10 percent, respectively. The annual growth of food prices, and transportation and communication costs in the year to the third quarter in 2006, however, was less than in the previous twelve months to third quarter in 2005.

The riel exchanged with the US dollar at 4,145.3 riels/USD in the third quarter, a depreciation of 0.9 percent from the second quarter and of 0.3 percent compared to the preceding year the same quarter. The riel also depreciated against Thai baht by 2.1 percent to 110.3 riels/baht. The riel, however, appreciated slightly by 0.4 percent against the Vietnamese dong, trading at 24.9 riels per 100 dong in the third quarter 2006. The riel depreciation has benefited many people in the cities

who hold foreign currency i.e., US dollar than people in rural areas, who usually hold local currency.

Monetary Development

According to Cambodia monetary survey, money supply (M2) in the third quarter 2006 rose by 6.9 percent to KHR 6,461.0 bn. Currency in circulation increased by 3.6 percent to KHR 1,512.4 bn. Riel deposits decreased by 13 percent from the preceding quarter to KHR 144.0 bn, while foreign currency deposits increased by 8.7 percent. Net Domestic Assets (NDA) increased by 11 percent to KHR 497.2 bn, of which domestic credits rose by 11 percent to KHR 2,398.6 bn and other deposits and reserves increased by 3.3 percent to KHR 2,895.8 bn. Of the domestic credit components, private sectors credits increased by 9.8 percent to KHR 3,290.2 bn, while net government credits fell by 7.3 percent to KHR 891.6 bn. Government deposits increased by 5.2 percent to KHR 1,162.1 bn in the third quarter. Net Foreign Assets (NFA) grew by 4.1 percent from the preceding quarter to KHR 6,958.3 bn. The increase of NFA and NDA enlarged money supply, also currency in circulation. These increases are usually offset by increases in government deposits, which take money out of circulation, as an apparently conscious policy response to ensure stable prices.

Poverty Situation—Real Daily Earnings of Vulnerable Workers

According to CDRI vulnerable worker survey in November 2006, real daily earnings of porters, waitresses/waiters, rice field workers and garment workers increased, while the earnings of cyclo drivers, small vegetable traders, scavengers, motorcycle taxi drivers, unskilled and skilled construction workers all decreased compared to the same period in 2005.

As shown in Table 8, daily earnings of motorcycle taxi drivers in November 2006 declined by 13 percent from the same period in 2005 to 8386 riels. The increase in the number of tuk-tuks and the number of motorcycle taxi drivers was the major cause of the earnings decline. About 90 percent of motorcycle taxi drivers came from provinces such as Prey Veng, Svay Rieng, Takeo, Kampong Cham and Kandal. Of this, 70 percent came alone, while 30 percent came with family. The majority of motorcycle taxi drivers take meals at food stands around/in the market, spending from 2500 riels to 5000 riels per day on food.

The earnings of small vegetable traders in November 2006 fell by 27 percent from 8385 riels in November 2005 to 6125 riels. The decline in earning was due to the increased number of small vegetable traders. As

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the result, 63 percent of small traders have no place for selling. The majority of small vegetable traders, 97 percent, were women, of which 45 percent are married, 33 percent are single and 22 percent are widows. Sixty percent of the small traders migrated from the provinces, mainly Kandal Kampong Speu, Svay Rieng, Prey Veng and Takeo. Of those who are from provinces, 54 percent hired accommodation, 25 percent stayed with relative, and 21 percent returned home.

The earnings of scavengers in November 2006 declined by 19 percent compared to the same period last year to 3903 riels, the lowest earning since 2004. A decrease in rubbish prices and an increase in number of scavengers were the major causes of the decline in earning. Scavengers spent about 2100 riels per day on food.

Real daily earnings of skilled and unskilled construction workers in November 2006 decreased by 9 percent and 21 percent, respectively, compared to the same period 2005. The decline in earning was primarily due to the increasing number of skilled and unskilled construction workers. Because the majority of skilled construction worker, 95 percent, and unskilled workers, 97 percent, are the primary family earners, their earning were not adequate to support their whole family.

The average daily earnings of garment workers rose by 3 percent from the same period in 2005 to 9264

riels. Sixty-one percent of garment workers reported their salaries vary according to their overtime work and absence. They usually send some money back home to support their families, leaving little savings for their future.

The daily earnings of rice field workers increased by 10 percent compared to the same period last year to 4653 riels. The availability of employment in the city, such as garment and construction workers, encourages labourers in rural areas, particularly youth, to migrate to work in the city. This movement cause rice field workers decreased and thus earning increase. Seventy-two percent of rice field workers have less than a hectare agriculture land and 28 percent have no land. In addition, 43 percent of rice field workers were in debt. Some of them borrowed from lenders who have large land holdings and pay back by labour sale, some borrowed from other money lenders at high interest rate, and others borrowed from NGOs.

The real daily earnings of waitresses and waiters in November 2006 rose by 16 percent compared to the same period 2005. Waitresses and waiters normally do not spend much in daily food because the restaurant owners provided food and accommodations for them.

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Economy Watch—Indicators

Table 1. Private Investment Projects Approved, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006			
								Q3	Q4	Q1	Q2	Q3
	Fixed Assets (USD m)											
Agriculture	51.6	63.9	9.8	0.4	40.3	3.7	12.3	10.4	9.1	126.5	216.9	0.0
Industry	650.5	162.6	109.4	105.2	67.7	137.2	189.2	349.7	82.0	40.1	76.9	171.7
. Garment	126.5	67.7	81.5	26.5	27.2	68.1	133.9	56.5	27.3	30.5	9.6	23.2
Services	154.7	222.6	150.1	118.4	145.3	168.4	92.0	44.1	28.1	60.7	2,043.2	94.5
. Hotels and tourism	112.0	171.8	79.8	73.8	47.1	124.1	55.9	33.6	22.6	0.0	26.2	3.5
Total	856.8	449.1	269.2	224.0	253.3	309.3	293.5	404.2	119.2	227.3	2,337.0	266.2
Total	-	-	-	-	-	-	-	320.6	-70.5	90.7	928.1	-88.6
Total	15.0	-47.6	-40.0	-19.5	10.5	31.1	-12.4	392.9	628.1	-52.2	2331.2	-34.1

Including expansion project approvals. Up to June 2006. Source: Cambodian Investment Board

Table 2. Value of Construction Project Approvals in Phnom Penh, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006			
								Q3	Q4	Q1	Q2	Q3
	USD m											
Villas and houses	21.2	20.0	16.4	15.9	23.4	20.0	30.3	19.2	5.4	10.1	5.7	7.6
Flats	227.3	290.5	174.8	167.8	179.9	91.6	167.6	41.3	45.1	39.9	51.8	67.1
Other	27.0	16.4	14.2	12.6	16.6	87.3	65.6	16.0	21.3	17.4	24.7	20.8
Total	275.5	326.9	205.4	196.3	219.9	198.9	263.5	76.5	71.8	67.4	82.2	95.5
Total	-	-	-	-	-	-	-	-26.7	-6.1	-6.2	22.2	16.1
Total	6.9	18.7	-37.2	-4.4	12.0	-9.5	32.5	-1.8	12.0	-36.5	-21.2	24.8

Source: Department of Cadastre and Geography of Phnom Penh municipality

Table 3. Exports and Imports, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006			
								Q3	Q4	Q1	Q2	Q3
	USD m											
Total exports	784.4	941.1	1,056.2	1,268.2	1,453.2	1,708.1	2,108.1	730.0	644.8	603.2	652.5	807.5
Of which: Garment	378.0	554.0	962.1	1,202.2	1,355.8	1,628.4	2,027.0	709.8	601.0	568.5	632.4	782.0
. To U S	74.1	486.0	714.1	840.9	943.4	1,099.8	1,270.9	489.5	408.1	402.5	438.6	522.8
. To EU	-	-	228.1	323.3	356.3	414.7	590.8	162.5	145.3	110.6	142.2	188.1
. To rest of the world	82.0	68.0	19.9	38.0	56.1	113.8	165.3	57.8	47.5	55.3	51.6	71.0
Agriculture	-	-	94.2	66.0	97.3	79.7	81.2	20.2	43.8	34.7	20.2	25.5
. Rubber	-	-	29.6	25.9	29.7	35.1	38.3	9.8	13.4	7.8	9.8	13.6
. Wood	-	-	32.9	22.3	16.0	10.2	11.1	2.1	2.0	2.1	2.3	2.5
. Fish	-	-	5.4	6.0	4.3	2.8	10.6	0.8	6.6	1.9	1.0	1.6
. Other	-	-	26.2	11.8	47.4	31.6	21.3	7.5	21.9	22.9	7.0	7.7
Total imports	1,112.2	1,237.4	1,417.7	1,501.4	1,707.8	1,824.9	2,149.0	632.3	691.1	690.7	774.9	784.3
Of which: Gasoline	-	-	-	-	25.9	33.2	30.2	9.9	10.7	10.9	12.4	13.1
Diesel	-	-	-	-	100.8	109.6	109.4	24.6	21.1	32.5	32.2	30.1
Construction materials	-	-	-	-	12.9	80.8	95.3	38.7	26.2	37.0	39.1	42.5
Other	-	-	-	-	1,568.2	1,601.3	1,914.0	559.1	633.1	610.3	691.2	698.5
Trade balance	-327.8	-296.3	-361.5	-233.2	-254.6	-116.8	-40.9	97.7	-46.3	-87.5	-122.4	23.2
Total garment exports	-	-	-	-	-	-	-	42.6	-15.3	-5.4	11.2	23.7
Total exports	-	-	-	-	-	-	-	41.7	-11.7	-6.4	8.2	23.7
Total imports	-	-	-	-	-	-	-	-5.1	9.3	-0.03	12.2	1.2
Total garment exports	66.4	47.0	74.0	24.9	12.8	20.1	24.5	10.3	15.5	27.8	27.1	10.2
Total exports	59.0	20.0	12.2	20.1	14.6	17.5	23.4	9.2	18.3	30.3	26.7	10.6
Total imports	1.6	11.3	14.6	5.9	13.7	6.9	17.8	20.5	26.1	32.6	15.6	24.3

Import data include tax-exempt imports. Sources: Department of Trade Preferences Systems, MOC and Customs and Excise Department, MEF.

Table 4. Foreign Visitor Arrivals in Cambodia, 1998–2006

	1998	1999	2000	2001	2002	2003	2004	2005	2006			
								Q3	Q4	Q1	Q2	Q3
	Thousands of passengers											
By air	186.3	262.9	351.7	408.4	523.0	456.0	626.1	202.8	251.5	275.4	204.4	224.2
By land and water	100.2	104.8	114.7	196.5	263.5	245.0	428.9	120.4	164.5	181.9	153.6	146.4
Total	286.5	367.7	466.4	604.9	786.5	701.1	1,055.0	323.2	416.0	457.3	358.0	370.6
Total	-	-	-	-	-	-	-	10.0	28.7	9.9	-21.7	4.1
Total	30.9	28.3	26.8	29.7	30.0	-10.9	50.5	41.8	9.8	20.2	21.2	14.7

Source: Ministry of Tourism

Economy Watch—Indicators

Table 5. National Budget Operations on Cash Basis, 1998–2006 (Billions of riels)

	1998	1999	2000	2001	2002	2003	2004	2005		2006		
								Q3	Q4	Q1*	Q2*	Q3
Total revenue	920	1326	1,528	1,530	1,744	1,764	2,126	624.1	827.9	595.9	731.5	732.2
Current revenue	-	-	-	1,521	1,728	1,733	2,107	609.5	701.6	593.2	726.9	716.8
Tax revenue	676	956	1,096	1,096	1,227	1,220	1,577	436.2	553.8	484.7	558.6	565.8
Customs duties	376	432	376	376	424	395	513	123.7	189.8	135.5	151.7	157.2
Non-tax revenue	204	348	424	424	501	513	530	173.2	147.8	108.5	168.3	151.0
Forest exploitation	20	36	28	29	15	7	2	0.3	0.1	0.5	0.7	0.3
Posts & telecommunications	88	108	124	122	123	120	94	30.9	38.0	11.4	30.0	11.7
Capital revenue	36	12	8	9	16	31	19	14.6	126.3	2.7	4.6	15.4
Total expenditure	1,348	1,788	2,332	2,332	2,948	2,757	2,932	912.4	998.9	881.7	1,012.0	924.0
Capital expenditure	368	624	976	977	1,388	1,171	1,163	335.4	350.3	340.1	386.6	317.2
Current expenditure	980	1,164	1,356	1,355	1,560	1,586	1,769	577.0	648.6	541.7	625.4	606.9
Education and Health	132	280	344	343	454	473	518	202.1	228.4	80.3	202.3	150.1
Defence and Security	448	464	404	405	438	411	423	116.7	71.4	78.1	116.7	155.3
Other ministries	332	412	636	637	668	702	828	258.2	348.8	383.2	306.4	301.5
Overall balance	-428	-462	-804	-802	-1,204	-993	-806	-288.3	-171.0	-285.9	-280.5	-191.9
Foreign financing	268	416	768	766	1,249	886	864	335.8	269.0	257.6	333.3	228.6
Domestic financing	112	60	36	37	-45	106	148	-47.5	-97.9	28.3	-52.8	-36.7

Provisional for 2006. * Revised. Source: Ministry of Economy and Finance.

Table 6. Consumer Price Index (change), Exchange Rates and Gold Prices (period averages), 1998–2005

	1998	1999	2000	2001*	2002	2003	2004	2005		2006		
								Q3	Q4	Q1	Q2	Q3
Consumer price index (percentage change over previous year)												
Provinces	-	5.8	5.4	-0.1	0.9	4.4	14.4	14.5	16.6	15.8	12.0	
Phnom Penh - All Items	14.8	4.0	-0.8	0.2	3.3	1.1	3.9	4.6	6.6	6.1	4.5	4.9
- Foods	14.1	7.6	-3.4	-2.5	1.8	1.5	6.4	6.0	10.6	10.6	6.3	5.8
- Transportation	15.1	3.5	6.6	-4.2	0.3	4.9	9.7	11.9	10.2	9.7	10.0	10.1
Exchange rates, gold and oil prices (Phnom Penh market rates)												
Riels per US dollar	-	-	3,840.8	3,916.3	3,912.1	3,973.3	4,016.3	4,134.3	4,154.3	4,094.8	4106.6	4145.3
Riels per Thai baht	-	-	95.8	88.2	91.1	95.8	99.9	100.2	101.4	103.5	108.0	110.3
Riels per 100 Vietnamese dong	-	-	27.1	26.6	25.6	25.6	25.5	25.9	26.1	25.4	25.0	24.9
Gold prices (US dollars per chi)	40.4	36.0	33.3	32.8	36.8	41.4	46.3	55.4	57.0	64.2	72.2	73.0
Diesel (riels/litre)	883	1,065	1,105	1,329	1,521	1,508	3,442	2,767	2,921	2,867	3,110	3,333
Gasoline (riels/litre)	1,378	1,613	1,760	2,113	2,084	2,150	2,633	3,633	3,750	3,767	4,000	4,200

* Revised. Sources: CDRI, IMF, NIS, Ministry of Planning, Ministry of Economy and Finance

Table 7. Monetary Survey, 1998–2006 (end of period)

	1998	1999	2000	2001	2002	2003	2004	2005		2006		
								Q3	Q4	Q1	Q2	Q3
Billions of riels												
Net foreign assets	1,726	2,019	2,589	3,080	3,737	4,027	4,797	5,391	5,475	6,410	6,682	6,958
Net domestic assets	-496	-576	-759	-876	-849	-698	-467	-397	-450	-699	-637	-497
Net claims on government	178	103	3	-75	-119	-128	-209	-404	-421	-755	-831	-892
Credit to private sector	655	763	898	936	1,059	1,337	1,817	2,386	2,394	2,778	2,997	3,288
Total liquidity	1,230	1,443	1,830	2,204	2,888	3,329	4,330	4,994	5,025	5,711	6,045	6,461
Money	543	531	540	609	813	937	1,153	1,279	1,323	1,449	1,512	1,563
Quasi-money	687	912	1,290	1,595	2,075	2,392	3,177	3,715	3,702	4,262	4,533	4,898
Percentage change over previous year												
Total liquidity	15.7	17.3	26.8	20.4	31.0	15.2	30.0	19.8	16.1	27.0	30.6	29.4
Money	41	-2.2	1.7	12.8	33.5	15.3	23.0	18.6	14.7	20.9	24.4	22.2
Quasi-money	1.3	32.7	41.4	23.6	30.0	15.2	32.8	20.2	16.6	33.6	32.8	31.9

Source: National Bank of Cambodia

Table 8. Real Average Daily Earnings of Vulnerable Workers (at constant Nov 2000 prices)

	Daily earnings (riels)									Percentage change over previous year		
	2000		2002		2003		2004		2005		2006	
	Nov	Nov	Nov	Nov	Nov	Nov	Feb	May	Aug	Nov	May	Aug
Cyclo drivers	7594	8975	8572	7614	7768	7873	8546	6063	7393	11%	-23%	-5%
Porters	6233	7044	6676	6895	6473	6519	7375	5238	7045	5%	-13%	9%
Small vegetable sellers	5256	6566	6532	6947	8385	6186	6492	5197	6125	-24%	-12%	-27%
Scavengers	2718	3685	3944	4446	4801	4984	4512	4266	3903	-14%	-2%	-19%
Waitresses*	2111	4365	4932	4448	3893	4670	4243	4292	4498	-1%	-8%	16%
Rice-field workers	4198	4304	4177	4139	4224	4127	4541	4137	4653	19%	3%	10%
Garment workers	6701	8904	9577	9277	8659	9184	7860	9264	8957	9%	6%	3%
Motorcycle-taxi drivers	8610	12,184	10,092	9204	9645	8884	8790	6744	8386	-23%	-28%	-13%
Unskilled construction workers	5399	6453	6558	6382	6691	5974	6407	6028	5263	-21%	-1%	-21%
Skilled construction workers	13,127	12,605	13,111	12,679	11,253	11,750	9833	9466	10215	-20%	-8%	-9%

* Waitresses' earnings do not include meals and accommodation provided by shop owners.

Surveys on the revenue of waitresses, rice-field workers, garment workers, unskilled workers, motorcycle taxi drivers and construction workers began in February 2000. Source: CDRI

Continued from page 20 **Update ...**

support enables CDRI to undertake quality locally demand-driven policy-related research on governance issues, while at the same time providing resources for the capacity development of CDRI research staff, including post-graduate study, and support for the provision of associated services, such as library, publishing and outreach, that are not funded through other specific projects. The CDRI-Sida partnership is a model for effective policy research and institutional development in Cambodia.

Research

CDRI has initiated several new research projects during the first quarter of 2007. One project explores rural-urban youth migration and its impact on urbanization and poverty in Cambodia. The research will take place

in Phnom Penh, Battambang, Poi Pet and Siem Reap. The study is supported by the United Nations Population Fund (UNFPA). Another project will assess the impact of agricultural liberalization on Cambodian vegetable growers. This small-scale project will examine how the ASEAN Free Trade Agreement (AFTA) has affected farmer living standards and how vegetable farmers have responded to such the challenges of trade. The project is supported by the Asia-Pacific Research and Training Network on Trade (ARTNet). A third project concerns cross border labour migration in the GMS and involves the Development Analysis Network (DAN), of which CDRI is the lead agency. Through collaboration among research institutes in Cambodia, Laos, Thailand, and Vietnam, the study will identify recent migration trends in region, and look at the impact of migrant remittances on household well-being. DAN research is supported by The Rockefeller Foundation.

Continued from page 11 **The Economic Impact ...**

Table 8: Estimated economic impacts of border fees at the aggregate and at the individual level

Western Cambodia	Total amount (tonnes)	Exported maize (tonnes)	Fee per tonnes	Total fee(USD)	Total maize produced households	Fee per farm* (USD)
Battambang	108,018	102,617	8.09	830,172	14,946	55.54
Pailin	66,606	63,276	4.47	282,842	9,471	29.86
Banteay Meanchay	9,554	9,076	8.09	73,427	7,496	9.80
Total	184,178	174,969	-	1,186,442	-	-

Note: The amount of fee per farm depends on land size and yield of each household

Table 9: Estimated Impact of Border Fees on Net Income from Maize Production for Sale

Western Cambodia	Net income per ha (USD)	Border fee per ton (USD)	Border fee per ha (USD)	% increase*
Maize production in Pailin	35.64	4.47	15.65	43.9
Maize production in Battambang/Banteay Meachay	35.64	8.09	28.32	79.45

*NOTE: * Percent increase in net income if border fee is eliminated*

Conclusion

Based on this research and analysis, the economic impacts of border fees are substantial. At the aggregate level, the border fees in western Cambodia are estimated to be of the order USD1.1 million in 2005, with 46 percent occurring on the Cambodian side and 54 percent occurring on the Thailand side. At the individual farm level, the fees appear to have a substantial negative impact on net income of the maize producers. If the border fees were eliminated, it is estimated that the net income per hectare of maize producers could increase 44 percent in Pailin and 80 percent in Battambang/Banteay Meachay.

Endnotes

1. Products were exported without obtaining the

certificate from Ministry of Commerce

2. Fees were not imposed on the agriculture products according AISP.
3. A detailed explanation of the function of each of these levels of traders is given in Nou (2005)
4. Personal communication from traders in western Cambodia

References

- Nou Keosothea (2005). *Improving Marketing for Maize and Soybeans in Cambodia*. (technical report for ACIAR project in Cambodia)
- Statistics Office, *Agricultural Statistics*, Various Issues 2002–2005 (Phnom Penh: Ministry of Agriculture, Forestry and Fisheries)

CDRI UPDATE

Management

2007 Cambodia Outlook Conference

On 23-24 February, CDRI, in partnership with ANZ Royal, hosted the inaugural 2007 Cambodia Outlook Conference on the theme 2007 Cambodia Outlook: Opportunities for Growth, Development and Shared Prosperity, with the opening keynote address delivered by Samdech Hun Sen, Prime Minister of the Royal Government of Cambodia. The conference involved more than 200 invited leaders from government, the private sector, the research community, civil society and international development agencies. It considered the following session themes:

- A Macroview: Key Indicators for Growth, Development and Shared Prosperity
- Cambodia in a Neighbourhood of Growth and Opportunity
- Fuelling the Engines of Growth and Development: Finance, the Private Sector and Foreign Direct Investment
- From Aid Dependency to Shared Prosperity: Managing Cambodia's Oil and Gas Resources
- Fighting Poverty: Now for Targeted Action
- Prospects and the Way Ahead.

The next issue of the Cambodia Development Review will focus on the main issues and presentations from the Outlook Conference, and short to medium term prospects for Cambodia's development. Presentations from the 2007 Cambodia Outlook Conference are available on CDRI's website at: www.cdri.org.kh.

Senior Appointments

CDRI is pleased to announce two new appointments to

its senior management team. Dr Hossain Jalilian has been appointed Director of Research, effective from April 2007. Dr Jalilian, an accomplished development economist with a PhD from the London School of Economics, is currently with the UK's Bradford University, where he has been a teacher, course director and doctoral programme coordinator in development studies, while also undertaking development and economic planning consultancies in Malaysia, Nigeria, Mozambique, China, Vietnam and Tanzania. Dr Brett Ballard, who has been acting in the role, will assume a position of Senior Research Adviser.

Mr Ung Sim Lee has been appointed Director of Operations effective from late March 2007. He holds qualifications in finance and business administration and is an experienced senior manager, working in the past with the National AIDS Authority, UNDP, World Fish Centre and the EU in Cambodia. His appointment achieves CDRI's long planned 'Cambodianisation' of the position of Executive Manager, vacated by Mr Ray Hossinger who has resigned to take up a challenging new position in South Africa. CDRI expresses its deep gratitude to him for the very significant contribution he has made to CDRI, its programmes, systems and governance over the past 4 years, and wishes him well in his new role.

Sida Support

In February 2007 CDRI and the Swedish International Development Cooperation Agency (Sida) signed an agreement extending Sida's much appreciated contribution to CDRI's core operating costs, and specific support for CDRI's Democratic Governance and Public Sector Reform research and policy programme. Sida's

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