

# 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 nature<sup>1</sup> and subject to high informal fees<sup>2</sup> 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
<b>Total</b>	<b>42,455</b>	<b>55,172</b>	<b>50,168</b>	<b>59,053</b>	<b>51,712</b>

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
<b>Total</b>	<b>106,940</b>	<b>268,632</b>	<b>208,873</b>	<b>184,178</b>	<b>192,156</b>

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
<b>Total</b>	<b>2.52</b>	<b>4.87</b>	<b>4.16</b>	<b>3.12</b>	<b>3.67</b>

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

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 traders<sup>3</sup> (Figure 1).

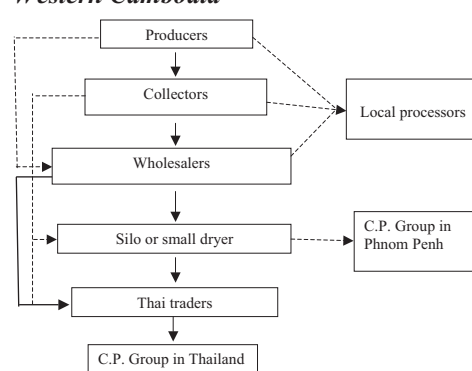
#### Fees for exporting maize from Western Cambodia to Thailand

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). Anecdotaly, 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 (%)
<b>Fee on Cambodian side</b>	<b>3.70</b>	<b>45.8</b>
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
<b><i>Pheasy (fee) on Thai side of border **</i></b>	<b>4.37</b>	<b>54.2</b>
<b>Total fees</b>	<b>8.07</b>	<b>100.0</b>

\* 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 percent<sup>4</sup> 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 (%)
<b>Total fees on Cambodia side of border</b>	<b>2.07</b>	<b>43.4</b>
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
<b>Total fees on Thai side</b>	<b>2.70</b>	<b>56.6</b>
<b>Total fees</b>	<b>4.77</b>	<b>100.0</b>