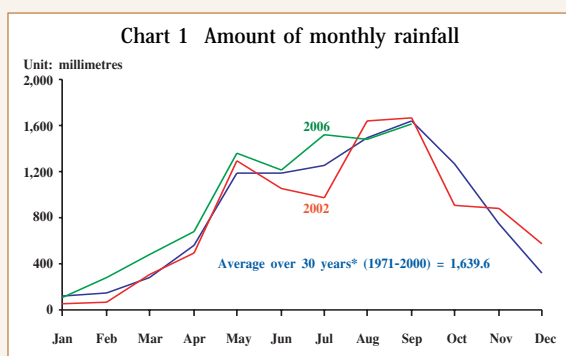
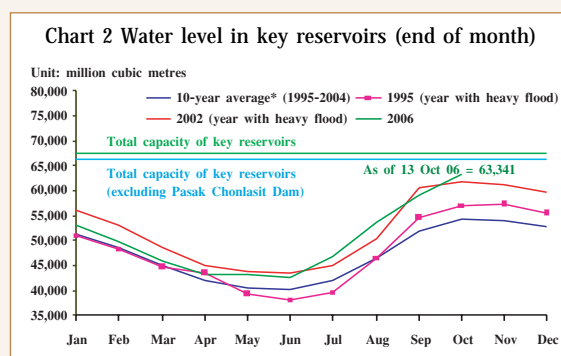


Impact of flood on the Thai economy in 2006

Between August and mid-October 2006, Thailand was affected by several low pressure cells which developed into tropical depressions, the last of which was the tropical depression "Xangsane", causing continued heavy rains and leading to flooding in several regions of Thailand. The affected areas included 16 provinces in the Northern region, 16 in the Northeastern region, 10 in the Central region, and 6 in the Eastern region, covering 4.2 million rai or approximately 3.2 per cent of Thailand's total agricultural area. Over the first 9 months of 2006, the accumulated amount of rainfall reached approximately 8,800 millimetres, much higher than the average rainfall over the past 30 years and exceeding even that in 2002, the year with particularly severe flooding. In addition, the water level in major reservoirs was higher than the level recorded during the floods of 1995 and 2002. As a result, the recent flood adversely affected the production of several major crops, including first crop paddy, sugarcane, corn, soybean, and other vegetables and farm produces, as well as impacted the Thai economy in various aspects as follows:



Note: *30-year average for each month
Source: Meteorological Department



Note: *1. 10-year average value for each month
2. The construction of Pasak Chonlasit Dam, with capacity of 960 million cubic metres, was completed in October 1999.
Source: Royal Irrigation Department

1. Impact on major crop production

Out of the 4.2 million rai of agricultural areas being affected by the flood, around 3.4 million rai or approximately 2.6 per cent of Thailand's agricultural areas are expected to be damaged, resulting in losses of major crop production in the 2006/2007 harvest season. Production¹ for the current harvest season is now forecasted to be 1.24 million tonnes lower than the projection made in September 2006 by the Office of Agricultural Economics. Most of the crop damage is expected to occur in the fourth quarter of 2006. Focusing just on the damage in year 2006, crop production is forecasted to be reduced by 1.19 million tonnes, valuing approximately at 8,000 million baht²

Table 1 Assessment of crop production loss in 2006

Crops	Production projection (million tonnes)		Estimated production loss in 2006 ^{2/} (million tonnes)	Price ^{3/} (Baht per tonne)	Estimated value loss in 2006 ^{2/} (Million baht)
	As of Sep 2006 ^{1/}	As of Oct 2006 ^{2/}			
First crop paddy	23.98	22.82	1.16	6,759	7,867
Sugarcane	54.15	54.14	0.01	800	7
Com	3.65	3.63	0.02	5,150	94
Soybean	0.22	0.22	0.001	11,170	9
Major crop production index (1988 = 100)	195.2	193.1	$\Delta\% = -1.1$		
Total					7,977

Note : ^{1/}Projection by the Office of Agricultural Economics, Ministry of Agriculture and Cooperatives

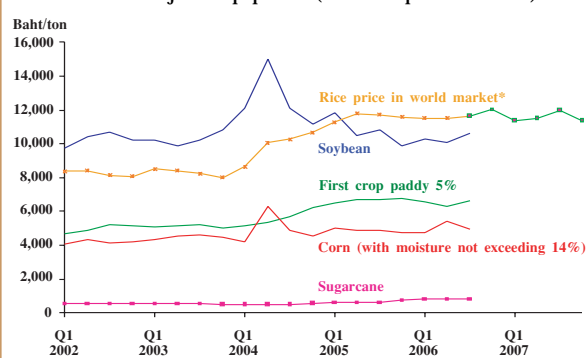
^{2/}Projection by the Bank of Thailand (as of 16 October 2006)

^{3/}Average farmer's selling price in September 2006

¹ First crop paddy, sugarcane, corn and soybean

² Damages to vegetable production are not expected to be significant due to small affected area (only 0.02 million rai) and a short vegetable life cycle which allows replanting as soon as the flood subsides.

Chart 3 Major crop prices (2002 - September 2006)



Note: * Figures for 2006 Q4 -2007 Q4 are taken from the World Economic Outlook projection (IMF) in September 2006

Source: Ministry of Agricultural and Cooperatives

Table 2 Farm income from major crops

Per cent (YoY)	2005	2006 ^E		2006 ^E	
		(before the flood)		(after the flood)	
		Year	Q4	Year	Q4
Farm income	18.1	29.8	18.1	28.4	14.6
Crop production	-4.8	6.3	5.5	5.2	2.4
Crop prices ^{1/}	24.1	22.0	11.9	22.0	11.9

Note: E = estimated data

^{1/}Based on the assumption of unchanged crop price due to high current stock levels

Source: BOT estimates

Table 3 Estimated impact of flood on nominal GDP using I-O table (2000)

Unit: million baht

Crops	Loss in 2006	Impact on nominal GDP		
		Direct	Indirect	Total
First crop paddy	7,867	5,472	1,983	7,455
Sugarcane	7	4.5	0.6	5.1
Corn	94	57	0.3	57.3
Total	7,968	5,533.5	1,983.9	7,517.4
Total (including industry linkage effect)		5,533.5	2,725	8,259
Per cent of GDP				0.12

Source: BOT estimates

Note: Direct effect measures the impact of loss on nominal GDP based on the ratio of value added to production cost. Indirect effect measures the impact of loss on related industries according to the economic structure specified in the I-O Table (2000).

and equivalent to a decline of major crop production index by 1.1 per cent from the previous projection.

2. Impact on crop prices

Although the production of major crops such as rice, sugarcane, corn, and soybean was affected by the flood, the impact on crop prices in domestic market is expected to be insignificant due to relatively high stock of inventory especially for rice³. Indeed, the growth rate of major crop prices for the whole 2006 is projected to decelerate slightly from that of last year, in line with the trend of world agricultural price.

3. Impact on farm income from major crops

As explained above, flood reduced major crop production, while leaving prices relatively unchanged (under the assumption that current inventory of major crops is high compared to the levels during past floods.) As a result, the growth of farm income from major crops for 2006 is now expected to drop slightly from 29.8 per cent, the previous projection under normal circumstance, to 28.4 per cent. Nevertheless, overall growth of farm income in 2006 is likely to remain above that of 2005, which should continue to contribute positively to farmers' purchasing power and thus support private consumption going forward.

4. Impact on the Thai economy

The damage to crop production in 2006 by the amount of 7,968 million baht is equivalent to a reduction of 1.1 per cent in terms of major crop production index. Using the statistical relationship between major crop production index⁴ and real GDP, the estimated production loss is projected to lower real GDP in 2006 by 0.09 per cent.

Taking into account the impact on various related industries according to the 2000 Input-Output Table, total production loss would reach 19,300 million baht, equivalent to 0.25 per cent of nominal GDP in 2006. The estimated loss in production will cause nominal GDP to decline by 8,259 million baht or 0.12 per cent (using sectoral value added per unit of output as a distributing factor).

Although the preliminary estimate of the impact of flood on the agricultural sector and GDP is not large, the overall impact on the economy would be higher if the damages to trade, buildings, infrastructure, properties and public welfare were also included in the assessment. Therefore, the MPC deemed it necessary to continue to monitor closely the flood situation and its impact on the Thai economy.

³ According to data from US Department of Agriculture (USDA), Thailand's stock of rice at the end of 2005/2006 harvest season is estimated at 3.8 million tonnes, or 1.5 million tonnes higher than the level at the end of 2004/2005 harvest season.

⁴ The relationship between major crop production index (MCPI) and real GDP during 1993-2006 Q2 is as follows: (p-values in parentheses)

$$\text{LOG}(\text{Real GDP}) = 0.08 \cdot \text{LOG}(\text{MCPI}) + 13.52 + 0.98 \text{ AR}(1) \quad R^2 = 0.97$$

(9.12) (25.55) (31.69)