

# REPORT ON

## ADDITIONAL IMPACTS TO RP PHASE I AND II (OUT OF RESETTLEMENT SCOPE) STUNG CHINIT IRRIGATION PROJECT

### 1 BACKGROUND

1. The approved and implemented RPs for phase I, II and III covered impacts resulting from (i) the construction of the main and secondary canals and drainage from the southern catchments area, along with the embankments of the reservoir; (ii) inundation of the Stung Chinit reservoir; and (iii) damaged crops and permanently flooded farms in Ochork due to heavy rains in 2006. The RPs for phase I and II were based on the detailed design (DD).

2. Additional people claiming that their farms had been flooded during the rainy season of 2005 and 2006 and which could be linked to the construction of the irrigation system came forward in 2007. The farms of these people are located in areas in (i) the command area (Phase I, main and secondary canal component), and (ii) in Baksna village and area above 16 km in Kampong Sdech village (Phase II, reservoir component).

3. Per investigation conducted by the IRC, these additional impacts occurred in 2006 which resulted in the loss of rice crops and some rice land in Bak Sna, and Kro Yea communes, Baray district; and Kro Va, and Kampong Thmor communes, Suntuk district. To address these impacts, this report has been prepared (i) to present the scope and magnitude of said adverse impacts; (ii) measures to be taken to address and further minimize these adverse impacts; and (iii) specific measures to adequately compensate and resettle and rehabilitate the affected households.

### 2. DEMARCATION OF THE FLOOD LEVEL IN 2006 AND ENTITLEMENT

4. To determine the eligibility of the additional affected people, it was agreed during a joint meeting in June 2007 between the IRC, MOWRAM and the ADB that MOWRAM would demarcate the flooded areas based on the water level statistics in 2006 available in MOWRAM. The demarcation on the land was completed by MOWRAM in February 2008 and the demarcation is shown in **Figure 1**.

#### 2.1 Flooded level in the eastern side of main canal command area in 2006

5. Based on available data, flood water on 16 August 2006 reached a maximum level of 252.0m<sup>+</sup> at the Tang Krasang River. Water overflowed the river banks into paddy fields at the eastern side of main canal. Flood water gradually receded to 251.0m in few days, then 250.60m after about 4 days. Consequently, about 280 ha of farms have been damaged, some temporarily during the flood of 2006, while the farms of others are permanently under water.

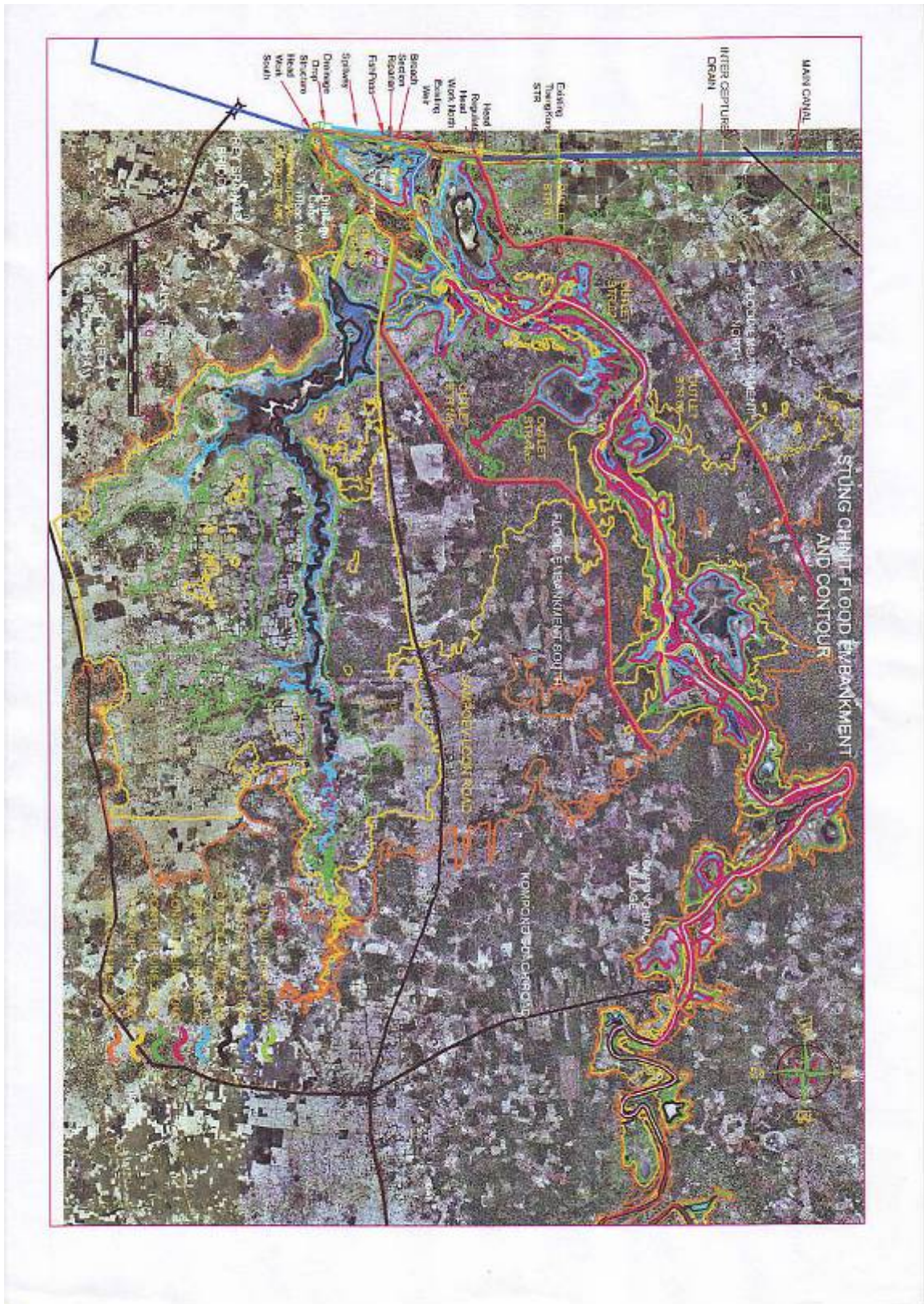
#### 2.2 Flooded Area in Krayea and Baksna Commune

6. This area is located upstream of Stung Chinit River, about 26 km from spillway. Said area is prone to flooding because it is depressed like a pond and is close to the Stung Chinit River. Specifically, the affected farms are located between contour level 251.0m and 252.0m, or a total of about 119ha.

## 2.3 ENTITLEMENT MATRIX

	Type of Loss	Application	Entitled Person	Entitlements
1	Permanent Flooded rice land	<b>Marginal impact</b>	Owners <b>with/without</b> acceptable (recognized) proof of ownership	+Cash compensation at replacement cost. \$1000 per hectare +AP will be given sufficient time to harvest crops on the subject property
		<b>Vulnerable APs</b>		<b>If falling in one of the categories of vulnerability</b> , cash assistance of \$20 for each vulnerable factor the AP belongs.
2	Damaged Rice Crops	<b>Rice crops damaged in 2006</b>	Owners with acceptable (recognized) proof of ownership and their rice land located in the flood areas demarcated by MOWRAM	Transitional allowance of \$260 per hectare of land lost below 252 contour line (all pieces of rice land above 250 CL have an average yield of rice productivity per year of 1.5 tons per hectare at a current market value of 695 Riel per kilogram).
3	Other Structures (Only Graves)		All APs	+Cash compensation at replacement cost for the affected assets.

Figure 1: Demarcation for flooded areas in 2006 out of resettlement scope.



### 3. SCOPE OF IMPACTS

7. Based on the DMS conducted in 2007 and 2008, additional impacts during the flood in 2006 cover a total of 788,841.29m<sup>2</sup> of permanent flooded rice land and 3,203,857.17 m<sup>2</sup> of rice crops damaged belonging to 737 households. Of this number of affected households, 63 fall in one or more of the categories of vulnerability. In all, the DMS counted a total of 71 vulnerable factors. The detailed additional impact data is shown in **Table 1**. There are 133<sup>1</sup> affected households that will lose more than 10% of their productive lands. The DMS determined that the average remaining rice land of the affected households is 16,863.57m<sup>2</sup>.

### 4 COMPENSATION AND ASSISTANCE

8. Per consultation with all APs during the DMS, the people requested cash compensation for permanent flooded rice land and damaged rice crop in 2006. The compensation for permanent flooded rice land and damaged rice crops will be based on the rates in the update replacement cost rates in the RP phase II for Stung Chinit reservoir.

9. The damaged crops will be compensated as transitional allowance amounting to \$260 per hectare of lost land. Said lost lands are located at contour line 252 (all pieces of rice land above 250 CL have an average yield of rice productivity per year of 1.5 tons per hectare at a current market value of 695 Riel per kilogram). This transitional allowance covers for their lost rice production in 2006. Moreover, for each factor of vulnerability, a household will get cash assistance of \$20. There are 133 households of the total whose rice land is more than 10% permanently flooded. They will be entitled to the income restoration training program<sup>2</sup> according to the approved RP phase III. However, their remaining rice land of the 133 households is considerably large with an average of **16,863.57m<sup>2</sup>**.

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<sup>1</sup> The last data from MOWRAM dated 05 November 2008.

<sup>2</sup> The IRC will negotiate with the Envisioning firm to arrange the income restoration program for the 133 AHs after official approval on this report from the ADB-CARM.

**Table 1: Detailed additional Impact data**

តារាងសង្ខេប ចំនួនគ្រួសារដែលប៉ះពាល់ក្នុងតំបន់ស្រែចម្រៅប្រព័ន្ធស្រោចស្រពស្ទឹងជីនិត និងហេដ្ឋារចនាសម្ព័ន្ធជនបទ ខេត្តកំពង់ចាម

The Summary List of additional impact of PAPs in Stung Chinit Reservoir of Stung Chinit Irrigation and Rural Infrastructure Project Kampongthum Province

ស្រុកឃាបដំបែង BARAY District ( Phass II )

ឃុំ		ឃុំ		ចំនួនគ្រួសារ	គ្រួសារពិការ	ស្ត្រីមេម៉ាយ	ចាស់ៗ	គ្រួសារក្រីក្រ	Affected Property			ប៉ះពាល់អចលនទ្រព្យ			ផ្ទៃដីប៉ះពាល់ (ម <sup>២</sup> ) Aff. Rice Area( m <sup>2</sup> )		គ្រួសារធាត់ បង់ដី
Commune Name	Village Name		Aps Hh						Disable H/h	Widow	Aged H/h	Income< 10\$/m	Mango	Cashew	other	Grave	
ឃុំស្នា	Basna	ត្រពាំងទួក	Tropaintouk	121		11	5	1							204,288.95	277,632.00	44
		បាក់ស្នាលើ	Basnaleu	96	4	14	5	1							257,545.29	45,478.58	42
		បាក់ស្នាក្រោម	Basnakrom	70	2	19	6								153,615.00	2,700.00	37
		ដោម	Dorm	22		1									36,992.05	54,744.05	5
ក្រវា	Krova	កំពង់ស្ពឺច	Kompongsdach	64	1	1			10	10	30	99		16,500.00	23,700.00	3	
ក្រយា	Kroyear	ក្រយា	Kroyear	12										119,900.00		2	
សរុប 3 ឃុំ 6 ភូមិ				385	7	46	16	2	10	10	30	99		788,841.29	404,254.63	133	

ស្រុកសង្កែក Sontuck District ( Phass I )

ឃុំ		ឃុំ		ចំនួនគ្រួសារ	គ្រួសារពិការ	ស្ត្រីមេម៉ាយ	ចាស់ៗ	គ្រួសារក្រីក្រ	Affected Property			ប៉ះពាល់អចលនទ្រព្យ			ផ្ទៃដីប៉ះពាល់ (ម <sup>២</sup> ) Aff. Rice Area( m <sup>2</sup> )		គ្រួសារធាត់ បង់ដី
Commune Name	Village Name		Aps Hh						Disable H/h	Widow	Aged H/h	Income< 10\$/m	Mango	Cashew	other	Grave	
កំពង់ឆ្នាំង	Kompong thmar	ខ្វែក	Kverk	147											1,133,612.11		
		ស្នា	Snor	205											1,665,990.43		
សរុប 1 ឃុំ 2 ភូមិ				352											2,799,602.54		
Grand total				737	7	46	16	2	10	10	30	99	0	0	788,841.29	3,203,857.17	133

## 5 TOTAL BUDGET FOR ADDITIONAL IMPACTS

10. Basis of unit rates for permanent flooded rice land compensation derived from unit rates in the RP phase II. During the DMS, the working group also consulted with the APs and non-affected people about land price. The people in that area informed that land price now (during the DMS) is stable due to the national election. No land speculators have come to the areas. Most respondents said that the rice land in the area above 252 CL is around \$1,000 per hectare.

11. The flooded rice land above 252 CL in the eastern side, Krayea, Baksna, Krava communes is categorized as rice land type 2<sup>3</sup> indicated in the RP phase II. This rice land type was \$700 per hectare in RP phase II, but based on the reply from people in the area was \$1,000 per hectare. During the consultation in June 2008, the working group also informed them about the price of rice land and they all agreed with the rate of \$1000/ha. The update unit rates for rice land and transitional allowance are shown in **Table 2**.

**Table 2:** Unit rates for rice land and transitional allowance

<b>Transition Allowance</b>				
No	Description	Output/ha (kg)	Price of rice/kg (Riels)	Transition allowance/ha (Riels)
1	Land Type 2	1,500.00	695.00	1,042,500.00
<b>Amount in USD: \$260/ha</b>				
<b>Land Price (Update)</b>				
	Land Type	PR phase II (\$/ha)	Updated land price (\$/ha) in August 2008	
2	Land Type 2	700.00	1,000.00	

12. The compensation rates for trees/fruit trees are based on the rates established in the RP phase II. Present breakdown of budget. Since fruit trees in the areas located far from the Phnom Penh and this is boom in fruit tree farms around the areas the fruit tree prices are stable compared to the RP phase II. Therefore, the compensation rates for the additional affected fruit trees/trees are the rates in the RP phase II (see detailed in **table 3**.)

**Table 3:** Compensation rates for trees/fruit trees

Type of Tree	Cost of Seedling (US\$)	Annual Produce value per tree (US\$)	Compensation Value for 5 year lost yield. (US\$)	Total Value per Tree (US\$)
Mango	1.50	5.70	28.50	30.00

<sup>3</sup> Land type 2 is agricultural rice land, irregularly flood irrigated (See also the approved RP phase II)

Cashew nut	2.50	2.00	10.00	12.50
Coconut	1.50	2.70	13.50	15.00
Sugar Palm	0.50	1.50	7.50	8.00
Tamarind	0.50	1.90	9.50	8.00
Bamboo	0.50	2.90	14.50	15.00
Rubber	5.00	9.00	45.00	50.00
Bamboo and Other	1.00	0.80	5.00	5.00

13. The total cost of mitigating the additional impacts to the RP phase I and phase II is **US\$229,645.42** inclusive of the required budget of the income restoration program for the severely affected. This cost, however, does not include administration cost and contingencies as the administrative cost for the additional impacts will come from the RP phase II. **Table 4** provides a breakdown of the costs for the additional impacts.

**Table 4:** Total Budget for additional impacts

No	Compensation Items	Unit	Rate US\$	Quantity	Cost US\$
<b>A</b>	<b>Compensation for Land</b>				
	Rice land (Type 2)	m <sup>2</sup>	0.1	788,841.29	78,884.13
	<b>Subtotal</b>				<b>78,884.13</b>
<b>B</b>	<b>Fruit Trees</b>				
	Mango	Tree	30	10	300.00
	Cashew	Tree	12.5	10	125.00
	Others	Tree	5	30	150.00
	<b>Subtotal</b>				<b>575.00</b>
<b>C</b>	<b>Other Structures</b>				
	Graves	Unit	100	99	9,900.00
	<b>Subtotal</b>				<b>9,900.00</b>
<b>D</b>	<b>Allowance for Vulnerable Groups</b>				
	Woman household head		20	46	920.00
	Aged household head		20	16	320.00
	Disable house hold head		20	7	140.00
	Household below poverty line		20	2	40.00
	<b>Sub-Total</b>				<b>1,420.00</b>
<b>E</b>	<b>Disruption Allowance</b>		<b>42</b>	<b>183</b>	<b>7,686.00</b>
<b>F</b>	<b>Compensate for Damaged Crop in 2006 (transitional allowance)</b>	m <sup>2</sup>	<b>0.026</b>	<b>3,203,857.17</b>	<b>83,300.29</b>
<b>G</b>	<b>Income Restoration Program</b>	HH	<b>360.000</b>	<b>133.00</b>	<b>47,880.00</b>
<b>H</b>	<b>Grand Total</b>				<b>229,645.42</b>