

CAMBODIA BASELINE ASSESSMENT PERSPECTIVE

REGIONAL WORKSHOP ON SEA BASELINE ASSESSMENT

PHNOM PENH HOTEL, 27-28 JANUARY 2010

Mekong River Commission – SEA of hydropower on
the mainstream Mekong River

Outlines

- 1. The country setting and its current CMDGs status**
- 2. Present the process of baseline data collection from the Stung Treng and Kratie**
- 3. Summary key issues: current and future trends for energy, fisheries, and livelihoods as selected sample.**
- 4. Conclusions: fisheries (ecosystem,**

I. The Country Setting and CMDGs



Number of Provinces	24
Number of Districts	185
Number of Communes	1,621
Number of Villages	14,073
Population of Cambodia Both Sexes	13,388,910
Males	6,495,512
Females	6,893,398
Percentage of Urban Population	19.5
Annual Population Growth Rate (percent)	1.54
Density of Population	75 per Km ²
Sex Ratio (males per 100 females)	94.2
Average Size of Household	4.7

Source: "General Population Census of Cambodia 2008 - Provisional Population Totals", NIS, August, 2008

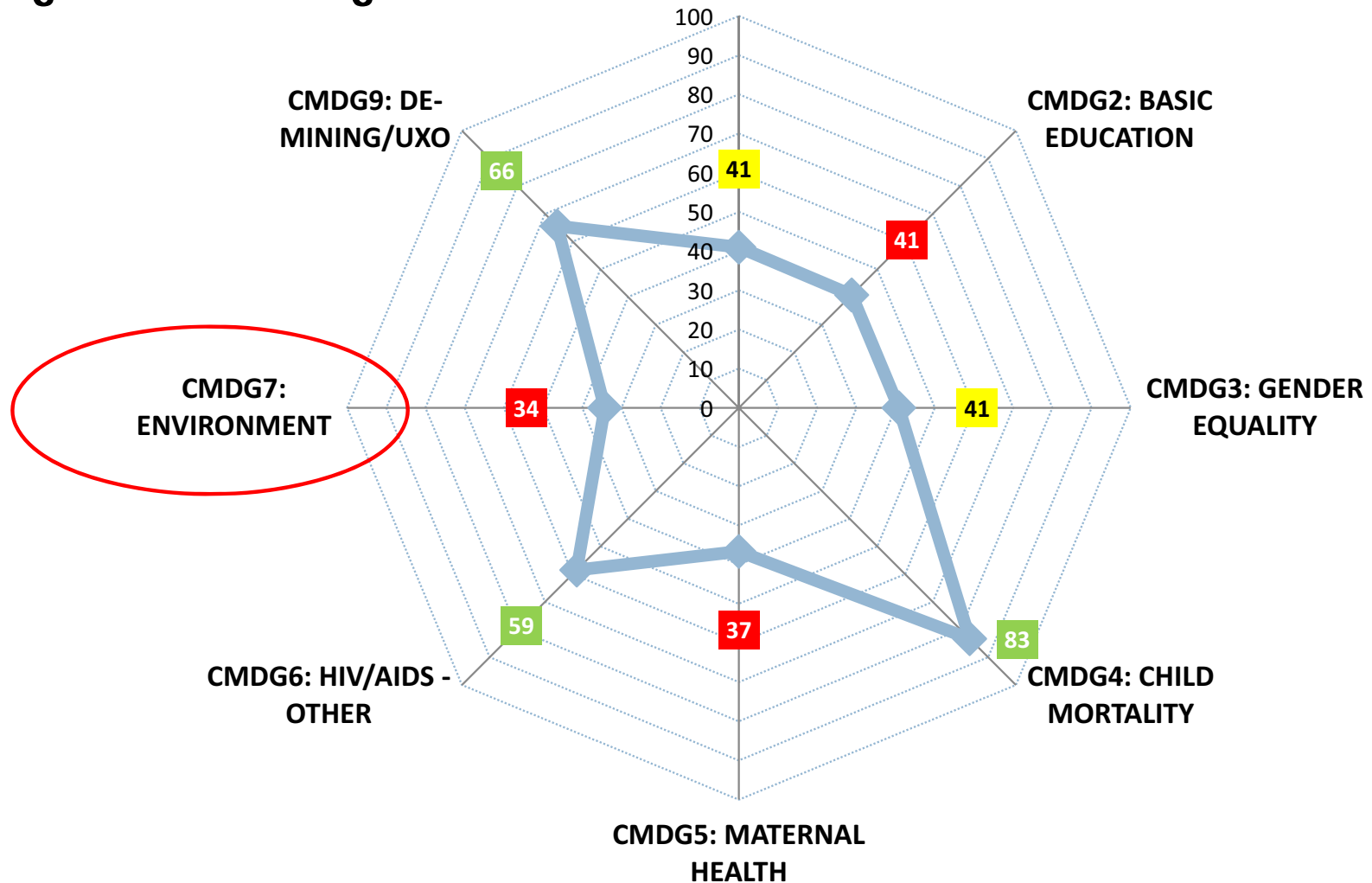
CMDGs current status



CMDG1:

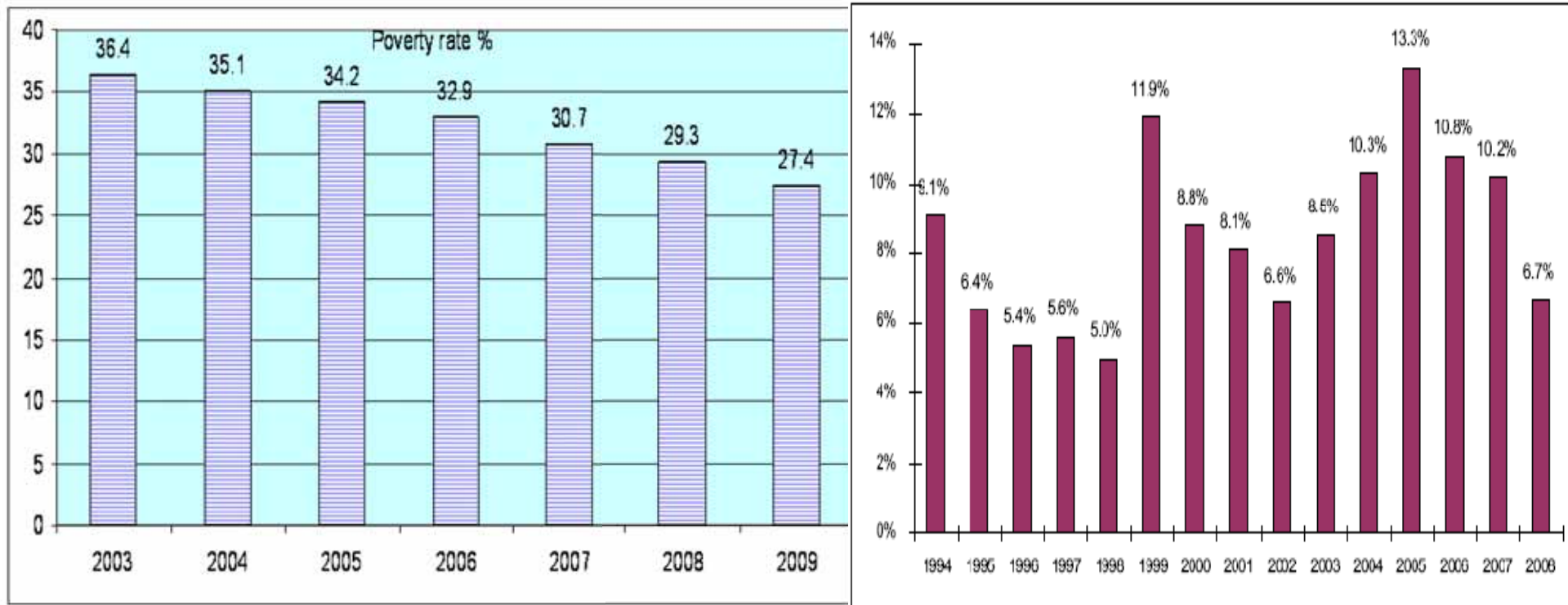
POVERTY/HUNGER

Progress in achieving CMDGs



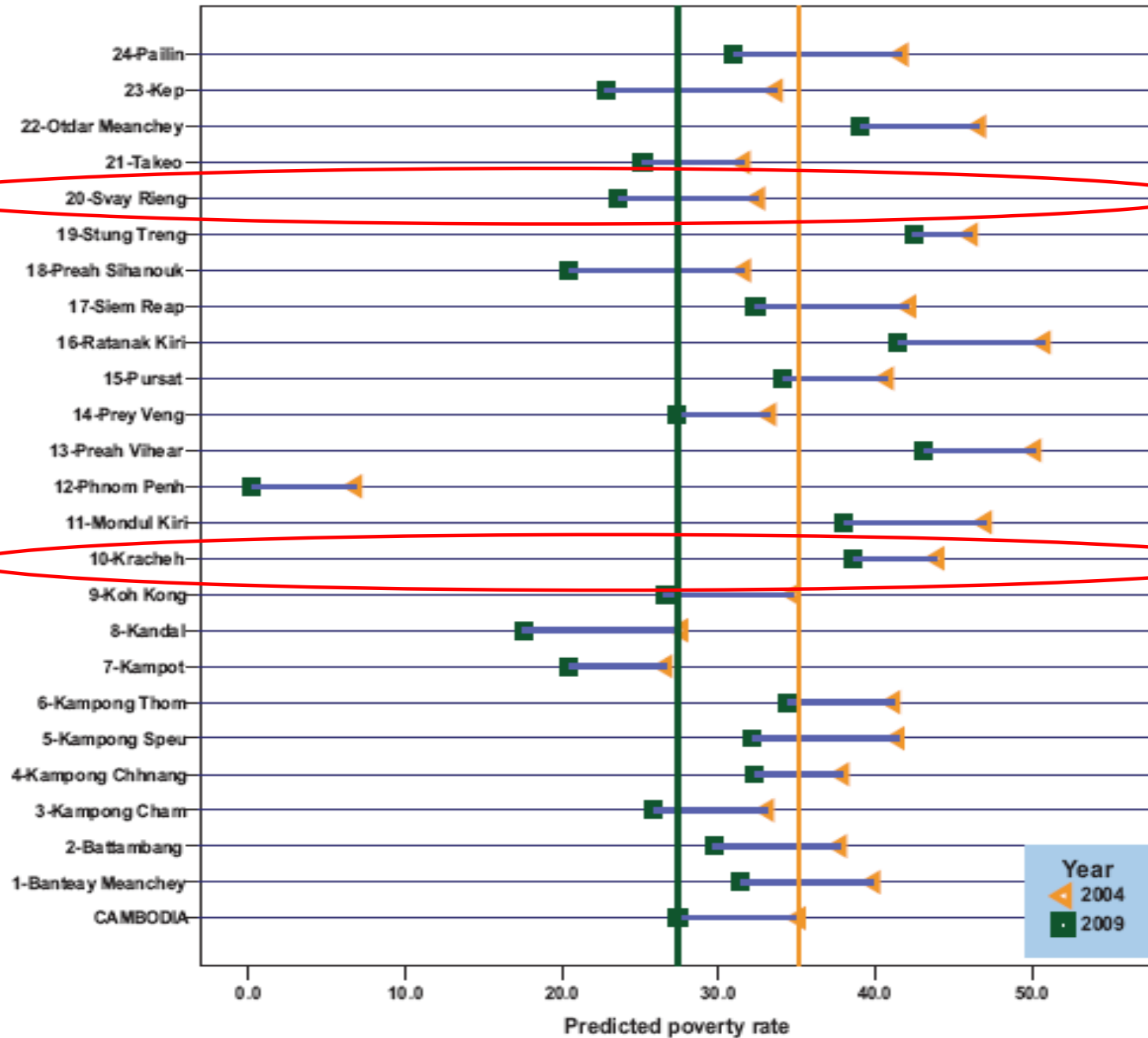
Poverty at National Level

Overall Poverty has decreased in comparing the national goal of decreasing the proportion of people whose income is less than the national poverty line from 39% in 1993 to 19.5 in 2015.



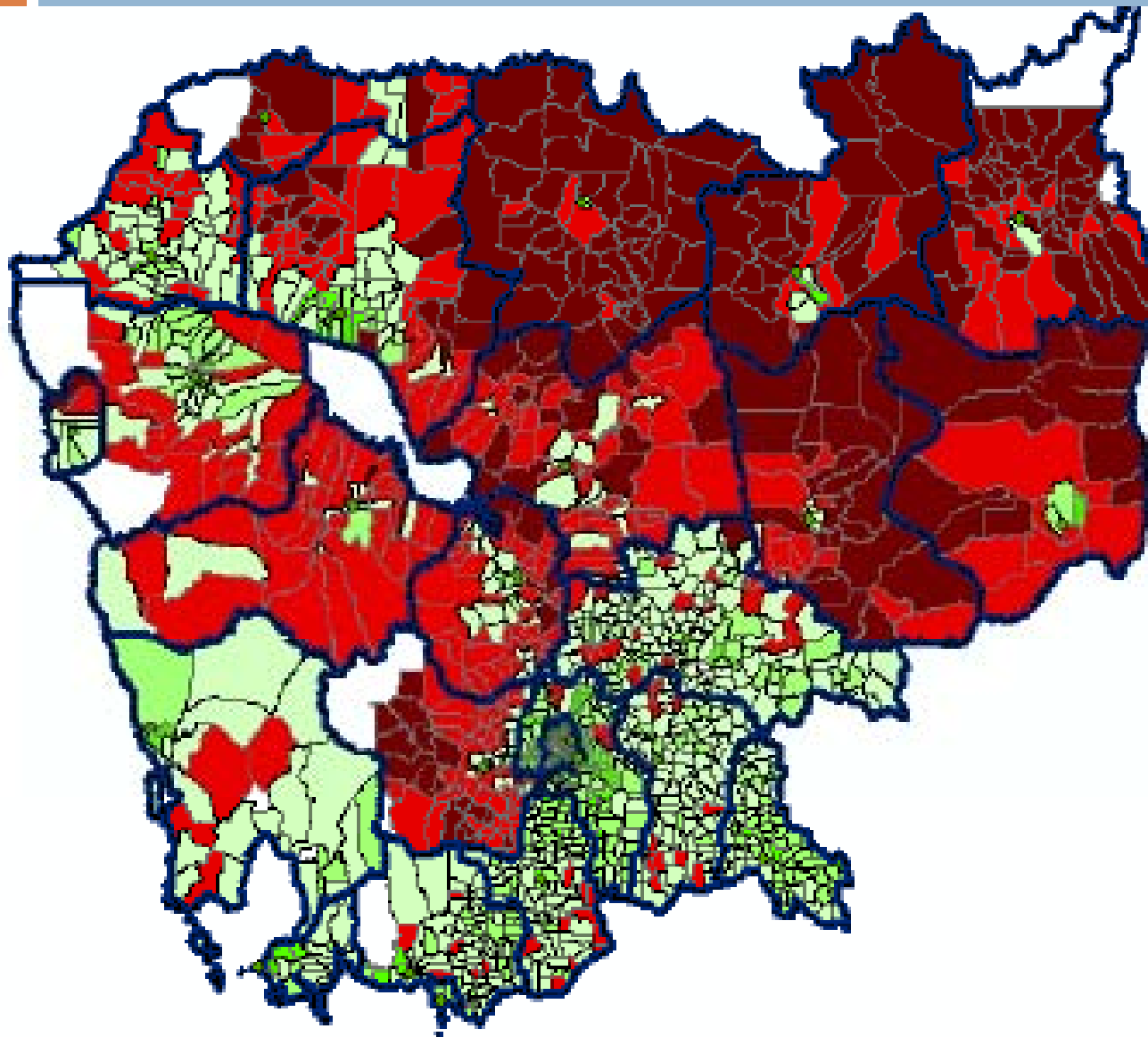
NCDD/MoP (2009) shows poverty has reduced from 35.1% in 2004 down to 27.4% in 2009.

Poverty at Provincial Level



Poverty Map: 2004-2009

In 2009



Poverty rate (CDB+HDPool)



Note: This map reflect the household pover level aggregated from village level (using re
Produced by: M&E Unit/PST/NCDD/Mol using

II. The Baseline of Provinces in Proposed Mainstream Hydropower

Documents collected and consulted

- **Stung Treng:**

25 relevant reports:

environment, ELC, mining, agriculture, forestry, fisheries, health, proposed development project in Triangle Development Plan, provincial and district profile 2009, irrigation scheme, draft three year investment planning 2010-2013.

- **Kratie:**

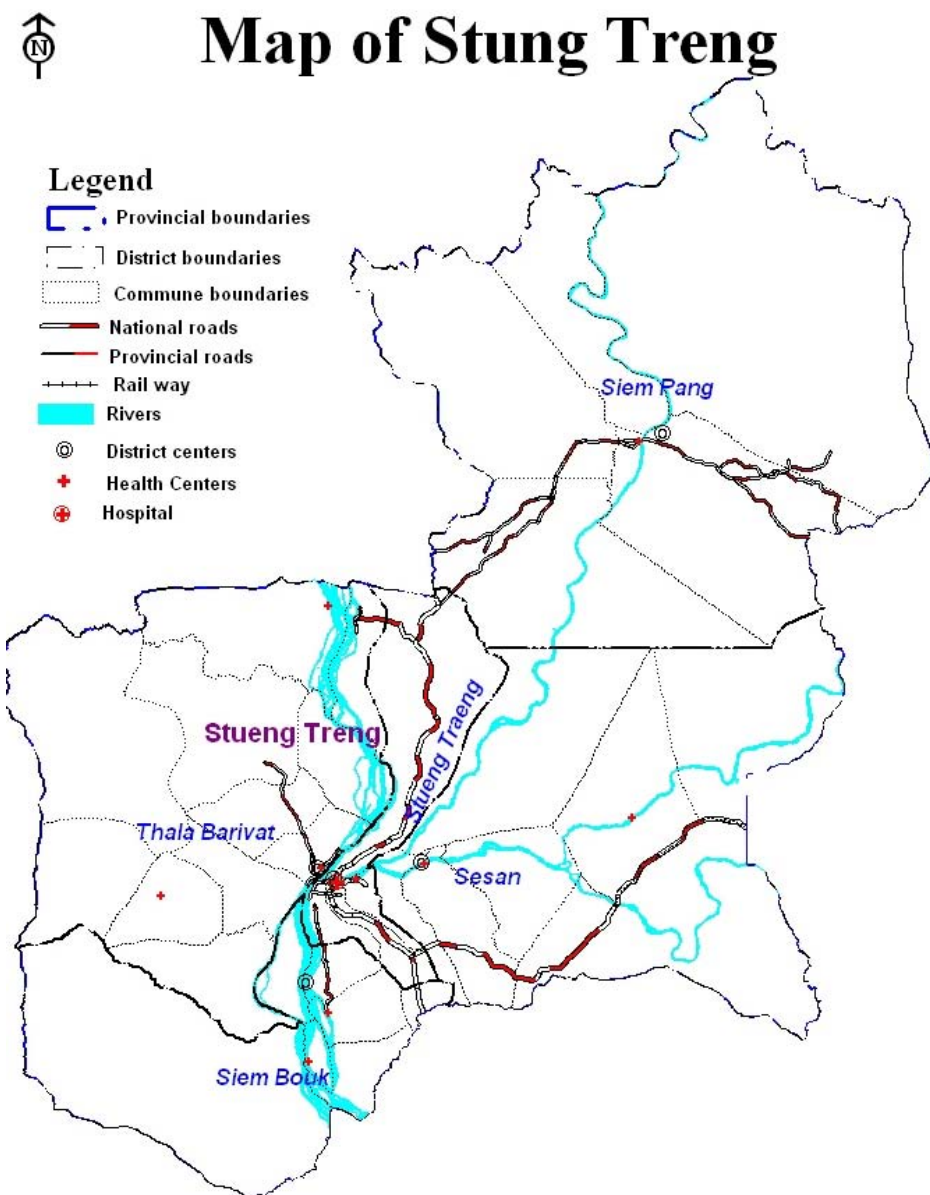
17 relevant documents: fisheries, agriculture, provincial and district profiles, annual provincial report, strategic development plan, irrigation, ELC, social land

II. The Baseline of Provinces in Proposed Mainstream Hydropower

People consulted and met:

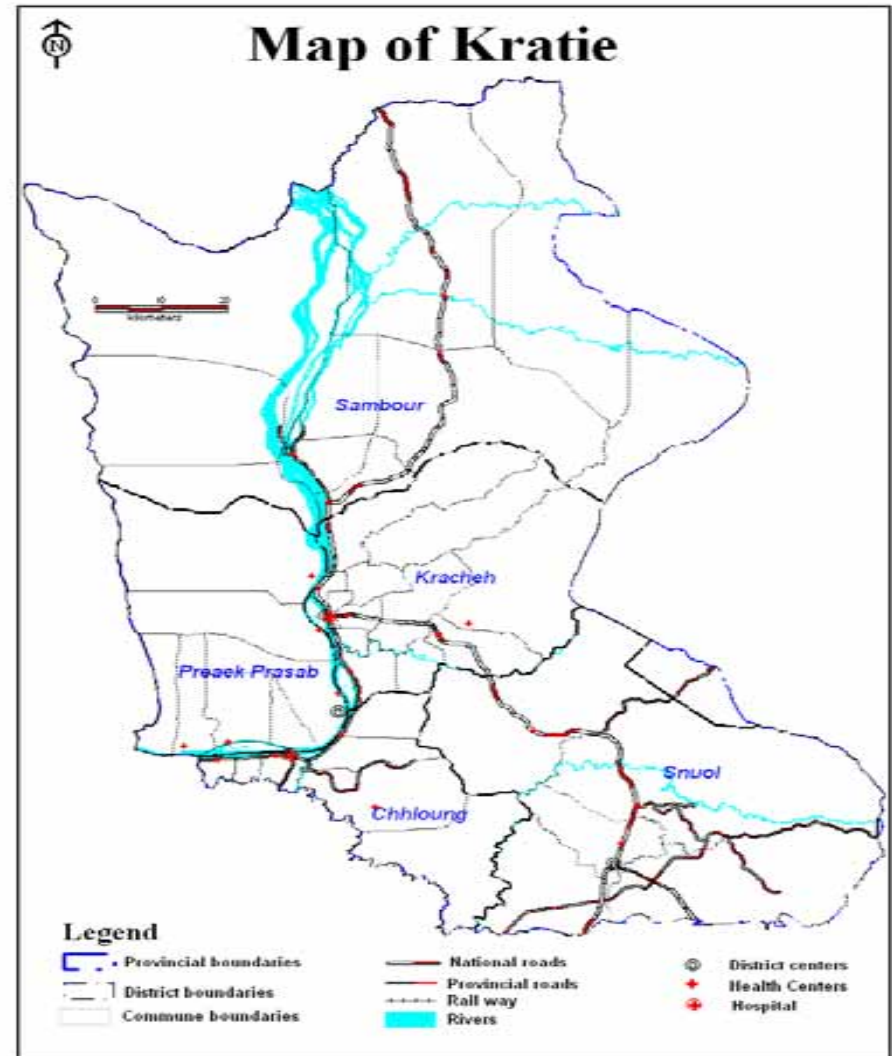
Stung Treng:

- 10 key informants of line agencies and local authorities
- Discussion themes: forestry, agriculture, fisheries, environment, planning, water resources, and PSDD.



Kratie:

- 10 key informants line agencies and local authorities
- Discussion theme: fishery, environment, planning, water resource, district authorizes and chief of provincial cabinet



Population

Province	Families	Population	Density/km2
Stung Treng	21,204	111,671	10
Kratie	64,060	318,813	29
Cambodia		13,700,000	75

Population density of both provinces is lower than national population density **between 2 to 7 times.**

Key Issues Identified

by the Additional Baseline Field Work

- Most effected people from the proposed dams are not aware, informed or consulted;
- **Draft land use planning** in each district. The land use planning does not include the proposed hydropower.
- **Flooded over villages:** The informants have not been informed about scope and potential impact from the proposed hydropower dam.
- **Fisheries:** under estimated including aquatic resources
- **Ethnic groups in the two provinces**
 - ▣ Stung Treng: 10 ethnic minority groups (9,093 peoples)
 - ▣ Kratie: 7 ethnic minority groups (36,476 peoples)
- **Resettlement:**
 - ▣ Kratie (Sambor and kratie): 140,610 peoples in 2009
 - ▣ Stung Treng (Stung Treng and Thalaboriwat): 61,398 people in 2009

III. Key Issues and Trends

3.1 Energy Consumption and Accessibility

Year	Type of Energy	Electricity	Battery	Fuel wood	Others
2006	Stung Treng	18.10%	17.83%	>90	?
	Kratie	10.08%	57.00%	>90	?
2007	Stung Treng	17.83%	18.96%	?	?
	Kratie	11.00%	59.00%	?	?
2008	Stung Treng	<u>17.70%</u>	20.51%	?	?
	Kratie	<u>14.04%</u>	63.00%	?	?

Both provinces access and consume electricity less than national wide target in 2008 (22%)

Electricity at Glance Nationwide

Description	2008	%
• Energy Capacity (MW)	384.60	22.33
• Energy Generated (GWh)	1,484.1	80
• Energy Imported (GWh)	374.1	20
• Total Energy Available (GWh)	1,858.2	100
• Number of Registered Consumers	487,426	3.64
•		

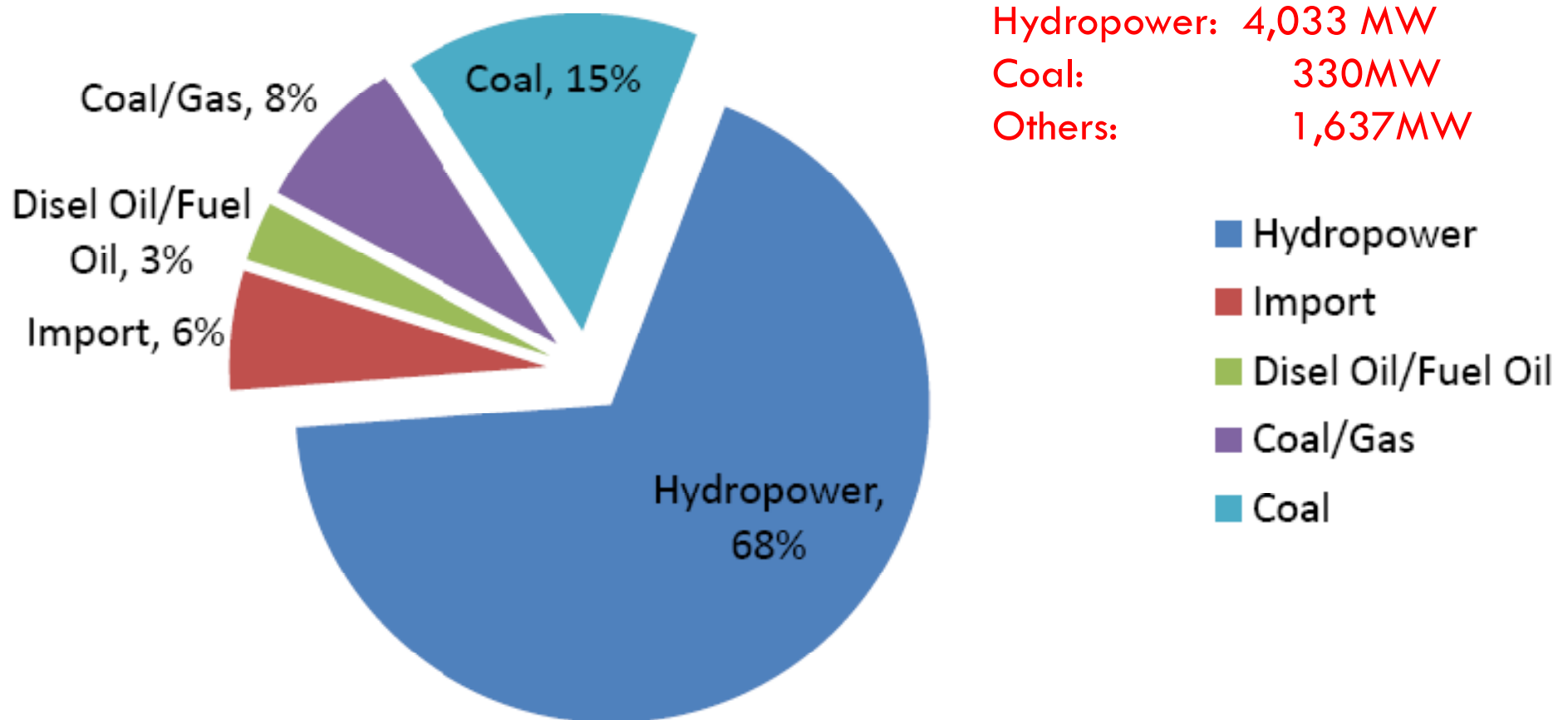
Source: Report on the Power Sector of Cambodia. EAC (August 2009)

As this overview shows, electricity sector is a strong need sector for development in Cambodia.

Electricity Supply Plan by Fuel Type of Some Provinces

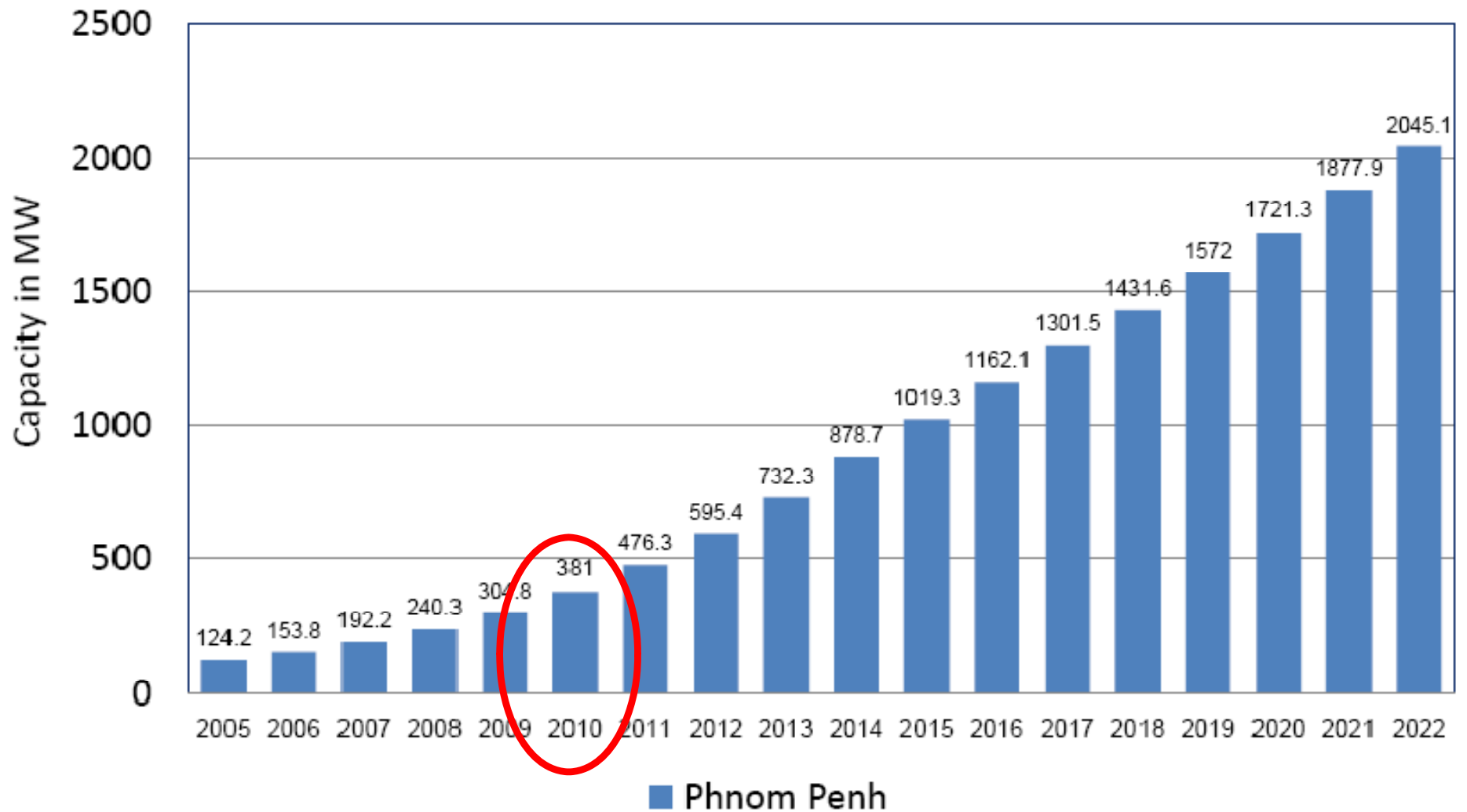
Provinces	Number of consumers	Installed Capacity MW	Energy Imported GWh	Energy generated GWh	Energy Sold to consumers GWh
Kampong Cham	31,577	18.6	27.6	24.5	44.8
Kratie	6,418	2.1	1.9	4.4	5.0
Stueng Treang	2,423	1.7	0.0	3.5	3.1
Kampong Thom	9,013	3.2	0.0	4.6	3.6
Preah Vihear	2,699	1.7	0.0	1.4	1.1
Ratanakiri	2,667	2.0	0.0	5.8	5.0
Siem Reap	23,289	12.0	0.0	1.4	117.6
Uddor Meanchay	3,387	0.7	10.5	0.5	10.5
Country Total	487,426	384.6	1,664.4	1,484.1	374.3

Electricity Supply Plan by Fuel Type in Year 2020, **6000 MW** (MIME)



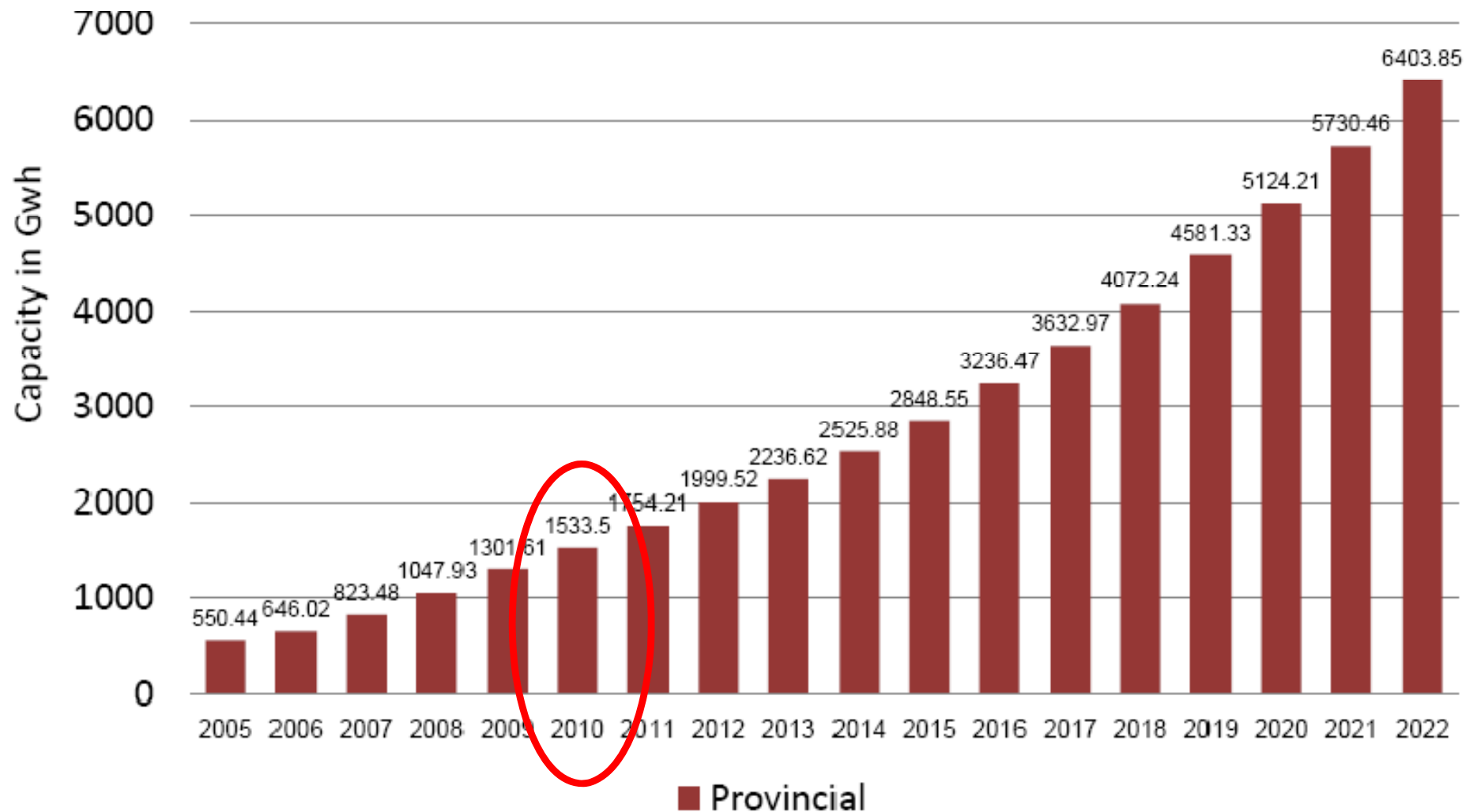
In 2022, the share of electricity from hydropower is expected to be **15 times** higher than now (**384.6MW**)

Electricity Demand in Phnom Penh in 2022



Phnom Penh electricity demand in 2022 will be 5 times higher than now

Electricity Demand in Provinces/Towns 2005-2022 (Source EDC)



Electricity demands of Provincial area in 2022 will be 4 times higher than now

Current Plan by NSDP 2009-2013

1. Import 200 MW from Vietnam in 2009 to supply power to Phnom Penh.
2. Import 20 MW from Vietnam in 2009 to supply power to Kampong Cham.
3. **Import 20 MW from Lao PDR in 2009 to supply power to Stung Treng.**
4. Complete work on the Kirirom Hydropower Station 3 to provide an additional 18 MW in 2010.
5. Complete work on the Kamchay Hydropower Station to provide an additional 193 MW in 2010.
6. Complete work on the Electricity plant powered by imported coal to provide an additional 200 MW in 2010.
7. Import an additional 60 MW from Thailand in 2010 2009 to supply power to Banteay Meanchey.
8. Complete work on the Electricity plant powered by imported coal to generate 100 MW in 2011 to serve coastal areas.
9. Complete work on the Stung Atai Hydropower Station in 2012 to generate 120MW.

3.2 Fisheries



Current Situation and Key Issues

Fisheries: very limited information and underestimated in the two provinces

- Inland fish production (tons) from commercial and industrial fisheries in 2007 was available from FiA 2009.

Aquaculture:

- Kratie produces 50 tons in 2007 and 380 tons t in 2009
- Stung Treng produces only 15t in 2007. No data in 2009.

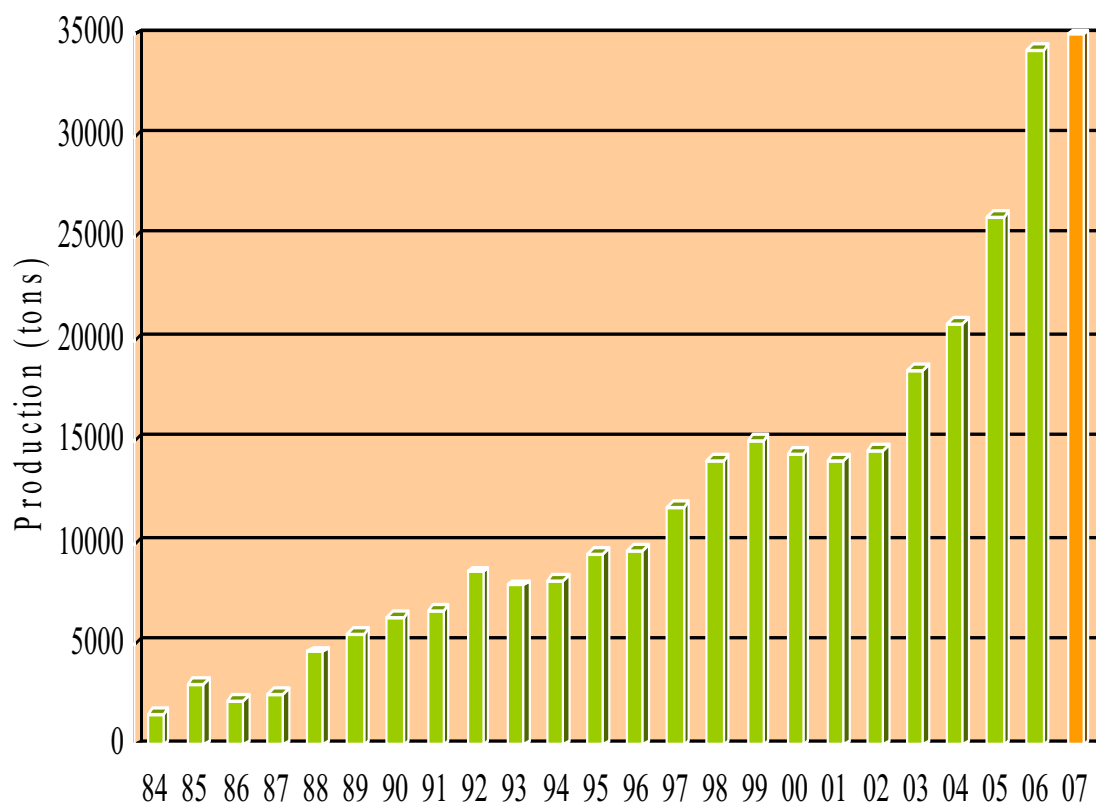
Community Fishery:

- In 2007, 500 CF formed
- 60% official recognized,
- 31% has CF maps,
- 13% had annual action plan and
- 17% had fish sanctuary zones.
- Total beneficiaries: 381,559 people (114,284 households).
- Up to 2009, 173 CFs received formal and legal approval for their operation.
- **56 in Kratie**
- **51 in Stung Treng.**

Commercial and Industrial Fish Catch Production

Provinces	Catch in 2007 (ton)		Catch in 2009 (ton)
Banteay Mean Chey	2,000		
Battambang	10,000		
Kampong Cham	6,000		
Kampong Chhnang	17,000		
Kampong Thom	10,500		
Kandal	35,000		
Kratie	2,000	1.6%	6,373
Phnom Penh	9,500		
Prey Veng	3,000		
Pursat	14,000		
Rotanakiri	400		
Siem Reap	12,000		
Stung Treng	2,000	1.6%	1,885
Takeo	1,500		
Otdar Mean Chey	100		
Total all sources	125,000		

Aquaculture



Location of production	2007
Banteay Mean Chey	75
Battambang	880
Kampong Cham	1,400
Kampong Chhnang	500
Kampong Speu	3,500
Kampong Thom	4,200
Kandal	9,100
Kratie	50
Pailin	30
Phnom Penh	8,400
Prey Veng	850
Phreah Vihea	10
Pursat	2,010
Rotanakiri	15
Siem Reap	750
Stung Treng	15
Svay Rieng	500
Takeo	1,000
Otdar Mean Chey	105
Total all sources	33,390

Cambodia's exports, 2002-2007

MAFF reported that fishery sector contributes about \$250-\$500 million per year, 12% of GDP (Fishery Administration)

	2002	2003	2004	2005	2006	2007
Total exports (in millions US\$)	1,770	2,087	2,589	2,910	3,694	4,089
Garment exports (in million US\$, as percent of total exports)	1,343 (75.9%)	1,609 (77.1%)	1,982 (76.6%)	2,190 (75.3%)	2,651 (71.8%)	2,866 (70.1%)
Log and sawn timber (US\$, million)	38	20	16	16	18	21
Fish (US\$, million)	73	76	69	76	90	105
Rubber (US\$, million)	63	98	115	119	175	157
Rice (US\$, million)	28	94	114	177	332	411

Source: IMF and MoC

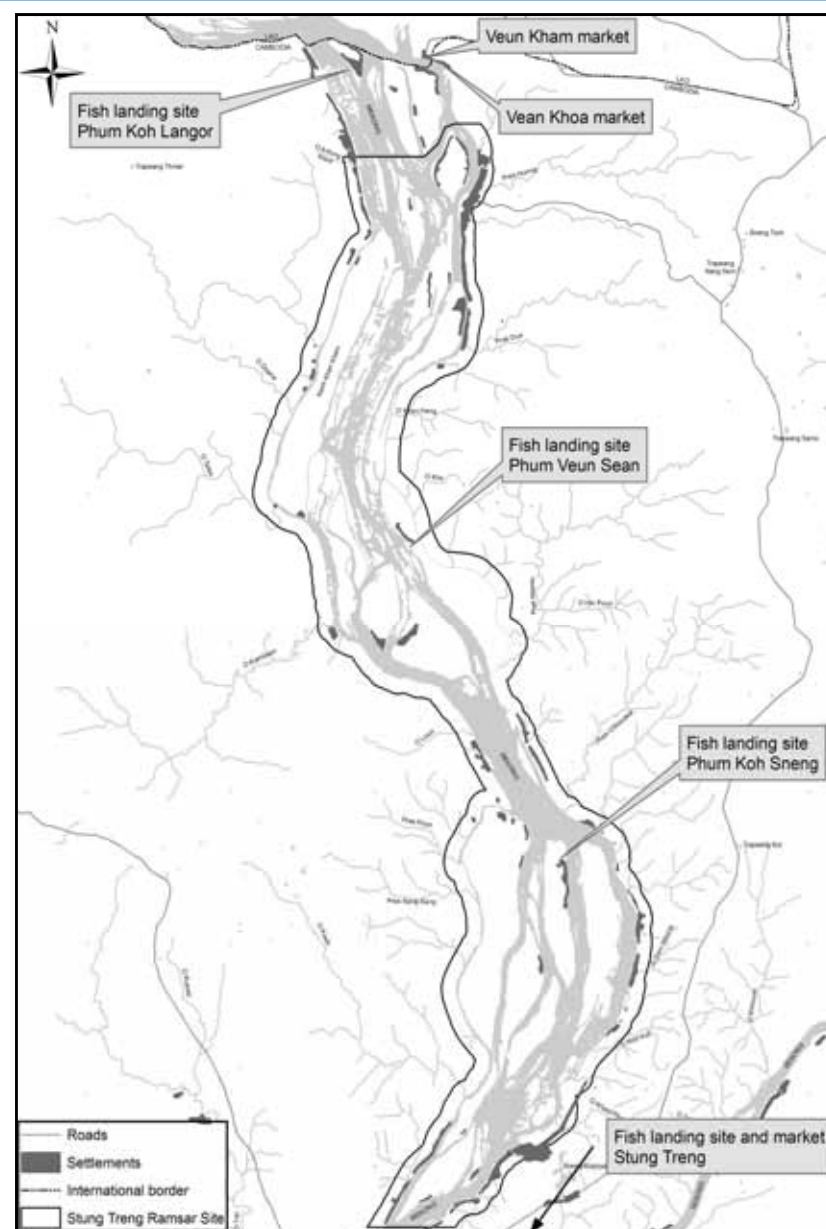
Fish catch at village level

- **Stung Treng:** Fish catch from existing studies:
- Joanne Chong and IUCN 2005: about **US\$ 3,000** per household/year by using total average value of wetland resources which include: fishing, washing, cooking, drinking, transportation, construction materials, fuel wood, aquatic, water bird, reptiles, irrigation, traditional medicine, recreation. (21 villages, 2375 families = **US\$7,125,000 (US\$488/ha with 14,000 ha Ramsar site).**

IUCN/ODG/DEV 2008

Koh Khorndin : 69 hh/130 hh involved regular fishing

Months 2005-2006	Mean household fish catch (kg/month/hh)	Mean Fish Price (Riel/kg)	Gross household income (Riel)	Gross household costs (Riel)
Oct 2005	56	5,000	280,000	121,666
Nov	100	4,500	450,000	121,666
Dec	260	4,500	1170,000	121,666
Jan 2006	260	4,500	1170,000	304,000
Feb	42	5,000	210,000	304,000
March	152	2,700	410,400	304,000
April	224	2,700	604,800	60,800
May	200	2,700	540,000	60,800
June	20	5,500	110,000	60,800
July	42	5,500	231,000	26,040
August	96	5,000	480,000	30,400
Sept	92	5,500	506,000	30,400
Total	1544		6,162,200	1,546,238



Koh Langor village

- 68 families: 63 men and 178 women : 22 ha for paddies

Date	Household fish catch (Kg/month/hh)	Mean fish Price (Riel/kg)	Mean household income (Riel)	Total village fish catch / month(Kg)
Oct.2005	8	3,500	28,000	544
Nov.	8	5,000	40,000	544
Dec.	8	5,000	40,000	544
Jan.2006	12	3,500	42,000	816
Feb.	12	3,500	42,000	816
Mar.	12	3,500	42,000	816
Apr.	12	3,500	42,000	816
May	98	3,000	294,000	6,664
June	100	6,500	650,000	6,800
July	100	6,500	650,000	6,800
Aug.	100	6,000	600,000	6,800
Sept.	100	6,000	600,000	6,800
Total year	570	Mean: 4,625	3,070,000	38,760

Trey Riel is never count by local people



3.3 Livelihoods and development trend



Current situation

Livelihood and occupation in the provinces

		2006	2007	2008
Kratie	Agriculture	80.62%	81.67%	81.95%
	Handicraft	0.66%	0.62%	0.67%
	Services	6.38%	8.09%	7.57%
	Others	12.34%	9.62%	9.81%
Stung Treng	Agriculture	82.79%	83.86%	84.94%
	Handicraft	0.36%	0.33%	0.44%
	Services	3.48%	2.91%	10.13%
	Others	12.34%	9.62%	9.81%
Cambodia (WB 2009)	Agriculture			59

How much if compare to national wide?

Current situation

Land use planning

Land Use Classification	Stung Treng	Kratie
	Area (ha)	Area (ha)
Forested land	928,000	926,349
Agricultural land	126,836	88,752
Residential land	103,217	
Road	2,496	
River, stream and creeks	41,094	
Red Soil		5,547
Fishing domain		88,752
TOTAL	1,201,643	1,109,400

How much if compare to national wide?

Current situation

Irrigation Scheme

District of	# of Irrigation Schemes	Current irrigated areas (ha)	
		Dry season	Wet season
Kratie province (2009)			
Kratie	45	1392.33	1661.58
Chhloung	45	2297.38	194.11
Prek Prasab	40	4320.30	90.20
Snuol	34	0.5	1231.71
Sambo	18	240.4	867.55
Total	181	8,250.91	4,045.15
Stung Treng province (2007) Potential irrigated only			
Siem Pang	10	345	1140
Thalaboriwat	3	241	535
Siem Bok	4	180	680
Sesan	6	190	410
Stung Treng	5	118	365
Total	28	1,074	3,130

List of Irrigation scheme across Cambodia

District of	# of Irrigation Schemes	Current irrigated areas (ha)	
		Dry season	Wet season
Kratie province (2009)			
Total	181	8,250.91	4,045.15
Stung Treng province (2007) Potential irrigated only			
Total	28	1,074	3,130
Cambodia			
2007 (MOWRAM)	2403	417,235	629,028
CEDAC (2009)	2,525	321,167	901,543

Among 2,525 schemes only 6% function well, 32% are partially function and 62% are not function.

Irrigation investment 2008-2015

- By mid-October 2009 revealed **26 projects** are officially approved of which 10 projects are grants with total fund of **US\$94,480,000** and **16 projects are loan** with total budget **US\$ 1,008,200,000**. These are the projects being active from 2008 to 2015.
- Major donors include JICA, ADB, IMF, AFD, KOICA, **Kuwait, Qatar, China, India, Australia, and Italia.**

Trend of Land Use Allocation

Agro-industry and economic land concession



Provinces	# of Companies	Total land allocation
Kratie	46 Economic land concession	298,071 Ha
	>1000 ha: 25 companies	281,604 Ha
	< 1000 ha: 21 companies	16,467 Ha
	21 economic land concession in Sambo district	140,192 ha
Stung Treng	13 Economic land concession	195,105 ha
	> 1,000 ha : 12 companies	194,236 ha
	<1,000 ha: 1 companies	869 ha
	13 mining companies	203,400ha

Stung Treng Province Plan for 2010

Sectoral	Number of projects	Estimated budget (US\$)
AGRICULTURAL DEVELOPMENT	2	63,000
COMMUNITY BASE ECOTOURISM	3	414,575
ENVIRONMENT SECTOR	1	100,000
IRRIGATION RENOVATION AND DEVELOPMENT	4	394,500
HEALTH DEVELOPMENT SECTOR	3	450,000
SMALL-SCALE HYDROPOWER SCHEME	4	540,000
TRADE AND COMMERCIAL SECTOR	5	575,000
INFRASTRUCTURE DEVELOPMENT SECTOR	13	7,915,000
Total	35	10,452,075

Source: Triangle Development Cambodia, Vietnam and Lao

Tourism Plans for Northeast Cambodia (kwon as upper Mekong in Cambodia):

- **Kratie:** Dolphin areas a cultural sites:
- **2005: 75,000** domestic and **7,612** foreigners.
- **2006:** 82,000 domestic and **10,844** foreigners.
- **Stung Treng:** Ramsar Site with domestic tourists in 2005/2006 showed **29,968** domestic tourists and **50,910** International arrivals. Most tourists visit Ramsar Site which provides potential value for both conservation and ecotourism purposes.

Conclusions

- Changes from more relaxed lifestyle
- Fishery resources and its natural wetland habitat
- More agro-industry to be introduced (no proper study and suitability studies, lack of local consultation)
- Hydropower development remain options for poverty alleviation and export oriented