



Legal & Regulatory Frameworks & Barriers for Cogeneration in Cambodia Business Opportunities



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by

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Introduction

- **3 - decade destructive wars (invasions followed by civil wars): very heavy tolls to human resources and main socio-economic infrastructures**
- **The country must address many basic issues linked to poverty: food, health, education,...and electricity at affordable price for income generation uses, etc.**
- **The country has dynamic & entrepreneurial young population:**
 - **Parents invest much in children education;**
 - **Women play important role in economic development;**
 - **least developed country joining the WTO (?);**
 - **Conscious: time & cost for building up human resources**





COUNTRY CURRENT ENERGY OUTLOOK

- **80 % population living in rural areas**
- **35 % population living under poverty line: 28 % in rural areas**
- **Lowest rate in region for access to electricity**
- **Highest electricity price in the region: 0.14 US\$/kWh by EDC public utility grid and about 0.30 to 0.92 US\$/kWh by Rural Electricity Entrepreneurs in rural areas**



COUNTRY CURRENT ENERGY OUTLOOK (cont.)

To address issues of « Shortage of Electricity Supply » & « High Electricity Price »

- **Encourage & Promote local production by Private Entrepreneurs and also Public Utility, like EDC**
- **« Massive import » of much cheaper & more reliable electricity from neighbouring countries, by development of transmission and distribution grids**

NOTE: Cost of electricity from Vietnam to Phnom Penh: 0.07 US\$/kWh as compared to public utility grid of 0.14 US\$/kWh



COUNTRY CURRENT ENERGY OUTLOOK (cont.)

OBJECTIVE

- **By 2020: All households (HH) will have electricity from all sources (SHS, wind, micro/mini hydro, clean coal technologies, etc.)**
- **However, by 2030 only that over 70 % of all rural HH will have grid quality electricity.**



STATUS OF COGENERATION IN CAMBODIA

- The EC ASEAN Cogeneration Phase III Programme is the « **FOUNDING FATHER** » in this modern period of the Cambodian history for officially introducing in August 2002 this concept to the Cambodian stakeholders.
- Early 2003: 2 biomass projects (palm oil of the MRT Group & rice husk of Angkor Rice).
- Only the 1.5 MWe cogen plant of Angkor Rice was presented & accepted as FSDP (full scale demonstration project).



STATUS OF COGENERATION IN CAMBODIA (cont.)

- Today, Angkor Rice works with the Japan Ministry of Environment on CDM project.
- Today: To the best of our knowledge, NO cogeneration plant in operation in Cambodia.
- NOTE: In July 2004, we discovered a 7.5/10 MWe Cogen plant built around mid-1990 decade by and belonging to a Malaysian logging company, in a plywood factory. The plant was/is not in operation in the last 4 to 5 years, due to lack of raw material ! Of course, it is not in the government statistics.



OTHER COGENERATION POTENTIAL

- **New big hotels, hospitals, textile factories, airports, etc... using fossil fuels.**
- **Biomass: to start with wood wastes, sugar cane bagasse & rice husk.**



LEGAL & REGULATORY FRAMEWORKS OF COGENERATION IN CAMBODIA

TOO EARLY:

- Currently, no legal & regulatory framework yet,
- Although:
 - EC ASEAN Cogen3 awareness programme;
 - Recently, the Energy Efficiency & Conservation Centre of Japan recommended the adoption of cogeneration technologies for Hotels and Hospitals,
as this is widely practiced in Japan



BARRIERS

- **Legal & Financial Issues: The good intention is not yet translated into approved and concrete government action plan, e.g.:**
 - Cogen pre-feasibility legal requirement on main investments (hotels, hospitals, textilefactories, etc.)
as an alternative, before granting licences;
 - Facilitate grid connections for cogen projects;
 - Duties & Taxes on imported equipment;
 - Fiscal & Incentives measures for cogen projects;
 - etc.



BARRIERS (cont.)

- **Too weak Banking, Financing & Micro Financial Institutions;**
- **lacks of information on market characteristics, resources potentials and their availability (biomass for example)**

NOTE: Currently, the Government is too poor. And there is no basis for taxation of the power sector due to scarce and high cost of electricity.



Conclusions

I propose the exploitation of the TWO weaknesses of

the Cambodian Power Sector:

- **High price of electricity & scarcity of this resource:**
- **The International Community should take advantage of this « golden opportunity » to address the issues of cogeneration:**
 - **Awareness programme.**
 - **Establishment of legal & regulatory frameworks.**
 - **Association with the public utility (EDC) to have a FSDP in Phnom Penh or Siem Reap/Angkor**





Conclusions (cont.)

- **RURAL ELECTRIFICATION (RE):**
The government is currently too poor. No base yet for levy on power sector. One of the cheapest, easiest & fastest ways for investment is using small second hand diesel power plants for small off-grid/small grids in rural areas. Instead of doing this, the International communities should help Cambodia to invest in much higher Renewable Energy Technologies (RET) cost.
- **THUS THE INTERNATIONAL COMMUNITIES & CAMBODIA:**
Would be all the winners in terms of actions combating the Global Warming/Climate Change and Local Pollution issues. And the most important thing is that the international communities help concretely Cambodia, through rural electrification for income generation, health care and education, fighting against the poverty, which is one of the worst enemies of all human beings.



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Thank You !

