



**LAO PEOPLE'S DEMOCRATIC REPUBLIC**  
**PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY**  
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***Brief Country Report of Biomass in LAO PDR  
for Second Biomass Asia Workshop***

Ministry of Industry and Handicraft  
Department of Electricity

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Lao P D R is located in Southeast Asia , the forest is cover 47 % of the country , forest cover (in percentage) in Laos PDR is higher than in neighboring countries as Vietnam, Thailand, China, but lower than in Cambodia and Myanmar. 80 % of Lao population are living in the rural areas and they rely heavily on the forest for food fuel, medicines , houses and shelter .Wood energy is widely used through out the country .

The forest are already a vital economic resources for Lao PDR , there provide essential contribution to the consumption and income of rural poor people and conserve biodiversity , soil and water values . Energy use within the country is still dominated by the use of fuel wood, which accounts for about 88 % of total energy requirement.

The Mainly Economic in Laos is from the Agriculture , Forestry, Power Generation, Mining, Small industries and agriculture is 46.6 % of the Gross Domestic Product , while the Industry is 27.0% and Services 25.4 % ( in 2004 ) .

The main production from the agriculture is rice .Total rice production in an average year ranges between 2.2 – 2.4 million tons ( According to the National Statistic 2000 is 2.2 million tons , 2001 is 2.33 million tons , 2002 is 2.41 million tons , 2003 is 2.375 million ton , 2004 is 2.529 million ton ) and the rice husk is about 25-30 % of the total rice production those rice husk could be the main material for the Biomass in Laos while most of rice husk are not being used for any main purpose.

According to the National Statistic , Savanaketh province is the biggest province , population , production of rice , the number of sawmills , the number of animal so the biomass cogeneration project it high possibility in this province .

Reference to the National Statistic , the production of sugarcanes in 2002 is 222 000 tons 2003 is 308000 tons and 2004 is 223300 tons but in 2006 the sugarcane will be much increased because the government approved for 2 private companies to construct sugar factory and each factory need about 30000 ha plantation area because they need about 600000 tons of sugarcane per year per factory .

Vientiane Municipality is the second province to produce the rice ( about 305380 tons /year) after Savanakheth province ( 530535 tons /year ) . In Vientiane there are about 500 rice mills in Vientiane Municipality , the biggest rice mill in Vientiane Municipality is in Nongtheng village in Sikhottabong district , according to the information from the visiting , this ricemill is about 6.000 tons / year , so the ricehusk about 1.800 tons / year and there are two more big rice mills are also located in the same district and produce the paddy rice also about 3000 - 4000 tons /year , and other two more .In generally the rice husk from these 5 ricemills could produce the rice husk about 5.000 – 6.000 tons / year For other small rice mills in Vientiane Municipality could produce the rice husk about 150 – 180 tons / year / 1 ricemill and the ricehusk are not being used for any main purpose )

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Sugarcane bagasse is one of the possibility for the Biomass Energy in Laos because now a day local people plant a lot of sugarcane as in Luangnamtha , Phongsaly provinces ( North of Laos ) and they export sugarcanes to China , while the energy resources in the North is limited ( The percentage of households electrified in the North are less than in other parts of country ) but the areas for planting sugarcanes areas quite large so there is possibility to have the Biomass Cogeneration in North of Laos with the MW class capacity .

In Vientiane Municipally , sugarcane are mainly supplying to PakSap Sugar Factory, this factory is located from the Centre of Vientiane about 21 km to the South . It could produce the sugar about 7 tons /day and producing only 3 months /year , or about 600 ton of red sugar / year .The sugarcane bagasse are not being used for any main purpose . Now the second factory is under construction ( about 30% completed ) this new factory is far from Centre of Vientiane to the South about 56 km , if this new factory complete , it could produce the sugar 200 tons /day or about 20.000 tons /year ( in order to meet the target 50.000 tons of sugar /year it should have the planting areas about 4000-5000 hac ) , the sugarcane bagasse will be used for cogeneration to produce the electricity about 2 MW for using in the factory and it will be the first Cogeneration project in Laos . These two factories is the same owner by Wangkanai Group , ( Wang Thap company ) Thailand.

Forest comprise a wide variety of commercial tree species suitable for production of swan , timber , plywood , parquet and furniture .

In Laos , the production of wood are almost export , there are about 173 sawmills for the whole country the main factories are in the Centre and South of the country .The biggest sawmill in Vientiane municipality is named : 1<sup>st</sup> May sawmill , which located far from the Centre of Vientiane to the South about 10 km This sawmill could produce the wood production about 2.000 m3 /years , the waste wood and sawdust are about 4.000 tons /year , these waste wood are using for heating to the boiler for stream the wood production and the sawdust are compressed by the procedure to be charcoal . The sawdust and waste wood from other sawmills are using just only for heating , cooking and for other purposes .

According to the National Statistic , the wood production in Laos from 2000-2004 is in the **table 1**

**Table 1 : The wood production in Laos from 2000-2004 .**

No	Production	Unit	2000	2001	2002	2003	2004
1	Lumber	Th m3	200	185	192	125	125
2	Plywood	Th sheets	2150	2200	2250	1550	1300
3	Parquet wood	Th m2	240	230	235	198	220
4	Rattan furniture	Million kip	240	320	345	350	430
5	Wood furniture	Million kip	12700	15240	15350	15550	NA
6	Book	Million units	2.7	3.2	4.0	4.0	4

Laos has the low per capita power consumption in Asia, at around 150 kWh/year and only 47 % ( 2004 ) of the households have access to electricity. Some cities and villages are serviced with electricity from diesel generators for only 2 or 3 hours per day during evening time. Part of the country is still dark; **therefore the people extensively use fuel wood as a source of primary energy.**

There is little experience of biomass systems in Lao PDR , although wood –fired cogeneration ( heat & power ) plants could be economic for self –supply in wood ,sugar processing facilities . In the rural areas , rice is generally widely distributed , now in the rural areas , the rice husk are using as a component of animal feed , and when the rice husk is burned the remaining ash is used as a component of fertilizer . The high potential for the Biomass in Laos are waste wood , sugarcane bagasse and rice husk .

According to an estimate of the food and Agriculture Organization ( FAO ), woodfuel consumption in 1993-94 was more than 2.3 million tons and accounted for nearly 90% Of total energy consumption of the country. It is estimated that about 92% of the house holds use woodfuels for cooking. Besides woodfuels , an estimated 0.343 million tons of agricultural wastes were al so available for use as a fuel in 1993-94 ( FAO1997 ).

Biomass Energy is the new technology to Laos , For the last two years, the first Biomass project are implemented as demonstration project by Science Technology and Environmental Agency ( STEA ) , Technology Research Institute (TRI) supported by New Energy and Technology Industry Development Organization of Japan ( NEDO ) , the purpose of this project is for the demonstration (the fuel is rice husk ) with the installed capacity 160 KW , located at the Technology Research Institute ( it is far from the centre of Vientiane about 14 km to National Road N: 13 South ) ,up to present there is just only one Biomass project in Laos .

The waste from the wood , sawdust from the sawmill , furniture factories , sugarcane bagasse are the main energy potential for the biomass in Laos especially in the Centre and South of country.

**Thank you**

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