

**2008  
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# GREEN ENERGY

Launching of the CD on Gliricidia prepared by the Department of Agriculture and the handing over of the Dendro plant installed at Gannoruwa.

A CD prepared by the Department of Agriculture and Coconut Cultivation Board with the assistance BEASL was launched on 8th October.

This was a project initiated by BEASL to popularise growing of Gliricidia among farmers as a source of soil nutrient, fodder and also as fuel food.

The ceremony was held at the Agriculture Park at Gannoruwa and the chief guest was the Hon. Minister of Agriculture Mr Hema Kumara Nanayakkara. A large gathering of researchers and farmer representatives including suppliers of gliricidia to the industry was present.

Before the commencement of the function, the Minister started the dendro plant installed with RERED assistance at the park. The unit will be used for demonstration well as to carry out extended trials to observe its operation under different conditions.

The Minister was pleased to notice that the entire plants has been fabricated locally by Lanka Gassifires LTD. The multiple use of gliricidia as a fodder, soil additive and fuel was explained by Mr. Parakrama Jayasinghe, President of the BEASL.

The Minister in his speech promised to explore the possibility of installing, at least two more units in villages where supply of electricity is not available and grid supply is not feasible.

The Agriculture Park at Gannoruwa is frequently visited by many farmers as well as school children to gather new development in agriculture. It also has a section showing intercropping possibilities of many crops with gliricidia.

This initiative by BEASL will bear fruit in the long run as all possible combinations and various uses of gliricidia could be seen in one place that is pivotal for agriculture development.



12.5kW Gassifire



Visitors and BEASL members

The coconut plantation is an example of complete integration of production and recycling of by-products to make sustainable operation possible without reliance on external inputs.

The integration has three main dimensions:

1. Growing Gliricidia and Tetonia as an intercrop with coconut to obtain main soil nutrients and to maintain soil moisture
2. Operating a dendro power plant using biomass generated on the estate to supply electricity needs
3. Operating a husk decorticator, without retting, to recycle coconut coir dust to supplement trace elements and retain moisture

Gliricidia and Tetonia are grown to obtain N and K requirement without using urea and kieserite. The leaves are harvested periodically and incorporated into the soil for slow release of nutrients. The branches are cut and dried for use in the dendro power plant.

Two dendro plants, using wood gasifiers of 3 kW and 30 kW capacities, are installed. The smaller unit is used mainly to pump water and supply domestic electricity, mainly for lighting, to the staff on the estate. The larger unit powers a decorticator that extracts bristle fibre without retting. The coir dust generated retains trace elements so, it becomes a source of these elements for the coconut plantation.

As result of this initiative, apart from obtaining the highest coconut yield in the country, the plantation has become self sufficient as far as its power and fertilizer requirements are concerned. The transportation within the estate is mainly by bullock cart and an electric vehicle is used for personal transport which is charged through dendro power.

This is a living example of zero emission where all waste is treated as valuable input, following the nature model where no waste is generated as waste becomes food in the nature's food web.

**3.5kW Gassifire****Decorticator****Participants at discussion**

BEASL participated in many exhibitions held in different parts of the country. Details of two major exhibitions are given below:

## 1. AgBiz 2008 conducted by the National Agribusiness Council of Sri Lanka.

This exhibition was held at the Srimavo Bandaranayake Memorial Exhibition Centre on 22nd, 23rd and 24th of August 2008. BEASL took an active part in this exhibition. Stall No. 71 was allocated to us. BEASL member Mr. M.A. Somapala had his own stall.



1.1 stall at AgBiz Exhibition

At this exhibition current status of agricultural products, machinery and services were exhibited and explained by the major agribusiness entities in Sri Lanka.

At the BEASL stall, a model depicting the various components of Dendro power such as Gliricidia energy plantation, biomass burning power station, transmission line etc. was constructed displayed. A model of a biomass gasifier-engine system was also displayed. Many pictures and banners explaining the features and benefits of bio energy were displayed. A continuously-running video documentary was projected. Leaflets and booklets explaining the biomass energy technologies were distributed. An estimated 5000 members of the public visited our stall.

## 2. Techno 2008 Conducted by the Institution of Engineers Sri Lanka (IESL).

This exhibition was held at the Srimavo Bandaranayake Memorial Exhibition Centre on 17th, 18th and 19th October 2008. In this exhibition, the BEASL collaborated with the Agricultural and Plantation Engineering Sectional Committee. Techno Exhibition is an annual event organized by the IESL to coincide with the Annual



1.2 The model of Energy plantation at AgBiz



2.1 Stall at Techno 2008 Exhibition

Session of the IESL. At this exhibition many engineering related products and services are displayed by the prominent engineering companies in Sri Lanka.

Pictures and charts depicting dendro power plants, gasifier systems, energy plantations etc. were displayed. The newly developed CD prepared by the Department of Agriculture and Coconut Cultivation Board with the assistance BEASL was launched on 8th October illustrating all features of Gliricidia energy plantation and biomass based energy generation system was displayed. Copies of these CDs were sold during the exhibition. Around 3000 people visited our stall.



2.2 Stall at Techno 2008 Exhibition

## Summary of this book by Asoka Abeygunawardena.

It is predicted that global oil consumption peak and carbon dioxide emissions peak will be reached during the next ten year period highlighting the fact that the human civilization is reaching the end of fossil fuel era. The future of humankind will be based on energy conservation and renewable energy. As there was no proper transition program in place during the last two decades the society has now reached an emergency situation. The humankind should take drastic steps towards sustainable development to retain the quality of life it achieved during the fossil fuel era.

Current power sector cost analysis in Sri Lanka is not based on a level playing field due to following reasons:

- Cost of electricity from coal fired power plants are calculated on the basis of obtaining finances at concessionary terms whereas cost of renewable energy is calculated at commercial rates.
- Fuel price and exchange rate changes during the life time of the power plants are not considered
- Costs of imported consumables for fossil fuel based electricity generation are calculated at concessionary terms (furnace oil, coal) whereas costs of all direct and indirect consumables used in renewable energy projects are calculated with all taxes and duties.
- Reduction in the cost of transmission lines and transmission losses are not reflected in the decentralized renewable energy generation.
- Environmental impacts are not internalised.

Due to these incorrect assumptions renewable energy technologies are considered as expensive options for Sri Lanka. On the other hand there is a growing demand for renewable energy worldwide and hence it is likely that the capital costs of renewable energy will drastically be reduced further in the near future.

In deciding the priority order for the technologies to be used, it is essential that the overall benefits to the national economy, environment and social structure by the adoption of the different resources and technologies is also taken into consideration. Accordingly decision on choosing the most appropriate options in meeting our energy needs should not be limited to the energy sector but should be based on considering all related national issues. The other two factors that should be considered in prioritizing the technology is the capital investment needed and the plant factor of the power plants as Sri Lanka has limited access to capital investments.

In this respect the dendro sector stands out due to its spinoff benefits such as rural poverty alleviation, providing employment particularly to the rural population, food production, fertilizer requirements for rice, milk, sugar, other field crops, foreign exchange, food security, energy security etc. The use of *Gliricidia* foliage as fodder or fertilizer would bring significant income to the cultivators.

## **NEW TARIFF EXPECTED FOR YEAR 2009**

The Ministry of Power and Energy is currently conducting stake holder consultations to discuss the tariff structure for export of electricity generated from new renewable energy resources applicable for the year 2009. BEASL has submitted proposals to be incorporated in this revision to correct the errors that were found in the last tariff declaration. It is expected that the new tariff will be finalized before the end of the year. It is also expected that the revision will be more favorable for the developers and help them secure the funding needed for implementation of the Dendro Projects.

## **AMENDED STANDARDIZED POWER PURCHASE AGREEMENT**

With the advent of the Sustainable Energy Authority (SEA) in October 2007 the Technology Specific Cost Reflective tariff structure for the export of electricity to the national grid from renewable energy projects was published in March 2008.

The CEB insisted that the implementation of this tariff requires the amendment of the Standardized Power Purchase Agreement as a tripartite agreement amongst the CEB, SEA and the Developer. Accordingly a draft agreement was finalized after much deliberation and sent to the Legal Draftsman for ratification. After many months of delay this proposal was rejected totally by the legal draftsman. As such the applicable SPPA is the original version with the provision for the topping up of the tariff by the SEA. The CEB will be paying the currently applicable avoided cost for the exported energy and the same certified invoice can be forwarded to the SEA claim for the balance due topping up the payment due as per declared new tariff structure.

This process worked satisfactorily for two projects earlier when the development tariff of Rs 8.50 per kWh was in force for biomass projects. It is hoped that there will be no problems in continuing this process for the new projects using the new tariff structure.

## **BIO MASS POWER GENERATION PLANTS COME ON LINE**

Two biomass generation projects have been commissioned using rice husk as the source of fuel. A 2.0 MW plant has been commissioned by Messrs Nipuna Rice Mills in Pollonnaruwa last year and a 10 MW plant has been commissioned recently by Messrs Tokyo Cement Ltd in Trincomalee. The 10 MW plant has been connected to the Grid while the 2 MW provides captive power to the Rice Mill.

## **PRESIDENTIAL AWARD FOR BIO MASS ENERGY DEVELOPMENT**

We proudly record that the untiring and dedicated services of four of our eminent member has been recognized by the National Science Foundation of the Ministry of Science and Technology by the award for the prestigious Presidential Award for Science and Technology for the year 2008 for the category of Development of eco-materials / eco-friendly process for industry.

The award was made jointly to

1. Vidya Jothi Dr Ray Wijewardene – Founder President
2. Mr P G Joseph
3. Mr Parakrama Jayasinghe – Current President
4. Dr Jayantha Gunethilake – Chairman Coconut Cultivation Board

We hope that this recognition will be translated to positive action by the many different state agencies to truly develop this sector and harness the multitude of benefits for the country at large, ranging a wider scope than just energy generation.

### **Annual General Meeting 2007**

The Annual General Meeting for the year 2007 was held on 18th January at the 80-Club at the Independence Square, Colombo 7. The meeting commenced at 5.30 p.m and followed by a presentation to the invitees. All the invitees were then invited to cocktails and dinner at the end of the session. More than 90 invitees participated to the meeting.

Some issues identified for further action and some of the progress made during the year were:

- Announcement of the technology based Tariff Structure.
- Establishment of the SEA [Sustainable Energy Authority].
- Integrated trial at Rathmalgara on growing Gliricidia for energy and fodder.
- Gassifier installation at the Department of Agriculture, Gannoruwa as a demonstration model.
- Supply chain for thermal energy projects in the industry.
- Interest developing in establishing gliricidia-plantations by several groups.

Some of the Concerns expressed were:

- Walapnae re-commissioning delayed
- No new Dendro Projects commenced.
- The problems of substation capacity not resolved.
- Lack of any real interventions by various committees beyond meetings and discussions.
- The value of the leaves as fodder and for soil fertility still not adequately recognized by parties interested
- Banks still not convinced of the viability of Dendro power as an alternative.
- Inability to get new projects.

### **Annual General Meeting of Bio Energy Association of Sri Lanka**

# **NEXT**

**will be held on 07<sup>th</sup> January 2009  
at 5.00p.m at 80Club,  
Independence Square,  
Colombo 07.**