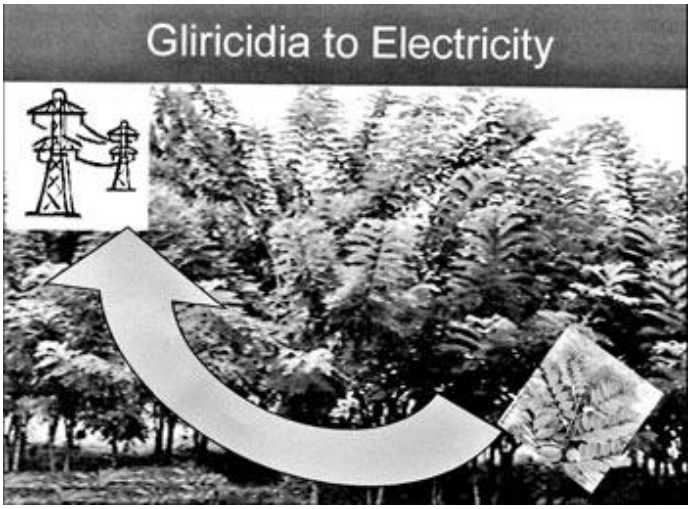
Electricity from Gliricidia - an entirely Sri Lankan concept

Dr Gamini KULATUNGA (dailynews.lk, 13th January 2012)

It was heartening to read the news item under the heading 'Electricity from Gliricidia' in the Daily News of January 6, 2012. The prominence given to this news item in a national newspaper with wide circulation is indeed welcomed by all who have strived over the past several decades to bring to the notice of the authorities the viability and the national importance of making use of this indigenous, renewable resource to meet the growing demand for electricity.



However, the above mentioned news item has many factually incorrect statements which will convey the incorrect impression in the minds of the readers who are not in possession of the true situation.

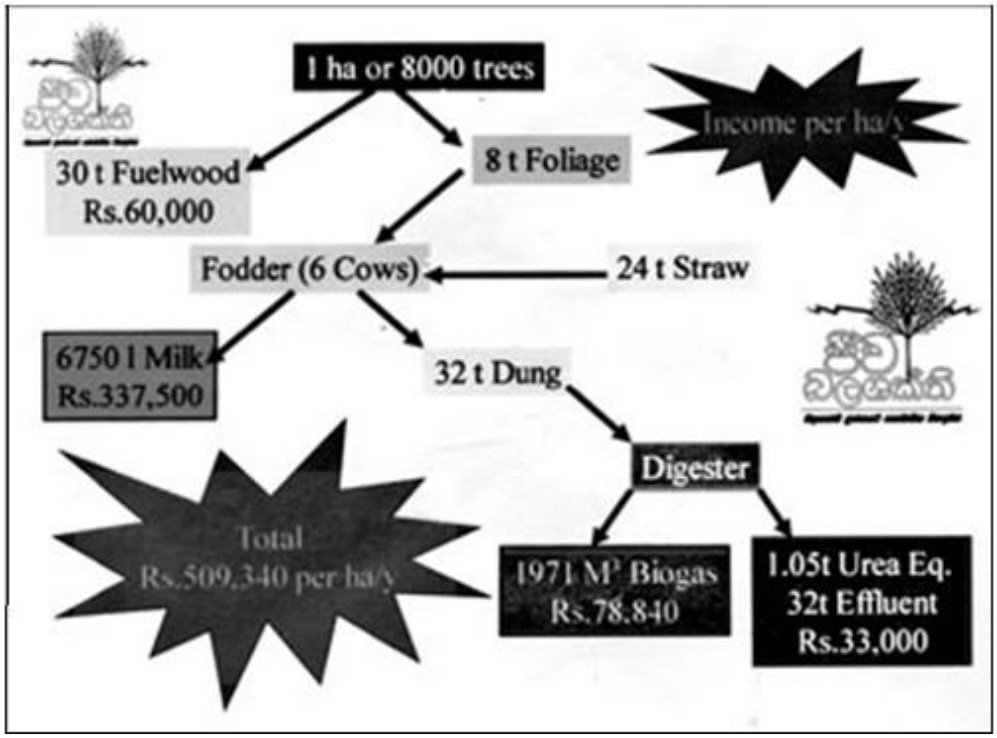
Primarily the concept of using Gliricidia for generation of electricity is essentially a Sri Lankan development promoted more than 28 years ago.

Soil erosion

This concept was first promoted by engineer P G Joseph, the former Director of the Renewable Energy Division of the Ministry of Science and Technology (Now the Ministry of Technology and Research) in 1980 in a technical paper presented at the Institution of Engineers Sri Lanka. This provocative idea was picked up by the late Vidya Jothi Dr Ray Wijewardene who was in the audience, no doubt prompted by his own expertise in growing Gliricidia in the world acknowledged Sloping Agricultural Lands Technique (SALT) for the protection of our hill sides from soil erosion. This led to a long standing and persevering effort by these two visionaries to bring this concept to the attention of the authorities of power and energy in the country.

Dr Ray Wijewardene used his considerable experience and knowledge, both as an engineer and as a renowned agriculturist to put into practice the ideas proposed. Not only did he demonstrate the best practices for growing Gliricidia in his Khohomba Estate at Kakkapalliya to make it the most productive coconut cultivation in the country, with yields far exceeding the national average, without using any urea fertilizer, he also demonstrated the feasibility of electricity generation using Gliricidia with a small scale gassifier based generator, which is still providing power for his estate staff. Two other similar installations of higher capacity of 35 kw and 100 kw were installed at the Galvanizing Plant of the Lanka

Transformers Ltd at Sapugaskanda and at the National Engineering Research and Development Centre at Ekala.



Potential In come from 8000 Gliricidia Trees (I Ha plantation)

In the meanwhile renowned agricultural scientists such as Dr Jayantha Gunethilake the present Director of the Coconut Research Institute and Dr Lionel Werrakoon, former research scientist at the Mahailluppalama Agricultural Research Station of the Department of Agriculture who have done extensive research on Gliricidia, primarily as a source of nitrogen fertilizer to replace the expensive imported Urea, recognized the much wider potential of Gliricidia as a valuable source of Fertilizer, Fodder and Fuel, and collaborated closely with Dr Ray Wijewardene and Eng. P G Joseph.

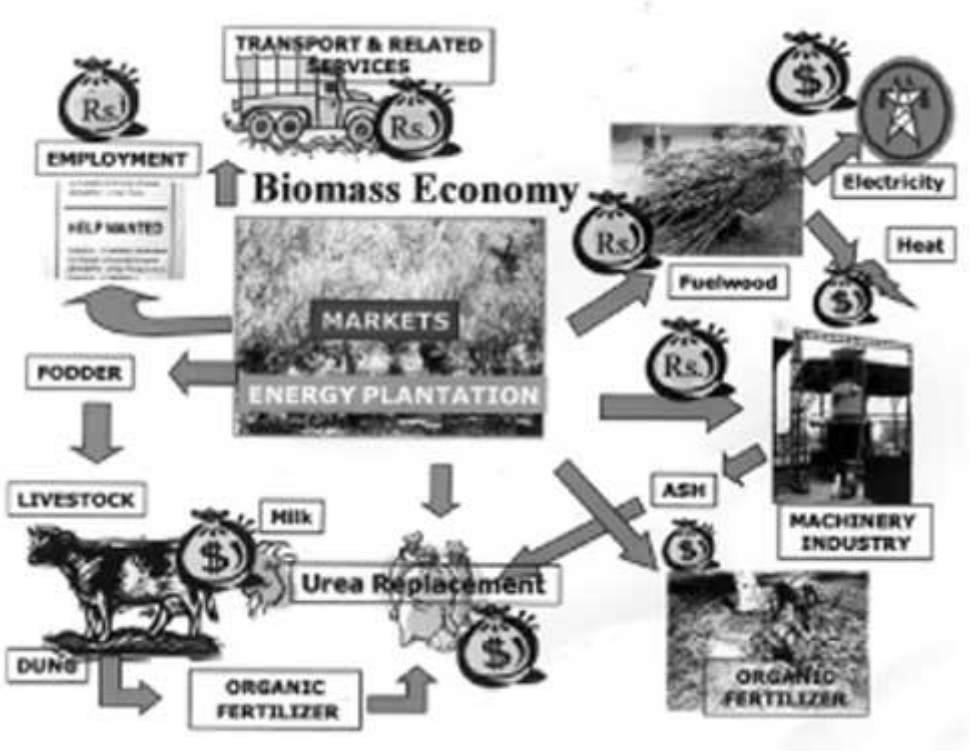
Their research is still continuing on ways and means of promoting extensive cultivation of Gliricidia in many productive ways and also in documenting its value in the three aspects of Fertilizer, Fodder and Fuel. However, it was the contribution by two other Sri Lankan Companies which practically demonstrated at commercial scale the value of Gliricidia as a source of fuel.

Bio-energy projects

Haycarb PLC supported by the Ministry of Science and Technology and the championship of Minister Prof Tissa Vitarana demonstrated the viability of using Glricidia to replace oil for thermal energy applications using gassifier technology. Two other Sri Lankan Companies , Lanka Transformers Ltd and Ceylon Tobacco Company took up the challenge to prove the technical viability of large scale power generation by developing the 1.0 MW Dendro Power Plant at Walapane in 2005, even though the tariff paid by the CEB for the energy generated was totally

inadequate to operate the plant as a profitable commercial venture. Their pioneering efforts effectively removed any doubts of the technical viability of using Gliricidia as a fuel for power generation as proposed by Eng Joseph more than 28 years ago.

In the meanwhile the Bio Energy Association of Sri Lanka which was inaugurated in 2004 under the patronage of late Dr Ray Wijewardene continued to campaign , both to promote the growing of Gliricidia, and for the wider acceptance of the feasibility of using Gliricidia for power generation and for thermal energy in industry. These untiring efforts led to the declaration of Gliricidia and the Fourth National Plantation Crop after Tea, Rubber and Coconut, by the Cabinet of Ministers in June 2005. While the many other important and far reaching proposals were included in this cabinet decision, none of these have been implemented yet. However it is important to record here that The Prime Minister Hon D M Jayaratne , who was the Minister of Post and Technology at that time provided valuable suggestions to supplement the above cabinet decision, demonstrating his clear appreciation of the value of Gliricidia , which grows profusely in his own electorate , in Gampola. It is therefore hoped that he would continue to promote the development of this resource.



It will be clear from the above that all the research and development work on Gliricidia , not only as a means of generating electricity but for a plethora of other uses have been done by Sri Lankan scientists and engineers.

The recently commissioned 500 kW dendro plant at Thirappane using Glricidia is also a result of such research. Also the interest created in the industry which has led to the 17 bio-energy projects with a total capacity of 81.7 mw which has received the energy permits form the Sustainable Energy Authority is the direct

consequence of such research and the lobbying by the Bio-Energy Association for a reasonable tariff for the energy generated. These projects have attracted investors not only from China and India but several other countries. The government's commitment to provide electricity to all by 2012 will require some 3 percent of the population in remote villages to be provided with electricity form off grid systems.

The Dendro energy using Glririciida is the only option for most of these villages to receive firm electricity similar to the gird supply. A number of such systems have been developed and installed by Eng. Lalith Senenviratne and have been operating successfully for several years now. It is therefore entirely incorrect to state Chinese Company has demonstrated the concept by their own research. While the investments by Chinese and other investors is most welcome as Sri Lanka cannot generate adequate capital for the large scale development of the industry, it is important to high light and appreciate the persevering efforts by the Sri Lankan Scientists and Engineers in this field.

National economy

The target set by the Mahinda Chinthanaya, Vision for the Future , to achieve a 20 percent contribution by non conventional renewable energy (NCRE) for the power generation by year 2020, as recently emphasized by Power and Energy Minster Patali Champika Ranwaka will require at least 300 mw of power to be generated form Dendro power plants using Gliricdia and other suitable Short Rotation Coppicing tress species. These will contribute very favorably to the other sectors of the national economy such as livestock development, reduced inorganic fertilizer inputs for food production and enhancement of income of rural farmers, as well. These benefits are spelled out in detail in the publications of the Bio Energy Association freely accessible through the web site www.bionergysrilanka.org

It is the responsibility of the national media to ensure that the valuable contributions by Sri Lankan professionals be given prominence and not to allow the credit for these successes to be assigned to any foreign parties.

It is our earnest hope that the state authorities recognize at least now the importance of optimizing the use of indigenous and renewable resources for power generation thus breaking the shackles of over dependence on important fossil fuels.

In this regard the recent inauguration of the Sri Lanka Energy Company under Power and Energy Ministry to undertake renewable energy projects and the most important comments by Power and Energy Minister emphasizing that the cost of generation by such sources will be cheaper than that from even coal, often touted as the cheapest source of power, in the near future is most welcome.

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