

EDITORIAL

Research and Energy Security

Today energy from petroleum resources has become indispensable for economic development of all countries irrespective of whether the economy is based on agriculture, industry or service sector.

In the recent past the price of all fossil fuels rose to unprecedented levels straining economies of fossil fuel importing countries, such as Sri Lanka. Even though there has been a subsequent decrease in their prices, it is most unlikely that the prices will remain so. The probability of price increases of fossil fuels in the future, particularly with declining resources, is an issue that the country will have to face if we continue to depend on imported fossil fuels. In this scenario, the country must strive to reduce its dependency on imported fossil fuel generated energy and actively promote the use of alternative indigenous sources of energy such as biomass, solar and wind to achieve energy security.

The available statistics indicate that in Sri Lanka even at present, biomass is in fact recorded as the main source of energy due mostly to the inefficient use of wood biomass, particularly in the domestic sector. On the other hand, the country depends heavily on imported petroleum oil for use in the transport, power and industrial sectors. Though hydropower is available as an indigenous source for electricity generation, its capacity is limited and also subject to vagaries of weather.

It is encouraging to note that the government has already taken a policy decision to promote the use of alternative sources of energy. The National Energy Policy and Strategies of Sri Lanka published by the Ministry of Power and Energy in 2006 has led to focus attention on the development of indigenous energy resources to an optimum level. Even as far as 1992, the government had approved a recommendation to promote wood fuelled dendro-power plants for generation of electricity and the Ministry of Science and Technology has focused on promoting plantation of *gliricidea* and the establishment of pilot scale power plants fuelled by *gliricidea* wood. A few private sector entrepreneurs have also taken the initiative to establish commercial level dendro-power plants.

The feasibility of dendro-power as a sustainable source of energy has been demonstrated convincingly and the government is now focusing on the development of an action plan to develop biomass powered electricity generation. It has also been demonstrated that woody biomass could be utilized in other sectors with high efficiency using new technologies. In addition, various technologies are widely used today globally to obtain petroleum substitutes from other plant material such as sugars, starch and oil extracted from a variety of crops. Research is also underway to obtain these substitutes from non-edible, cellulosic plant material. Solar thermal systems and wind power are also being widely used elsewhere as indigenous sources of energy.

In this situation, it is the responsibility of research scientists to add to the knowledge on alternative indigenous energy technologies adaptable to Sri Lanka. Although very many studies have been undertaken by researchers on developing indigenous alternative sources of energy they have to be further supported enabling them to play a much bigger role to find answers necessary to minimize the use of imported fossil fuels. Answers have to be found to such questions as, how to adapt the available technologies for use in Sri Lanka more appropriately using our own plant material, what new indigenous plant material can be used as effective sources of energy and how a sustainable supply of biomass can be produced economically to ensure meeting the projected future needs. While answers to these questions are sought, the researchers as well as the policy makers have to bear in mind that under no circumstances should food security be compromised in our search for energy security.

Although biomass has been demonstrated as the most promising indigenous alternative source of energy for our country, it is necessary to establish a fine balance between land use for food production versus energy production. This can be achieved only through thoroughly researched and well informed decisions taken by policy makers. The responsibility of providing the correct research based information and knowledge which

is of social relevance lies with the research scientists and technologists. Energy research should be a team effort of natural, agricultural, social and engineering scientists and this should be encouraged by grant awarding bodies.

While it has been argued that any given piece of knowledge may be useful, researchers need to remember that the research findings will be made use of by others – scientists, decision makers and entrepreneurs – only if these are perceived as economical and reliable. The use of any research finding also depends on many other factors such as the user's familiarity of the finding and the acceptance of its validity. Environmental concern is another factor that plays a key role in implementing any

research finding. The benefits of research based scientific knowledge thus depend on complex multidirectional processes, and this will significantly influence their policy implications.

Policy concerns and science agendas particularly in a developing country like Sri Lanka with limited resources especially land resources and infrastructure, must be closely related to a large extent to find solutions to the needs of the country. This however, should not undermine the importance of basic science and does not mean that scientists must engage only in policy driven research. What needs to be stressed is that science agendas should meet the needs of society and common good.

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