

SOME ASPECTS OF THE TECHNOLOGY AND THE POLITICS OF ENERGY IN SRI LANKA

by

Prof. H. Sriyananda

Dean, Faculty of Engineering Technology, Open University of Sri Lanka

1.0 Introduction

There are technological and political aspects relevant to each and every form of the harnessing and use of energy, especially on a large scale. Issues such as the ethics of nuclear power generation and the problems of investment in research in new sources of energy such as wave energy need to be discussed in this regard. At the present moment in Sri Lanka, the issue of setting up a coal-burning thermal power station is also being discussed, with special reference to its effects on the environment.

In this paper, an attempt is made to examine some of the conclusions of the Seminar on Energy in Sri Lanka held in January 1980 (1) and the series of Seminars on the Mahaweli sponsored by the Sri Lanka Association for the Advancement of Science (SLAAS) the last of which was held in 1986. Unfortunately, specific references can only be made to the Seminar on Energy as the proceedings of the others have not been published. The scope of these Seminars were very wide and it is not possible to examine all matters raised at them, even for the limited purpose of extracting relationships between the technology and the politics of energy, in a short paper of this nature. Hence, only a few isolated instances, are considered to illustrate the general principles involved.

Inaugurating the 1980 energy seminar, the then Prime Minister drew attention to what he called the 'three major projects' then in hand (2). These were:

- (a) The accelerated Mahaweli development scheme
- (b) The investment promotion zones, and
- (c) The urban and housing development schemes.

In his address, he considered all these to be consumers of energy. This is of course true for the development stage, but after that, the Mahaweli project can also be considered to be a generator of energy as well as a consumer. Each of these may be discussed.

2.0 The accelerated Mahaweli development scheme

The rationale for the accelerated Mahaweli scheme as it was implemented was laid down at the SLAAS seminar by the then Minister of Power and Highways (3).

'This demonstrates why the acceleration of the Mahaweli programme was both inevitable and fully justified. Acceleration of our economic development demands an accelerated power development programme too - and the accelerated Mahaweli programme, with its several large power projects designed to come on progressively from 1983-84 onwards, provides just this.'

This was no isolated statement in relation to the scope and significance of the Mahaweli project. At the first of the Mahaweli Seminars organized by the SLAAS, there was general agreement that the accelerated programme would present no serious engineering problems, but that there will arise very serious problems on almost all other issues such as land and water use, land settlement, socio-economic development and afforestation. These reservations were conveyed to the Government by the SLAAS. It may be safe to assume that these observations carried little weight with the Government, because in its view, the accelerated Mahaweli was, basically, a power project as stated above (3).

At the second Seminar held in 1986, again, there was general consensus that the vast expenditure, and the resulting foreign debt incurred on the Mahaweli project, were made necessary only because of the power generation component of the project. If the project was confined to its water conservation and irrigation aspects only, it could have been executed without foreign participation, both financial and technological.

If this is so, the costs and benefits of the project may be examined in this light.

The costs of the project, as implemented, are many. The main continuing cost that may be quantified is the legacy of a debt service ratio of about 25%. This is borne by the entirety of our people, including the very poor. One may go even further. Because of the conditions imposed by the lending agencies, the main burden is, in fact, borne by the poorest of the poor who will, for a long time to come, have to pay more for their essential food items, or go without food altogether.

There are of course other costs. One example is the damage suffered by the professional engineering community by being excluded from participation in the major engineering activity of the decade. There has been for a long time now, an on going discussion on problems facing the Local Construction Industry.

Let us now look at the benefits and the beneficiaries. There has been a really remarkable increase in both the power and the energy capacities, which have more or less trebled over the period of implementation of the project. According to intention (3), the increased generation should have been consumed by two major sectors, the rural poor and industry. But is this what has happened? According to published statistics from the Central Bank, the increase in consumption for industrial production has been marginal while the major increases have been in the commercial and domestic sectors.

The domestic sector of course includes the rural poor. However, it has been shown (4) that more than 15% of the domestic electricity consumption has been by less than 0.1% of the consumers, who consume more than 5000 units each per month. It has also been shown (4) that industrial consumers actually subsidize domestic consumers by way of higher tariffs, by a factor of almost 1:2.

Apart from the Mahaweli as a source of electrical energy, the electricity supply authorities do, in general, discriminate against disadvantaged consumers by supplying them with low quality power. They are however billed on the same tariffs as those in privileged situations, who do get a better quality supply. It has to be remembered that the quality of supply is directly dependent on investment, and that in effect the poor are being made to subsidize the rich. A quality of supply related tariff (5) has been suggested, but no interest has been expressed by the supply authorities.

3.0 The investment promotion zones

The second of the 'major projects' will now be examined. The pros and cons of the policy of setting up investment promotion zones will not be discussed. They will be examined in relation to the topic under discussion.

It was noted above (2,3) that policy makers viewed the development of power generation and the availability of energy in terms of industrial use, especially in relation to the investment promotion zones. It is also known that the only significant industry that has established itself within the free trade zones is the garment industry. In this connection, it is interesting to note that it has been reported (6) that the garment industry has the lowest total energy cost as a percentage of the value, from among a representative group of industries. This may mean that the energy policy, or a lack of an energy policy, would have had very little effect on the development of the garment industry.

The garment industry is also very special in another sense. Together with the traditional plantation industries, It is also an industry that is most exploitative of labour.

Other industries have different power and energy requirements. The process industry needs cheap and abundant energy while both the process industry and the electronics industry require a high quality electricity supply. There has not been any attempt to provide these while a lot of effort has gone into ensuring that established labour laws do not apply within the free trade zones.

4.0 The urban and housing development schemes

When considered as consumers of energy and power, the urban and housing development schemes fall within the domestic and commercial sectors, except during the construction stage. It has already been stated that the major increase in the consumption of electrical energy during the last decade has been in these sectors. If proper statistics were available, and if transport is also included, it could perhaps be shown that this applies not only to electrical energy but to all forms of commercial energy.

As far as domestic consumption is concerned, it has already been shown who the real beneficiaries have been. This is also related to the consumption of capital goods, normally called consumer durables.

In the context of the present state of development of Sri Lanka, the operations of the commercial sector has to be considered, in the main, as a non-productive and parasitical activity.

If the planning, design and construction stages are examined there were certain definite directions for policy which have been totally ignored. For example, in relation to passive solar energy as a deficit quantum towards comfort in buildings, the following objectives have been identified (7).

To establish a need for energy conservation in the design of buildings.

To focus on traditional, scientific and a methodological approach to building designs to achieve this end.

To consider the feasibility of physical planning with the view to an energy conservation policy while maintaining a reasonable quality of life.

It was also recommended (8) that:

Government should induce architects to give the highest priority to the reduction in solar heat gain, in the design of all types of buildings, so that the counter energy resources required to operate fans, air conditioners etc. to produce a comfortable thermal environment, is minimal.

None of these recommendations have been accepted and it is easy to see to why. They are at variance with the dominant political philosophy of the moment.

5.0 Conclusions

A very small part of the proceedings of the 1980 Energy seminar are discussed in this paper and each of the cases discussed has illustrated the unavoidable interaction between technology and politics.

They have also shown how possible improvements to environment, both physical and social, have been thwarted by the structure of the political power base.

It would be a vain attempt to try to maintain that science and technology are neutral and value free and that we, as

scientists and engineers, should leave the application of the results of our work in others' hands.

We have not only a right but a duty to see that the products of our efforts are not appropriated by those who have only their own interests at heart.

6.0 References

- 1 Energy in Sri Lanka Seminar, Colombo, Sri Lanka, 1980.
- 2 R Premadasa: 'The role of energy in Sri Lanka' Energy in Sri Lanka Seminar, Colombo Sri Lanka, 1980, pp XII-XIV.
- 3 D B Wijetunga, 'Electric power policy and energy', *ibid*, pp 130-138
- 4 D G Senadhipathy: 'Professor R H Paul Memorial Lecture, 1989. Evolution of electricity tariffs in Sri Lanka (past 40 years), Engineer, vol. XVII, No 1, March 1989 pp 34-57.
- 5 H Sriyananda: 'An equitable electricity tariff structure', Proc. SLAAS, Part 1, December 1986, page 93.
6. M R Prelis: 'Industrial energy usage', The role of energy in Sri Lanka', Energy in Sri Lanka Seminar, Colombo, Sri Lanka, 1980, pp 456-458.
- 7 Roland Silva and Ashley de Vos: 'Passive solar energy with special reference to Sri Lanka', *ibid*, pp 510-519.
- 8 S Gnanalingam: 'Summary of technical session 9', *ibid*, pp 62-68