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Coal for a reliable power source and setbacks it faced

by E. Carlo Fernando

The CEB is now gradually getting caught in the long foreseen power crisis, which everyone now admits is due to the non-implementation of the coal power projects. It is heartening to see that there is a countrywide realization that coal power is the answer to provide a stable cheap power supply to meet the growing power demand. The CEB is now being saddled with diesel power generation costing about Rs. 11 a unit, which is nearly 3 times the cost of coal power. Due to this, CEB's imposition of a 25% fuel adjustment surcharge on electricity has come to stay, with more shocks to follow. Now it is looking for scapegoats to put the blame on for the present crisis situation.

My service as a Power Development Consultant to the CEB started in 1977. In this capacity with my long experience in hydropower and water resources I had gained locally and internationally since 1945, my first recommendation made in 1978 to the CEB was to follow the Accelerated Mahaweli hydropower projects with coal power. It was based on the following facts: —

- Only about 12% of the land area in Sri Lanka is suitable for hydropower. River flows are not perennial. The hydropower development is limited and not massive as has often been falsely spoken of.
- A perfect power supply cannot be achieved with hydro alone that is based on unpredictable weather.
- Hydropower is mostly suitable for peaking and as such the Mahaweli Projects have bee planned as peaking power plants.
- Base load power has to be provided with thermal power, which should be fuelled with coal since oil is, and will, be far too expensive for base load operations.

These vital points were expressed in the paper 'Some vital aspects of Hydropower Development in Sri Lanka' read by me at the meeting of the Institution of Electrical Engineers (London), overseas Sri Lankan Branch on 29th August 1978 and it was published in the journal 'Engineers' of the Institution of Electrical Engineers, Sri Lanka in the September 1978 issue. Also another article by me under the heading '1000 MW Base Load Coal Power plant for Sri Lanka to be developed in stages, was published in the 'Engineers' issue of June 1979. These articles- explain the need for adopting coal, a cheap fuel, for power generation in Sri Lanka.

Weather.

To emphasize the point, that no perfection in weather patterns can be achieved even with elaborate meteorological studies, here are two classic examples.

Akosombe, formerly known as the Volta river project in Ghana is the largest reservoir in the world. I worked on this project at its planning stages in the Consultants London office. In spite of the elaborate studies on weather, which were carried out on this subject, this huge reservoir once went dry, and the aluminium smelter, the main power consumer of this project had to remain shut for sometime.

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Again the world famous Aswan Dam Project in Egypt once went dry. This resulted in a coal power plant based on imported coal to be hurriedly set up. It was Mr. James Lanerolle, CCS, the then Secretary to the Ministry of Power & Energy who accepted my recommendation and paved the way for studies towards coal power development.

Setbacks to Coal.

Initially studies on Trincomalee coal were carried out. It was then that the most vicious anti coal protests and poisonous thoughts about coal were introduced into the minds of the entire Sri Lankan population. However it was due to security reasons that the Trincomalee site had to be set aside.

Then Mawella on the South was taken up. Unfortunately studies on the site was stopped by President Premadasa who was completely misled, once again by the most vicious anti-coal propaganda by the diesel lobby and other self interested parties.

It was followed by a study on the West Coast carried out by the Japanese Consulting Institute (JCI) in 1992/93. In that study Negombo/Dungalapitiya ranked first and Puttalam last. The first 165 MW set in Negombo was to be commissioned in 1999 and the second 165 MW in 2001. The diesel lobby did not like Negombo because it is the best site and the introduction of coal power in 1999 would be successful. They managed to push the project to the worst site - Puttalam /Norachcholai by presenting all sorts of falsehoods against Negombo.

The JCI report indicates the construction cost per kW of coal plant to be the lowest in Negombo - US $ 1880 and highest in Puttalam/Norachcholai - US $ 2279 - a difference of US $ 400 per kW/ Thus for 300 MW the difference is US $ 120 million and for 900 MW US $ 360 million. Added to this capital cost you have the continuous running costs in desalination, losses in transmission, etc. In addition, the most important 4 km. long coal unloading jetty, the life line of the power plant protruding out into the Kalpitiya sea is highly vulnerable, constantly exposed to a suicide bombing attack. The jetty also lies in the usual path of cyclonic winds such as the 150 km per hour cyclone of December 2000. A similar cyclone passed that site in 1978. The jetty at Negombo is safer - only 3/4 km long and it can be protected.

The required coal power additions recommended in the JCI Plan to meet the power demand

Year	Site	Capacity MW	Cumulative MW
1996/97	Trinco	150+150	300
1999	West Coast	165	465
2001	West Coast	165	630
2003	West Coast Ext.	300	930
2005	New Coal A	300	1230
2008	New Coal A	300	1530
2009	New Coal B	500	2030
2012	New Coal B	500	2530

JCI Recommendation

When the JCI made its study in 1992/3 they expected Trinco (150 + 150) MW to be added in 1996/97. In addition; the above is an indication of the enormous amount of work that has to be accomplished to provide a satisfactory power supply to the country. This is practically a massive program like the Mahaweli. But the CEB engineers would probably laugh at this expansion on the ground that it would be in excess and against their least cost plan. The CEB engineers had argued similarly earlier when the series of hydro power plants in the Accelerated Mahaweli Scheme were to be added.

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