

Visiting The Operations of “LAKVIJAYA”

During the last few years of nineteenth century Sri Lanka had to face boring power cuts in the whole country day by day. Even though it had increased the demand of power for industry and domestic usage of country, government was unable to supply for the demand totally. By that time it has been over the opportunity of building another massive hydro power plant except upper Kothmale project and then responsible institutes should have to take necessary actions to go for alternative power generation plant with new technology like coal power plant, LNG plant or nuclear plant which is suitable for the increasing demand.

Ultimately Experts of the power Generation decided to build a coal plant at Norochhole considering all the facts related to Environmental impacts, Financial Capacity and Social Resistance etc. Some of the factors considered were the monsoon pattern, easiness of unloading coal, land side access to the plant, re-location of fishery families and farmers in the area etc. Normally the cost of using coal is one third of that of using diesel.



Unfortunately the commencement of the project delayed up to year 2007 due to political unstable situations and policy making infirmities. However it could commence the building of the 1st phase of the plant on 23^{ed} of July 2007 and it took four years to finish the work. By 1st of February 2011 CEB could connect the power to national grid with pleasure after a big struggle and a huge dedication of related staff.

In first 2-3 years of coal power generation it had to face for so many problems due to breakdowns of plant and disappointed the country to fall again with frequent power cuts. But it is happy to mention that our valuable Engineering staff faced the problem with courage, identified the fault and solved it with the support of Chinese experts firmly.

It can be mentioned today with pride that the operations of the plant is totally handled by our local engineers with the support of a few Chinese staff and that shows the sign of victory of installation coal power generation technology in Sri Lanka.

At present we experience it has become to a balance of supply and demand of power in the country. Therefore CESC members decided to arrange a field visit to review the current situation. Thank to admirable efforts of field trip subcommittee, a field visit to LAKVIJAYA coal power plant at Norochhole was arranged on 02 February 2019 and 24 Engineers were participated .During the visit they could visit and study the operational procedures, worth of the coal power generation, wastages and related environmental impacts, remedies for them, current public living condition of the area and overall gain and loses.



-Main Contractor of the project: China Machinery Engineering Corporation (CMEC)

-Funded by: Exim Bank of China

-Total Cost: For Phase I (300MW)-us\$ 455million

For Phase II (2x300MW)-us\$891million

BY 16th August 2014 it has synchronized to national grid whole three units. Now the plant is fulfilling 35% of power demand of the country while 34% by oil and 27% by Hydro plants. Only 4% is supplied by Renewable Energy.

Bituminous Coal is being used importing from Russia, Indonesia or South Africa. Average consumption per year is 2.2million MT for three units. By products and remains of the plant are Fly Ash, Bottom Ash and gases like NO_x, SO_x, CO_x.

The plant has a system to absorb and oxidized into the stable sulfate ion (SO₄²⁻) of SO_x and remove safely with cooling water. Since there is not a way to stop producing NO_x it has to use low NO_x burner's technology. Here it tries to keep the temperature of boiler less than 1200^oc.

Fly Ash and Bottom Ash has been converted into a valuable resource. To collect fly ash it has installed an Electro Static precipitator (ESP). Daily production is nearly 700-850 MT and 99% of it is collected by ESP. At present they send the total production of Fly Ash for cement industry (used by TOKIO cement). Thereby preventing Fly Ash being a headache to country further. Even though a huge heap of fly ash and bottom ash is in the ash yard they have signed agreements with Ceylon Tang Dynasty Ceylon, Lanka AAC (pvt) Ltd., Onelto power company (pvt) Ltd., Seatra Technologies and S.M.S Engineering (pvt) Ltd to use it productively in the construction Industry.



Continues monitoring and study of Marine Environment (with NARA), Cooling Water quality (Test by NBRO), AIR quality (Through Industrial Technology Institute-ITI) and Stack Emission monitoring (by NBRO) is being done to verify the less Environmental Impacts. Additionally continuous improvements like wind barrier extensions, Mist spray systems and wood buffer are being developed in the plant to control the impacts. Fortunately all the monitoring measurements are within the standards when consider present situation and could carry on the operation of the plant smoothly giving invaluable service to the nation.

As we have seen in our field trip living standard of the ambient area, it has developed infrastructures(Good transportation facilities ,Drinking Water ,Electricity) while construct the plant. Consequently it has expanded the facilities of cultivating, fishing and industrial opportunities. Finally the power plant project had been a big support to uplift their living standard.

At last what has to say is the guarantee of the coal power plant is only 25 years. Therefore policymakers should take necessary actions to supply power without leading to a crisis again in future at this moment.



Very much thankful to team leader and members of CESC for giving Engineers an valuable opportunity to review of Coal Power Plant at Norochhole and wish them to carry on a good service to engineering profession through CESC.

(Written by Eng. T.M.R.G.M.B. Parakrama)

