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<td><strong>Author(s)</strong></td>
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<td><strong>Date</strong></td>
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<td><a href="http://hdl.handle.net/10220/742">http://hdl.handle.net/10220/742</a></td>
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Indonesian Energy Prospect: An Overview

By

A B Mappatoto
INDONESIAN ENERGY PROSPECT, AN OVERVIEW

by A. B. Mappatoto (Antara)

The world community has been hectically commenting, in these last few months on the trends of world economic recovery which are marked by the picking up of the US economy.

It is particularly the oil-producing countries which are filled with enthusiasm for the phenomenal world economic recovery, on the expectation that oil consumption in the industrial nations will rise.

Consequently, the rising demand for oil will increase the oil-producing country's oil and non-oil export incomes to cover the implementation of economic development.

The sign of the world economic recovery, however, was viewed with some ambivalence by certain oil-producing developing countries.

On the one hand, improvement in the world economy will bolster oil and non-oil export earnings of the oil-producing developing nations, while on the other hand the depletion of their oil deposits will accelerate as they have embarked on, or at least programmed, oil consuming industrialization.

It is the countries which depend solely on oil for their foreign exchange which have to bear the brunt as they have no other foreign exchange resources.

But the countries which are rich in natural resources, such as Indonesia, see the present world economic situation with high hopes because they have many options from which to choose to bolster their foreign exchange incomes: the export of tin, timber and cash crops, to mention a few.

In addition, the naturally rich countries have at their disposal abundant alternative and renewable energy sources to capitalize on when whipping up their industrialization program: hydro energy, gas, geothermal and coal, to mention a few.

Despite the natural richness at her disposal, Indonesia is facing problems which come in the way of her development. Minister of Mining Dr. Subroto early this year warned the nation that the year 1983/84 will be a challenging period. He did not elaborate on this matter, but President Suharto in the same month (January) announced that state revenue from oil had gone down.
President Suharto said that the value and volume of exports of oil and oil products, including crudes exported for re-import in the form of oil fuel, stood at US$12,458.2 million and 360.3 million barrels of oil in 1982/83 against US$16,481.5 million and 468.1 million barrels of oil in 1981/82.

Indonesia's earning of oil company tax which rose by 64.8 percent and 22.9 percent respectively in 1980/81 and 1981/82 went down to Rp 8,170.4 billion in 1982/83, or a decrease of 5.3 percent.

These statistics are used to show that Indonesia's oil industry was in a precarious position relative to the world economic development, which justified for Minister Subroto's warning for 1983/84.

Viewing the downward trends of the world demand for oil because of oil glut and the economic recession in the early 1980, which held a firm grin on the world in 1982, the Indonesian government had to take a series of measures to cope with its financial constraints.

The Opec price rise from US$5.12 per barrel of oil in 1973 to US$34 per barrel in 1982 was a real foreign exchange bonanza for Indonesia. But this brought constraints to the State's revenue, because the government had also to pay high prices for imported oil fuels which were sold with a high government subsidy for domestic consumption.

In the year 1972/73 the government gave no oil subsidy at all. Even in 1973 and 1974 oil earnings were at a surplus of Rp 31 billion and Rp 34.2 billion respectively.


This is the reason why the government has to increase the price of oil fuels in the years 1980, 1981, 1982 and 1983, with the aim of reducing the amount of oil subsidy.

If the price of oil fuels had not been increased in fiscal 1983/84, the government would have earmarked Rp 2.1 trillion for the oil subsidy. But the price rise of oil fuels in January 1983 reduced the subsidy from Rp 924 billion in fiscal 1982/83 to Rp 698.5 billion in the current fiscal 1983/84.

Facing the adverse effects of the world economic recession, and in anticipation of a world recovery and of Indonesia's industrialization program focusing on its engineering industry beginning in the fourth five-year
development plan (Repelita IV 1984/89), the government issued a presidential instruction in 1982 which called for energy conservation to be conducted by all government ministries and agencies. This includes the limited use of gas by the government's cars, and of electricity in government buildings.

Although Indonesia's oil deposits are exploitable for another 100 years, if the production level of 1.6 million barrels a day is maintained, oil conservation is regarded as imperative to the national economy. If one considers the oil glut on the world market, the reduced Opec production quota to 1.3 million barrels a day for Indonesia, from the previous 1.7 million barrels, and the high energy consumption in densely populated Java.

Java, inhabited by the majority of Indonesia's population of 150 million, was responsible for between 80 and 85 percent of the national fuel oil consumption in 1983. Of the oil fuels used, 60 percent was for cooking and household lighting.

But in the aggregate, commercial energy consumption in Indonesia, according to the mining and energy minister, was still relatively low, standing in 1980 at about 30 million tons equivalent of coal, or an annual per capita consumption of 200 kg equivalent of coal. If the consumption of commercial and non-commercial energies is combined together, the figure is 74 million tons equivalent of coal, or an annual per capita consumption of 490 kg equivalent of coal.

Despite a low energy consumption, the national energy requirement is estimated to increase to the equivalent of 235 million barrels of oil in 1983/84 from 208 million barrels in 1982/83. The national energy need will further increase to the equivalent of 287 million barrels of oil in 1990.

Certainly, the national energy requirement, including an annual 13 percent increase in oil fuel demand -- consumption stood at 8,135 million litres in 1972/73, 16,000 million litres in 1977/78 and 28,168 million litres in 1982/83 -- cannot be fulfilled from the oil sector alone, which now produces crudes of 1.3 million barrels a day, based on the Opec quota of 1983.

To meet the oil fuel requirement, the government has to import oil fuels from Singapore, and Arabian Light Crude (ALC) from Saudi Arabia to be processed into oil fuels in Singapore and in the Philippines before being sold at home below production cost.

Statistics show that in 1982/83 Indonesia imported on the C & F basis 37,790,000 barrels of oil fuels worth US$1,729.5 million from Singapore and 39,930,000 barrels of ALC worth US$1,414.2 million from Saudi Arabia.
The ALC processed in Singapore totalled 150,000 barrels daily beginning in 1980, and 20,000 barrels daily in the Philippines beginning in March 1981.

For the fiscal 1983/84 the oil fuel requirement was estimated at 26.3 billion litres, of which 21.2 billion litres (80 percent) are oil fuels such as stove kerosene, industrial oil and diesel oil, which will be sold below production cost to consumers.

In order to reduce Indonesia's dependency on imported oil fuels, the government has built oil refineries in Dumai, Balikpapan and Cilacap. If completed, these refineries will have a daily production capacity of 85,000 barrels, 200,000 barrels and 485,000 barrels respectively.

Until now the existing refineries are only capable of processing 400,000 barrels of crude daily against 560,000 barrels of crude which have to be processed into oil fuels for domestic consumption.

Another measure taken by the government to reduce the country's dependence on imported oil fuels and to diversify energy resources was a plan to make use of non-oil resources, such as natural gas, hydroenergy, coal, geothermal, solar power, charcoal, ocean thermal energy conversion (Otec) and nuclear power.

The government is now working on a program to supply households in the North Sumatra capital city of Medan with natural gas for cooking, on the basis that Medan is located near the natural gas producing area of Aceh. Indonesia's natural gas deposits were estimated at 32 trillion cubic feet.

Hydroenergy has been used to generate electricity. The Asahan project and the Inco nickel mining plant, the Jatiluhur hydropower plant and the Saguling hydropower installation are the best examples of the efforts to tap energy from non-oil resources.

Of the total 2,485,867 KW generated by the existing electrical facilities in 1981, hydroenergy accounted for 15.3 percent or 378,774 KW.

Coal produced from the Ombilin and Bukit Asam mining complexes has been extensively used since the middle of the 19th century. Railways and ocean-going ships in the past were among the best customers of Indonesian coal, while at present it is used for cement factories, electric power and city gas. Efforts are also being made to promote the use of coal for cooking.

Indonesia's coal production from the Ombilin, Bukit Asam and Mahakam complexes in 1966 totalled 319,983 metric tons. In 1978 and 1979 production stood at 264,180 and 278,589 metric tons respectively.
Coal consumption for cement factories was estimated to rise from 618,000 metric tons in 1984 to 1,518,000 metric tons in 1990.

The electric power plants were estimated to commence using coal in 1984, starting with 430,000 metric tons to be increased to 5,591,000 metric tons in 1990.

Railways were estimated to increase their use of coal from 300,000 metric tons in 1984 to 350,000 metric tons in 1990.

If combined, these three sectors will consume 1,384,000 metric tons of coal in 1984 and 7,459,000 metric tons in 1990. Viewed from the requirement aggregate, the demand for coal by the country's cement and electricity plants as well as by the railways is higher than domestic production.

But Indonesia has been estimated to have coal deposits in the region of 18 billion tons, mainly in Sumatra, East and South Kalimantan and in Java. Until 1983 Indonesia had not used coal to generate electricity.

Indonesia is also claimed to be rich in geothermal deposits. In Kemojang, West Java, a geothermal-powered electricity plant was built in cooperation with New Zealand. The plant is now operational.

Geothermal deposits in this country were claimed to be capable of generating between 8,000 and 10,000 MW of electricity.

Peat is also abundant in Indonesia, covering an area of 26 million hectares which have a potency of 200 billion tons. Indonesia's peat potency only stands fourth after Canada (170 million hectares), the Soviet Union (150 million hectares) and the United States (40 million hectares).

Charcoal is another alternative energy source for Indonesia, but this form of energy poses a big threat to Indonesia forests, especially in Java where people use 1.1 million tons of charcoal a year, mainly (75 percent) for cooking.

The annual per capita consumption of charcoal in Java stands at one cubic metre. If this charcoal consumption level is maintained, the use of wood and wood-wastes which are converted to charcoal will reach 140 million cubic metres all over the country in the year 2,000.

The supply of wood and wood-wastes in Java remains only at 55 million cubic metres, justifying the warning of government officials that Java is facing a crisis in firewood.

The tapping of solar energy has been making head-
way in Indonesia. Officials of the Power Directorate General, Ministry of Mining and Energy, have evaluated that the use of solar energy in Indonesia has a bright prospect.

Solar energy is now being used on an experimental basis to operate buoys, the telecommunication system of the state railways, and TVRI repeaters. The total solar energy used in the country is 400 KW which will be increased to 800 KW in 1984. In early Pelita IV (1984-1989) solar energy is expected to be used commercially. Even Indonesia will move further, from assembling photovoltaic cells to manufacturing them at home.

The government will also promote the use of LPG to replace stove kerosene. Domestic consumption of LPG is around 80,000 tons a year. Within the next five years LPG consumption will reach 300,000 tons a year.

What conclusions can be drawn from this discussion of the Indonesian energy business? The whole picture reveals that Indonesia, being an oil producing developing country straddling the equator, has taken preemptive steps to keep her non-renewable oil resources exploitable for as long as possible, inorder to prop up her foreign exchange earnings. So far, as has been widely reported, about 70 percent of the state budget allocation is covered by Indonesia's oil export earnings.

It is President Suharto himself who has always told the public that the state budget cannot depend heavily on its oil income forever. Something has to be done, otherwise Indonesia will, in a certain period of time become a net oil importer.

From the start of the oil crisis of the 1970s, Indonesia has contemplated ways and means of conserving her oil deposits of 50 billion barrels through the development of her alternative energy sources. In what manner can these alternative energy sources be developed? Technological co-operative with New Zealand in harnessing Indonesian geothermal energy in Kemojang is the best answer.