Nuclear power in developing countries: radioactive waste, proliferation and debt

For developing countries, new energy infrastructure will require billions of dollars over the coming decades. Investment in conventional energy projects has already been a major contributor to the heavy debt burden of many developing countries, accounting for approximately 25% of all debt servicing from south to north[1].

Nuclear power, with its massive investment requirements, frequent cost blowouts and substantial backend costs, would only increase this burden. In addition, it will leave host countries with a legacy of radioactive waste, the ever-present fear of a nuclear accident, and the destabilising effects of nuclear proliferation. For developing countries, nuclear power is a high cost option - environmentally, socially and economically.

The World Bank view - NPPs are large white elephants

The World Bank has labeled nuclear plants "*large white elephants"*[2]. Its Environmental Assessment Source Book is unambiguous about nuclear's problems:

"Nuclear plants are thus uneconomic because at present and projected costs they are unlikely to be the least-cost alternative. There is also evidence that the cost figures usually cited by suppliers are substantially underestimated and often fail to take adequately into account waste disposal, decommissioning, and other environmental costs"[3].

Neither the World Bank nor Asian Development Bank has ever financed nuclear power projects.

Even the nuclear industry begrudgingly admits that nuclear projects are financially risky. The International Atomic Energy Agency (IAEA), in a publication reviewing the financing of nuclear power plants in developing countries, warned:

"*Experience in various countries has shown that construction of a [nuclear] plant can be faced by many uncertainties which could lead to longer than expected construction times and, as a consequence, to large cost overruns and thus higher, protracted, financing requirements, as well as large debt servicing payments"*[4].

The extra interest payments on loans by themselves can be crippling.

A history of failure in developing countries

The following case studies provide graphic examples of how nuclear power is an uneconomic and financially risky option for developing countries.

India: In India, the cost of the two Kaiga reactors has increased dramatically, largely because of an accident at the first unit in 1994 that has so far delayed construction by over two years. The original cost estimate for the two units was about 7.31 billion rupees (~US$ 169.93 million), but the project is now expected to cost around Rs 28.96 billion – an increase of nearly 400%[5].

Thailand: In 1993 a World Bank study on Thailand estimated that nuclear was not competitive compared to gas, lignite, coal or fuel-oil fired generation, even after the investment and operating costs of pollution mitigating technology such as flue-gas desulphurization units on lignite and coal-fired power plants were considered[6]. As a result of this report, nuclear power was taken out of the Thai Government's 1994 energy plan.

The Philippines: The cancelled Bataan nuclear plant in the Philippines is a symbol of the folly of nuclear power. Delayed and finally killed by scandals and public opposition, it is responsible for 20% of the Philippines foreign debt. Yet it has never generated a single watt of electricity, nor brought in one dollar of revenue.

The fallacy of nuclear power as a solution to climate change

In a last desperate throw of the dice, the nuclear industry is trying to present itself as the solution to climate change. It argues that as nuclear power plants do not emit carbon while operating they are the only technology available that can provide for the world's electricity needs without contributing to global warming.

This argument is deeply flawed. Energy efficiency and renewable energy technologies are equally able to meet global demand for electrical services without contributing to climate change. And unlike nuclear power, they do not create radioactive waste, are not vulnerable to catastrophic malfunctions, nor do they produce weapons-usable materials.

Again, the World Bank firmly dismisses the simplistic arguments of the nuclear industry on climate change. In a question and answer page on its website, it states:

> "Q: Given its work on shadow prices of carbon, at what price does the Bank believe that nuclear energy is warranted in the fight against global warming?
>
> "A: The issues surrounding nuclear power go beyond economic costs alone. Nuclear energy is not acceptable in many parts of the world because of concerns over reactor safety, disposition of nuclear wastes and proliferation of fissile materials. The trade-offs are thus complex and cannot be boiled down to a single carbon shadow value".

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[1] Phillips, M., "The Least Cost Path for Developing Countries: Energy Efficient Investments for the Multilateral Development Banks", Washington DC, IIEC, 1991.
[2] ibid.
[3] World Bank, Guidelines for Environmental Assessment of Energy and Industry Projects. World Bank technical paper No. 154/1992. Environmental Assessment Sourcebook, Vol. III, 1992.
[4] IAEA, "Financing arrangement for nuclear power projects in developing countries", 1993.
[5] Nucleonics Week, 10.7.99.
[6] World Bank, "Thailand Fuel Option Study", December 1993.