

India-US Civilian Nuclear Agreement: An Ethical Review

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Background

With the US embarking on building a new generation of nuclear power plants, the debate on viability of nuclear power has come on the centre stage in the US as it is in India after India-US Civilian Nuclear Agreement 2006. The heat and dust of the nuclear debate has settled down in India, though temporarily, with Government's announcement of not "operation-alising the civilian deal with Washington as there were certain difficulties"¹ The Coalition Government headed by Indian National Congress has finally bowed to the pressure of left parties and others. Their support was vital for survival of the Government and they had been persistent in their opposition to the agreement. It is the time to have a fresh look at the agreement.

In January 2007 State of Union address President Bush encouraged the "safe, clean" nuclear power. Nuclear power from 104 nuclear reactors currently makes up twenty percent of US power supply compared with fifty percent from coal. " From 1974 to 1994, spooked by skyrocketing costs, high interest rates and accidents in 1979 at the Three Mile island in Pennsylvania and in 1986 at Chernobyl in the former Soviet Union, utilities cancelled 96 nuclear projects in the US."² Now in this time of rising concern over price stability, dependence on foreign sources and global warming the nuclear power is on the verge of return. There is an ongoing opposition in the US as it is in India with its serious security and other vulnerabilities.

The Hyde Act

The US-India Peaceful Atomic Energy Cooperation Act of 2006, known as Hyde Act of 2006, would enable India, a non-signatory to the NPT, to have civilian nuclear trade with US and other members of 'Nuclear Suppliers Group' (NSG). In return India is to designate and separate its civilian and strategic nuclear power plants and negotiate with IAEA the special and specific terms of its inspections of the plants designated as 'civilians' by India. The nuclear trade, understandably, would consist of fuel, plants, spares, technology, etc., which would be restricted to civilian nuclear plants under IAEA inspections only. The separation of military and civilian nuclear reactors would enable India to exercise its sovereign right to make nuclear assets to meet the twin threats of China & Pakistan by having sole control over non-civilian reactors. The access to nuclear fuel from suppliers would enable India to make up its growing demand of energy. The Act has had mixed reactions in India.

Energy Demand Projections for India

The thirst for energy in the developing India is stated as primary motivator for the Act. Let us analyze the gravity of the problem to understand the issues holistically. The production of primary sources of energy in India in the year 2004-05 were as under ³:-

- (a) Coal and Lignite 52%
- (b) Crude Petroleum 11%
- Natural gas 9%
- (d) Electricity:
- Hydro & Nuclear 28%

The current and projected demand & supply of energy and dependency on expensive imports is as under:-

Table No. 01

Energy Demand Supply Gap 2006-07 and 2046-47⁴

2006-07			
Fuel	Import Demand	Import	Dependency
Oil (MT)	129	94	73%
Coal (MT)	453	54	12%
Natural Gas (NMSCMD)	180	81	45%
2046-47			
Oil (MT)	702	622	88%
Coal (MT)	1553	953	61%
Natural Gas (NMSCMD)	550	513	93%

India would remain heavily dependant on imports especially with current and projected growth rate of nine to ten percent. India needs a cheap, domestically available and non CO2 emitting power source to support its economic growth. We shall examine in this paper the suitability of nuclear power particularly for India's needs.

India's Foreign Policy Shift to US

The act has been hailed as "a turning point for India's shift to US in global strategic calculus".⁵ Robert Blackwill, former US Ambassador to India, had said the "Agreement pushes aside a boulder that had blocked closer ties for thirty years." The majority of senators voted in favor of the agreement. At the signing ceremony on 20 December 2006 at White House the US under Secretary of Commerce called for opening up of India's vast retail sector to "foreign multi brand retailers." The agreement could help "Build up a counterweight to rising China."⁶

Both these statements at the White House ceremony are significant to confirm that the deal's importance for USA is primarily commercial and strategic. The shift in the foreign policy from non-alignment has already put strains in India's growing relations with China with which it is negotiating resolution of the border dispute and the trade between the Asian giants is booming for the last few years.

Potential to Cap India's Nuclear Programme

India's Prime Minister Manmohan Singh had assured Indian Parliament of 'Uninterrupted fuel supplies as a condition for placing its civilian facilities under perpetual safeguards and that US would assist India to source fuel in the event of a disruption.' The Hyde act makes no such provision; "It actually specifies that US policy shall seek to prevent the transfer to India of nuclear fuel and equipment from any other country. In case the US transfers to India are terminated for reasons specified in the Act or any other law." The eminent Indian Scientists have in a note on 16 December 2006 clearly sought that "India must not directly or indirectly concede our right to conduct future nuclear weapon tests, if they are found necessary to strengthen our minimum deterrence." The provision of Hyde Act would have to be implemented by US Senate if India decides to test a bomb. The assurance by the Prime Minister would not hold water. Their aim is to cap our nuclear programmes. All five nuclear states have 237 reactors but only eleven of them are under safeguards. In India 14 of the 22 are civilian nuclear reactors and would come under international scrutiny. This is the game.

Nuclear Energy is Expensive

The deal distorts India's energy options by diverting scarce resources to developments of resource guzzling nuclear power. A new study by MIT and University of Chicago shows estimates used for the projected capital costs, construction lead times and interest rate for natural gas, coal and nuclear power in USA as Table below. Next Table shows the estimate of cost per KW—hour:-

Table No 02
Comparison of Some Assumptions used in the MIT and University of Chicago Studies.

Generation type	MIT Study 2003			University of Chicago study 2004		
	Over night Capital Cost Per Kw (a)	Lead Time for Constr. Years(b)	Effective Interest Rate (c)	(A)	(B)	(C)
Natural Gas	500	2	9.6%	500 to 700	3	9.5%

Coal	1300	4	9.6%	482 to 1430	4	9.5%
Nuclear power	2000	5	11.5%	1200 to 1800	7	12.5%

Table No. 03
Levelised Cost of Electricity estimated by the MIT and University of Chicago Studies.

Generation Type	MIT Report 2003	University Of Chicago Report 2004
Coal	4.2 Cents Per Kwh	3.3 to 4.1 Cents per Kwh
Natural Gas	3.8 to 5.6 Cents Per Kwh	3.5 to 4.5 Cents Per Kwh
Nuclear power	6.7 Cents Per Kwh	6.2 Cents Per Kwh

The above findings do not support the Government's contention that the nuclear deal would provide cheap electricity to farmers. The nuclear power is twice as expensive as compared to natural gas and one and half times of coal. Even the Wall Street is skeptical of nuclear power due to its expense and risk. The US nuclear industry is still looking at government for loan guarantees and subsidies. In US the nuclear plants are not covered fully by insurance as the cost is prohibitive even to cover the official estimates of the damages that would result from the serious accidents.

It would be significant to point out that in US the nuclear power industry has not received a new order placed in more than 25 years and has not opened a single new plant in the last ten years. The influential US nuclear power industry with giants like General Electric and US Enrichment Corp (and European giants like Eurodif and Uren co) are looking for markets like India and had been strongly backing the passing of the Act.

Disposal of Spent Fuel

By far the largest concern is of disposal of spent nuclear fuel due to long half life present in the waste. For example plutonium 239 half life is 24000 years; technetium-99 half life is 2, 12,000 years. Assuming a constant rate of growth a repository with the capacity of Yucca Mountain, 70,000 metric tons, would have to come somewhere in the World every five years. Alternative to repository disposal, i.e., reprocessing of spent fuel would result in separation of weapon-useable plutonium, adding significantly to the risks of proliferation.

Nuclear Risk

Nuclear accidents have taken place even in technological advanced countries. Gen Lee Butler, who headed the US strategic command has stated, "... On 20,000 occasions in cold war there were false alerts and over 220 accidental, unintentional and unauthorized cases of triggering off or accidents involving nuclear weapons."¹⁰ The Greenpeace report of 11 September 2006 claims that Chernobyl toll was very much under estimated. ¹¹ The explosion and fire in the Russian nuclear plant in April 1986, the world's worst nuclear accident, had caused as per the UN Report, 9000 cancer related deaths. Greenpeace says the actual number may be around 93,000. In India and Pakistan, the population density is more. Our record of disaster management is not very satisfactory. The toll due to radio active particles flowing in each of the countries would be much higher. The possibility of mistakes are high when the tempers are high, the tempers go high quite often in subcontinent, which happened recently after attack on Indian Parliament in 2001. To quote Dr Pervez Hoodbhoy, a distinguished Pakistani nuclear scientist, "In such circumstances nuclear exchange by premeditated design, misperception and miscalculation or by accidental and unauthorized launch is almost inevitable. If there is no nuclear catastrophe in the next few decades or sooner, it shall be purely fortuitous."¹²

Blow to Non-Proliferation

The basic point against nuclear power is that under present steady growth rate, the world's enrichment capacity would increase by approximately two and half to six times. Just one percent increase is enough to make 210 nuclear weapons per year. The reprocessing of the spent fuel would add significantly to these security risks.

It is not hard to discern that increasing interest in nuclear power is at least partly a route to acquiring nuclear weapons capability. "For instance, North Korea used a commercial sector power plant and a reprocessing plant to get the plutonium for its nuclear arsenal."¹³ The deal would allow India to import nuclear fuel for civilian use, scientists have observed the deal would augment India's production of enriched uranium several folds. They have stated that India is estimated to be producing about 30 Kg of weapon plutonium per year which is sufficient for about five bombs per year. The enhanced production would provide enough fuel for 40-50 nuclear weapons per year.

The proposal to reduce nuclear proliferation is not ethical nor would it be successful when five nuclear states are allowed to possess nuclear weapons while dictating intrusive inspections to the others. As summarized by Mohamed El Baradei, Director General of the International Atomic Energy Agency:-

"We must abandon the unworkable notion that it is morally reprehensible for some countries to pursue weapons of mass destruction yet morally acceptable to others to rely on them for security-indeed to continue to refine their capacities and postulate plans for their use."

Climate Change

President Bush while signing the Agreement on 20 December 2006 stated that nuclear energy was a renewable source and did not produce green house gases. "It would be an essential source of future energy in US and places like India and China."¹⁴ On the other hand a German study finds, "Nuclear power is not the solution to the problems of climate change and energy security. Nuclear power remains the most dangerous form of energy."¹⁵ It debunked the myth that nuclear energy is an energy source free of green house gas emissions.

A recent study by 'Science for Democratic Action' has found that a zero CO₂ US economy can be achieved within the next thirty to fifty years without the use of nuclear power and without acquiring carbon credits from other countries with the technologies which are now available or in the foreseeable future. The net US imports can be eliminated in about 25 years. All three insecurities – severe climate disruption, oil supply and price insecurity, and nuclear proliferation via commercial nuclear energy will thereby be addressed.¹⁶

Impetus to Arms race in South Asia

The defence budgets of both the countries, India and Pakistan, have been constantly increasing. In 2002 the outlay for defence was fifty percent more than in 1990. According to data compiled by Stockholm International Peace Research Institute, India's military expenditure, at US\$ 66.2 billion (at purchasing power parity) in 2002 is 3rd highest expenditure and Pakistan's at US \$14.2 billion ranks 15th, in the world.

After negative response from its American ally for a similar deal, Pakistan has already started negotiating with China for supply of nuclear fuel to its Chinese built reactors. "This asymmetric favor to India would also go to further aggravate the simmering tensions and spiraling arms race in South Asia."¹⁷

In August 1999, India had declared its draft nuclear doctrine which concluded that India needs, "sufficient survivable and operational prepared nuclear forces." India, after surviving a first nuclear strike, should have sufficient wherewithal to inflict colossal damage to the adversary. This would mean that India should have minimum of three times the nuclear arsenal which Pakistan would be possessing. Both countries are straining their resources to buy as much weapons as possible. The concept of minimum deterrence has been kept in the cold storage. The recent edition of 'The Penguin Atlas of War and Peace' by Dan Smith gives the figures of nuclear stockpiles with India 20-30 and Pakistan 15-20. (Russia 9196, USA 8876 takes total nukes in the world to 18726)¹⁸

Very little information is available in India and Pakistan on the cost of nuclear programme. In case of Pakistan the information is even less. A very conservative estimate of Indian nuclear weapons programme is around Rs 7000/8000(7/8 billion) crores per year. If Dr A. Q. Khan is to be believed, "Pakistan has enough bombs and missiles to perish every Indian major city. The centrifuges of Kahuta are working on three shifts for eight hours seven days a week to make this dream possible."¹⁹

Total education budget in 1998-99 was Rs 7048 crores i.e. about the same as conservative estimated expenditure on nuclear programme. The question is choosing between sending each child to school or make nuclear weapons for assured mutual destruction. This is a diversion which as low income countries we can ill afford. In terms of people's welfare we are amongst the lowest in the world as indicated in UN Human Development Report.

Displacement of People around the Site

The displacement of land around a nuclear site in India is as under-

Table No. 04
Buffer Zone for Nuclear Plant in India

1.6 Km radius	no one allowed to live
5 Km	only 10,000 people are allowed to live
10 Km	20,000 people only
30 Km	100,000 people only

Source:²⁰

This is a major problem especially in densely populated and agriculture intensive regions in India. Recently, in India the acquisition of land for special economic zones (SEZ's) like Singur has seen people confronting the government with many people dying in police firing. Land is emotionally very precious for agrarian based traditional economy. On 17 Nov 2006 at Joonput Haripur West Bengal site for nuclear plant, more than 5000 strong local people demonstrated against government move to acquire 5000 acres of multi cropped land. In the year 2000 an anti-nuclear movement supported by Paschim Banga Khet Mazdoor Samity had successfully stopped construction of a nuclear plant at ecologically sensitive area of Sundarbans. The displacement of population in nuclear plants is much more and is likely to create social problems which would be much more than agitations against SEZ's.

Conclusion

Nuclear power is uniquely dangerous source of energy that would create a number of risks. For a poor country like India, it is much more expensive when alternative mix of sources like hydro, solar and wind are available. The enhance-ment of Indian capacity for enrichment as a result of Hyde act of 2006 has already intensified arms race in the subcontinent which as low income group region we can not afford without curtailing expenditure on education, health and basic amenities like clean drinking water in the villages. The Hyde Act only serves long term US strategic and commercial interests. The Act is against the principles of good ethics. Therefore, India has to seek road map for the mix of alternative source of energy, other than

nuclear, to address the insecurities, i.e., which is indigenous, provides less CO₂ and does not cause nuclear proliferation.

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