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First published in *Nuclear Monitor*, June 21, 2007

EMERGING NUCLEAR STATES?

In May, Myanmar signed a contract with Russia for a nuclear research centre. Regional rival Thailand immediately responded and meanwhile if we have to believe the media-reports, it looks as if the two countries are on the brink of constructing their first nuclear power plant. According to Thailand 's Minister of Energy Amaranand the 4000MW nuclear power plant will be finished in 2020 but unclear until now is if there is a contract signed. The nuclear power plant is expected to cost 4.5 billion Euro.

Thailand is only one of many countries announcing to go 'the nuclear path'. It almost seems that every self-respected government announces such plans, even unlikely candidates as Nigeria or Morocco or Myanmar. It's very unlikely that even a majority of those plans will materialise for many reasons. Not the least important reason is that it is obviously harder to build a country's first as the second or third nuclear power plant. And that shows: it's been a while since a country built its first nuclear power plant, despite all those countries at one time saying they were planning to do so.

According to a June 2007 World Nuclear News factsheet ("Emerging nuclear countries") nearly twenty countries are at the moment actively considering embarking upon nuclear power programs. Italy, Portugal, Norway, Poland, Belarus, Ireland, Turkey, Iran, Gulf states, Israel, Syria, Jordan, Egypt, Tunisia, Libya, Algeria, Morocco, Nigeria, Ghana, Namibia, Azerbaijan, Georgia, Kazakhstan, Chile, Venezuela, Bangladesh, Indonesia, Vietnam, Thailand, Malaysia, Australia, New Zealand are all countries where the nuclear power option is under serious consideration (although not necessarily at government level).

According to the IAEA governments need to create the environment for investment in nuclear power, including professional regulatory regime, policies on nuclear waste management and decommissioning, and involvement with international non-proliferation and insurance arrangements. Although nuclear technology can be imported, beginning a nuclear power program requires a country to have a certain high level of native skills, robust administrative structures and a regulatory body independent of government.

First power from first nuclear power plant.

Currently there are 437 nuclear power plants in operation in 31 (including Taiwan) countries (two countries abandoned nuclear energy and closed their reactors –Kazakhstan and Italy). Most of those countries constructed (or at least started construction of) their first nuclear power plant in the sixties of seventies of the last century.

Date of first power:

In the 1960's (11 countries): USA ('60); UK ('62) France, Italy ('63); Russian Federation ('64); Japan ('65); Germany ('66); Canada ('67); Netherlands, Spain ('68); Switzerland ('69)

In the 1970's (13 countries): Pakistan, Sweden ('71); India, Slovak Republic ('72); Kazakhstan ('73); Argentina, Belgium, Bulgaria ('74); Armenia ('76); Finland, Rep. Of Korea, Taiwan, Ukraine ('77)

This following table shows which countries produced nuclear energy for the first time after the 1970's. Only 9 countries did so, and if we look at countries who started construction of their first nuclear power station, we find that only China and Romania did so after the 1970's (so after the accident at Three Miles Island in March 1979)

Country	start of construction of first n-power plant	first power of first n-reactor	nr of reactors (as of June 2007)
Slovenia	3-1975	10-1981	1
Brazil	5-1971	4-1982	2
Hungary	8-1974	12-1982	4
Lithuania	5-1977	12-1983	1
South Africa	7-1976	4-1984	2
Czech Republic	1-1979	2-1985	6
Mexico	10-1976	4-1989	2
China	3-1985	12-1991	11
Romania	7-1982	7-1996	1

Except from China, all those countries have not been the growth-market the industry once hoped for. Far from it! Although some have a lot of ambitions – like South Africa for instance – it does not seem likely that the number of reactors in these countries will grow rapidly.

Reactors under construction

Important question of course on this subject is to look where reactors are currently under (active) construction. According to the IAEA PRIS database 30 reactors are being build in 13 countries. There is only one country which is building it's first reactor: Iran. And we all know the story of Iran. Construction of Buser started in 1975 (!) way back under the Shah when especially the US tried to sell nuclear technology (including a reprocessing facility) to it's close ally in the Middle East. According to PRIS the reactor will be finished November this year, but everybody knows that is very doubtful, to say the least (see box).

Sources: Telegraaf (NL), 12 June 2007 / IAEA PRIS Database / World Nuclear Industry Handbook / <http://world-nuclear.org/info/inf102.html>

Laka Foundation,
June 2007