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WILL THE CLIMATE BE NUKED – IN MEXICO?

Ask ten people who attended the climate talks in Copenhagen what the outcome was and you get at least ten different answers. Ask the 50 or so people who were there with a clear anti-nuclear energy focus and the situation is slightly better; maybe 25 different answers. The so-called Copenhagen Accord will be implemented by the parties who have agreed on it. It is not an official agreement of the Conference of the Parties (COP) as such, but rather a side-agreement that has only been "noted" by the Conference. It is only 3 pages long and leaves many questions unanswered.

(702.6001) WISE Amsterdam - At the end of two weeks of chaotic negotiations almost all nations accepted the Copenhagen Accord as the best that could come out of it. Because 4 countries (Venezuela, Bolivia, Sudan and Tuvalu) did not support the text, it is not an official UN-agreement, but that does not mean the agreement will not have any effect. One very important and welcomed part of the Accord was the recognition of the scientific view that the increase in global temperature should be below 2 degrees Celsius. This simply means that all countries but the so-called least-developed countries (LDC's) are bound to take drastic and far-reaching measures to cut emissions of greenhouse-gases.

And then the question of 'how' is back on the table. Will nuclear be identified and accepted as tool in the fight against climate change? And if so, will it get financial support from public money via UN-based schemes and mechanisms? Under the current Kyoto-protocol it's not possible to get (financial) credits by building nuclear power plants, not in your own and not in another country. Although the negotiations in Copenhagen were too far from basic agreements to even come to the detailed discussion on which technologies will be accepted to get support, the nuke-speak was often loudly present in the corridors.

And so was the anti-nuclear movement. With a few actions, both inside and outside the official negotiations venue, with some good programs at the NGO-shadow-conference (well-visited by officials who were locked out of the official venue due to capacity problems) we managed to make our voice heard and make very clear that the global environmental community will - despite being desperate about climate change and the lack of action by political leaders - never accept nuclear energy to be approved as part of the solution.

The Copenhagen Accord also decided that the developed countries will pledge US$ 30 billion for the period 2010 - 2012 to be spent on both adaptation and mitigation in developing countries. And the developed countries "commit to a goal of mobilizing jointly US$ 100 billion dollars a year by 2020 to address the needs of developing countries. This funding will come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance"….. "A significant portion of such funding should flow through the Copenhagen Green Climate Fund".

So the crucial debate will be on which

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energy-technologies this money will be spent. The Accord is very vague on this. The only agreed-upon language on so-called flexible mechanisms and technology transfer is the following; “In order to enhance action on development and transfer of technology we decide to establish a Technology Mechanism to accelerate technology development and transfer in support of action on adaptation and mitigation that will be guided by a country-driven approach and be based on national circumstances and priorities”.

The decision on how this will work, and how to spend the money, will be taken in Mexico, in December. The ad-hoc umbrella ‘Don’t nuke the climate’ will decide in early spring about its further plans.

Sources: http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf / www.dont-nuke-the-climate.org
Contact: WISE Amsterdam

INDIA: CONTAMINATION & LIABILITY

Excessive exposure to radioactivity was reported late November 2009 by workers of the nuclear power station at Kaiga near Bangalore, India. According to official figures, over 55 workers had to be hospitalized. The incident created a big scare in the country that has witnessed one the world's worst industrial accidents at the former Union Carbide pesticide plant in Bhopal. Meanwhile, the Indian cabinet has approved legislation to be introduced in parliament on civil nuclear liability, demanded by the U.S.

(702.6002) WISE Amsterdam - Prime Minister Manmohan Singh put on a brave face and said he had received a briefing from aides about the Kaiga contamination. He said, "It is a small matter of contamination and is not linked to any leak. There is nothing to worry. All our systems are intact and under control. An inquiry has been ordered."

The contamination was first detected November 24, when the results of routine urine tests of employees working in the service building showed higher than normal traces of tritium. After checks at all plant systems found radiation levels to be normal, the source of the contamination was zeroed in on a water cooler located in the service building. Out of the 800 employees in the vicinity of the cooler, 92 had "higher than normal" tritium content in their urine samples.

The theory went that an insider had mixed radioactive tritium in drinking water in a cooler kept in the operating island. The reactor was under annual maintenance. Former chief of the Atomic Energy Commission (AEC) Anil Kakodkar had told the State-run media, PTI, "Somebody deliberately put the tritiated water vials into a drinking water cooler." He said the AEC was investigating "who is behind the malevolent act". Kakodkar happens to be the key negotiator from the Indian side to almost wrap up the controversial India-US civil nuclear cooperation agreement.
Atomic Energy Regulatory Board (AERB) is the agency tasked with ensuring radiation safety in India. In an official report in February 2001, the AERB revealed that workers received collective radiation dose that was three times the internationally permitted level. The administration slammed Dr SP Sukhatme, AERB chief, who urged the NPCIL to act upon the excessive tritium leakages from the heavy water in power stations.

On January 12, Chairman of the Atomic Energy Commission Srikumar Banerjee announced again that the country plans to have 35,000 Mw of installed nuclear capacity by 2020 and 60,000 Mw by 2032. He said India would set up five 'energy parks' by 2032 with a 40,000 Mw to 45,000 Mw total capacity.
India is well known (as many other countries) to make completely unrealistic plans regarding nuclear new build. The current total nuclear capacity is around 4000 Mw (19 reactors).

Meanwhile, in December the cabinet has approved a legislation to be introduced in parliament on civil nuclear liability. Such a bill is being brought to meet the demand of the United States that a law be enacted to protect the US suppliers of nuclear equipment from liability to pay compensation in the case of a nuclear accident. The US has linked the completion of the Indo-US nuclear agreement to India's capping of nuclear liability and that is why the hasty move to introduce this in parliament. The UPA government had, already before the ratification of the 123 agreement, given a written commitment that India will buy 10,000 MW of nuclear reactors from US companies. The nuclear liability regime, demanded by the United States, is to put a cap on the liability of nuclear operators and also remove all liabilities of the equipment suppliers.

The suppliers’ liability is also being considerably weakened in the proposed bill. Instead of the normal contract law, where recourse of the operator to claim damages is inherent, the bill limits this recourse only if it is explicitly mentioned in the contract. Otherwise, the nuclear operator cannot claim compensation from the supplier of equipment even if it is shown to be faulty. It is evident that contracts for buying US nuclear reactors will explicitly exclude any liability on the part of the supplier and therefore by the law to be adopted they will go scot free even if an accident occurs due to a defect in the equipment supplied by a US company.
It is imperative that parliament reject this legislation when it is presented. All political parties represented in parliament will have to take a stand in defence of the basic interests of the Indian people.
Sources: Business Standard (india), 11 January 2010; Hardnews, January 2010; People's Democracy, 20 December 2009; Thaindian News, 30 November 2009; IAEA PRIS reactor database
Contact: South-Asians Against Nukes, SAAN
Web: http://s-asians-against-nukes.org

MORE SETBACKS FOR U.S. NUCLEAR "REVIVAL"

The U.S. Department of Energy missed its self-imposed end-of-2009 deadline to hand out its first taxpayer-backed loan guarantees for new reactor construction. One new reactor project has been put on hold for the lack of loan guarantees and another project is embroiled in lawsuits and controversy. And two operating reactors are experiencing new problems that could lead to permanent shutdown.

(702.6003) NIRS - Washington, DC.
Even before the Department of Energy (DOE) missed its own deadline for providing the first "conditional" loan guarantees for new reactor construction, UniStar Nuclear announced in December that it is placing its proposed Nine Mile Point-3 EPR project in upstate New York on indefinite hold. UniStar, which consists of Maryland-based Constellation Energy and dominant partner Electricite de France, said the lack of taxpayer loan guarantees was the reason for its decision. UniStar's business model relies on loan guarantees: neither Constellation nor EdF have the US$10 billion (6.9 bn Euro) or so in cash it would take to build a new EPR, and even if they did, they sure wouldn't risk their own money on a U.S. reactor project. After all, historically the average cost overrun for U.S. reactor projects stands above 200%.

Nine Mile Point-3 didn't make the DOE's "shortlist" of four potential loan guarantee recipients (UniStar's Calvert Cliffs-3 is on the list, and the company will be concentrating on that one), and thus must wait and hope that more loan guarantee funds are forthcoming from Congress.

But even the four "shortlisters" are far from certain to be able to receive sufficient loan guarantees to actually continue their projects. The DOE has US$18.5 billion to provide, which is now generally agreed will cover at best 2 or 3 reactors. The four shortlist projects (Calvert Cliffs, MD; Vogtle, GA; Summer, SC, and South Texas) encompass seven proposed reactors.
The delay in issuing the loan guarantees is apparently due to a dispute between DOE and the White House Office of Management and Budget (OMB) on how much subsidy cost utilities will have to pay to obtain the guarantees. The industry and DOE have been pushing for a low subsidy cost -perhaps 1% of the guarantee total- while OMB, more attuned to the financial risk involved, apparently wants a higher cost. The subsidy cost is paid by the utilities to the government and is supposed to reflect the risk of a project using taxpayer funds, and protect the government in the event of default. Given the Congressional Budget Office projection of a 50% default rate, a high subsidy cost would seem applicable -although no one expects a subsidy cost that even remotely reflects the real risk involved.

Beyond that, there are also serious problems with some of the shortlist projects themselves. South Texas' main players are NRG Energy and CPS Energy -a utility owned by the city of San Antonio, Texas. In the Fall, the city council of San Antonio was stunned to learn that the two proposed GE ABWR reactors would cost US$4 billion more -from US$13 to 17 billion- than they previously had been led to believe by NRG and CPS. The city responded with a management shake-up of CPS, followed by CPS filing suit against NRG and its partner Toshiba, for an astonishing US$32 billion. Negotiations over settling the suit have gone poorly, with CPS's acting general manager walking out of a meeting on January 11 2010 because top NRG officials weren't there to participate. While CPS hasn't yet formally

FPL billion+-dollar rate hike denied. On January 13, the Florida Public Service Commission (PUC) denied Florida Power and Light (FPL) Company's US$ 1.27 billion rate-hike request, granting instead a minuscule US$ 75.5 million in a decision that could be the death knell for not only two proposed nuclear reactors in Florida, but several elsewhere in the U.S. "FPL's outrageous attempts to jam their $10 billion square nuclear peg down the round hole of fiscal responsibility, environmental protection, and public health concerns was judged by the Florida PUC for what it truly was -- a greedy, irresponsible energy boondoggle," asserts David Kraft, Director of Nuclear Energy Information Service (NEIS) of Chicago, an Illinois safe-energy advocacy and nuclear power watchdog group.
The Florida PUC awarded a mere US$ 75.5 million to FPL, only 6% of the $1.27 billion requested. As a result FPL announced it would halt work on over $10 billion in projects, including two nuclear reactors it had proposed building at the current Turkey Point nuclear power station. While the economic downturn certainly played a role in lowering demand for the additional power in Florida, many of FPL's demands for advance payments, higher guaranteed profit margin, and less public scrutiny in constructing nuclear plants were beyond the level of outrageous even the Florida PUC would tolerate.
"The reality is that FPL is going to have to make due in these difficult economic times," stated Public Utility Commissioner Nathan Skop. Just like the rest of Florida residents have to, and would have had to do moreso had FPL gotten the larger rate hike request.
NEIS (Nuclear Energy Information Service) Press release, 14 January 2010

withdrawn from the project, it seems unlikely that it will continue -certainly the elected officials of San Antonio, which already has invested hundreds of millions of dollars in the project, would face a substantial public outcry if they risked billions more on this increasingly controversial project, especially given new projections that San Antonio won't need new power for many years. And, it seems equally unlikely that a project whose ownership is unclear could qualify for even a conditional federal loan guarantee.

Energy Secretary Steven Chu confirmed in a December 22, 2009 letter to Rep. Ed Markey that any loan guarantees issued at this point would be conditional, and no actual guarantees can be granted until a reactor design is certified by the NRC and a utility has received a Construction/ Operating license from the NRC.

Meanwhile, two operating reactors have encountered serious new problems that could lead to their early shutdown. In a remarkable case of poor timing, a leak of radioactive tritium was found outside the Vermont Yankee reactor in early January. The Vermont legislature will soon be voting on whether to allow the reactor to receive a 20-year license extension, which is shaping up as the most controversial vote of the year there. Vermont is the only state that has the authority to determine a license extension.

> Zero.
> Daniel L. Roderick, senior vice president for nuclear plant projects at GE-Hitachi Nuclear Energy, said that a year and a half ago, there were expectations that more than 20 units would be under construction by now in the United States. *"That number is currently zero,"* he said.
> (New York Times, 23 December 2009)

And, in New Jersey, the State Department of Environmental Protection issued a draft order on January 7, requiring that cooling towers be built for the 40-year old Oyster Creek reactor, following a concerted campaign by environmentalists in the state. The reactor has been blamed for major fish kills and general spoilage of the environmentally fragile Barnegat Bay. The reactor's owner, Exelon, said it would shut down rather than build the expensive towers. However, the draft order apparently gives Exelon seven years to complete the project, meaning that an early shutdown does not appear likely.

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ITALIAN ANTI-NUCLEAR MOVEMENT 'READY 'TO WIN AFGAIN'

Thanks to a referendum in 1987 Italy was the first industrialized country to phase out from nuclear power. More than 20 years after this historical popular vote, Italy's right wing government led by Silvio Berlusconi decided to push for a "nuclear renaissance" in the country. Announced soon after the elections in 2007, the nuclear program drafted by Claudio Scajola, minister of economic development, aims to build eight new nuclear power plants in order to meet the goal of 25% of electricity production from nuclear.

(702.6004) Legambiente - Italy,
According to a common idea shared by government and some industrial sectors, Italy lost competitiveness by choosing to abandon nuclear power and is now paying more for electricity than its neighbors. Nuclear power, as usually put forward by its supporters, will guarantee greater energy security for the country, will lead to great savings in the electricity bill and finally will help fighting climate change. After all, the thesis supported by nuclear promoters in Italy is the same as used in many industrialized countries, and is constantly denied by facts.

Starting from the analysis produced by the American Department of Energy (DoE), many studies indicate that the cost of electricity produced by nuclear power will continue in the future to be higher than the traditional energy sources. In Italy as elsewhere, according to what is also stressed in the 2009 report from the Massachusetts Institute of Technology, nuclear power won't be competitive if not subsided by the state. Due to the high costs and the time needed to realize new reactors, nuclear power won't have positive effects in the fight against climate change. Recently Scajola admitted that the first nuclear plant would not be ready before 2025. By that time however Italy should already have drastically reduced its greenhouses gases emissions in order to comply with the Kyoto protocol and the 2020 targets approved by the European Union last January (2009). At last nuclear power will have no positive effects on the Italian energy security due to the need of uranium importations and the nuclear waste exportations. Facts and scenarios clearly show that nuclear power will not allow the Berlusconi government to fulfill its promises. On the contrary what is clear is that new reactors will create huge consequences starting from the risk of accidents, the radioactive contamination and the waste management. All kinds of problems Italian authorities should know very well.

Twenty-two years after the referendum the authorities are still very far from getting rid of the heavy inheritance left by the four plants built in the past. Decommissioning of existing reactors is still at the beginning and there is no clear idea on how to deal with the huge amount of nuclear waste produced in 30 years of activity. According to the National Agency for the Protection of

territory and environment (APAT) Italy has a hundred temporary deposit sites which host a total of 25000 cubic meters of radioactive waste and a big part of it is still stocked inside the plants. In 2003 the Berlusconi government decided to build a single temporary disposal site in Scanzano Ionico, in southern Italy, a decision also motivated by an attempt to limit the dangerous fragmentation in the control and security system. However the plan was abandoned soon afterwards due to a lack of reliable environmental evaluation, underestimation of risks and thanks to strong s mobilization lead by local environmental grassroots organizations. Today the nuclear waste remains where it is and the management costs are still paid through public resources. In the pasts 10 years more than 600 million euro is spent for the nuclear bill and a further 3 billion euro are expected to be paid in the next future. There is however another element besides costs that should worry Italian authorities: the high interest by the Mafia concerning all waste management businesses.

Denounced for several decades but more recently proved by various trials, Italy, in particularly its southern regions, has been used as a big dump for illegal disposal of industrial and urban waste. This is a business, lead by criminal organizations such as Camorra and 'Ndrangheta, that could have also involved radioactive material as recently pointed out by a Mafioso turned informant. Last September Francesco Fonti, a detained for Mafia, revealed the involvement of criminal organization in the “Poison Boats” case which regards an undefined number of ships loaded with waste and deliberately sunk in the Mediterranean coasts of Calabria. According to Fonti, who with his revelation made it possible to find a wreck supposedly used for the traffic, criminal organizations dealt also with nuclear waste and buried several radioactive drums on land near the city of Matera while some other drums were loaded on boats.

Neither the risks, nor the high cost scenarios nor the Mafia activity in the waste business are however preventing the government to keep on with the “nuclear renaissance” plan. Last July the right wing majority in the Parliament adopted a law that gives extra power to the government in order to choose sites for new nuclear plants and provides the use of military forces to make its realization possible. On December 23, a new decree fixed the criteria for the nuclear site selection and provided huge subsidies for local communities that will host nuclear plants. To compensate damages during the plant construction, government established a 3.000 Euro compensation for every MW realized, while a 0,4 Euro subsidies is set after the plant starts working. The strategy the government is drafting aims to prevent all kind of protests and demonstrations against nuclear, but the effect until now is rather the opposite.
On September 30, with the support of environmental organizations, 11 Regions, on a total of 20, contested the law approved in July, asking the intervention of the Constitutional Court.. According to the Regions and to the environmental organizations the law violates the Italian Constitution by giving the government the power to decide without the consensus of local institutions. One month later another blow to the governmental strategy came from the Puglia Region, where the local Partito delle Libertà, the Berlusconi coalition, voted together with the left wing coalition in favor of a regional law against nuclear.

Meanwhile the 'no nuclear power' movement is growing and is likely to become even more persuasive than in 1987, also thanks to the great potentials offered today in Italy by renewable sources and energy efficiency. The expansion of clean and decentralized energy is already a reality in the country. This is proved by over a hundred local communities that in the past years became energy autonomous. The antinuclear front, as written in a slogan during the last demonstrations, is “ready to win again”.

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URANIUM MINING ISSUES: 2009 REVIEW

For the twelfth consecutive year, The Nuclear Monitor is proud to publish the annual Uranium Mining Issues Review. The reviews are compiled by Peter Diehl from the WISE Uranium Project. First published in the last issue of 1998 it gives an in-depth overview of developments regarding all aspects of uranium mining: mines, exploration, environmental issues, indigenous people, production and so on.

(702.6005) WISE Uranium Project - During the course of the year 2009, the uranium spot market price, as published by Ux Consulting (UxC), declined further by 16% from US$ 53 to 44.50 per lb U3O8, with oscillations in the range of US$ 40 (April 6) to US$ 54 (June 22). The year-end value represents just one third of the unprecedented June 2007 peak of 136 US$ per lb U3O8.
The long term average price, as published by Cameco, showed a constant decline from US$ 69.50 to 61 per lb U3O8.
For the first time, Kazakhstan apparently became the largest uranium miner worldwide; detailed figures are not yet available, however.

The further decline of the uranium price slowed down many exploration and mine development projects in the short term. However, in expectation of a supply problem in the near future, many major players made serious efforts to secure uranium deposits suitable for future exploitation.

Uranium exploration and new uranium mine projects
Uranium exploration continues in many parts of the world, often accompanied by protests. Opposition was particularly powerful against exploration at Lac Kachiwiss in Québec (Canada), at the Grand Canyon in Arizona (USA),

Quebrada de Humahuaca UNESCO World Heritage area in Argentina, several places in Finland, and Kurisková in eastern Slovakia.

New interest in uranium exploration arose especially in the Middle East and northern Africa, namely in Algeria, Libya, Egypt, Jordan, Turkey, and Oman.

New mine projects are still being developed, but quite a number of higher cost projects (particularly in the U.S., but also in South Africa, Mongolia, and Australia) have been put on hold for lack of feasibility, or their profitability is still unclear.

The dewatering of the almost completed Cigar Lake mine cavity that was flooded in 2008 by a sudden water inflow is still ongoing; the McClean Lake mill that was intended to process part of the Cigar Lake ore has therefore to be temporarily shut down for lack of feed material.

In the U.S., the licensing process has begun for the first three uranium in situ leach mines based on NRC's controversial Generic Environmental Impact Statement (GEIS) plus site-specific supplements; all are located in Wyoming.
Furthermore, an application has been filed for the construction of a new uranium mill (Piñon Ridge) in Montrose County, Colorado, although the only operating uranium mill in the U.S. - the White Mesa mill in Utah - had to halt processing of uranium ores for economic reasons just months earlier.

Areva's huge Imouraren mine project in Niger received an operating license; construction started, but the size and profitability of the project are still unclear.

In Botswana, the EIA process for the Letlhakane uranium mine project was started.

In Gabon, Areva eyes resumption of uranium mining at Mounana.

In Malawi, the country's first uranium mine at Kayelekera started operation.

In Namibia, construction of Areva's Trekkopje mine continued; meanwhile, the licensing process was initiated for Bannerman Resources Ltd's huge open pit mine project (3 km length, 1 km wide, 400 m deep, with acid heap leaching) on the extremely low grade Etango uranium deposit; its Environmental and Social Impact Assessment was open for comment for just one month and important chapters were just missing. A feasibility study commenced for Extract Resources Ltd's even larger Rössing South deposit.

In Tanzania, studies on the feasibility of the mining of several deposits are underway; uranium extraction is to start in 2011.

In Zambia, a mining license was approved for the Chirundu uranium mine project. At the Lumwana copper mine, uranium-rich copper ore is being stockpiled for potential later processing; although the stockpile reached almost 2 million t in the meantime, processing is still not assured. The licensing process for Denison's Mutanga and Dibwe open pit uranium mine/acid heap leach project in Siavonga district commenced with publication of the Environmental Impact Statement and Resettlement Action Plan for the necessary relocation of 107 households.

In South Africa, uranium production commenced at the Ezulwini gold mine.

In India's northeastern state of Meghalaya, serious protest developed against the proposed mining of the Domiasiat uranium deposit; several demonstrations with thousands of participants were held; night road blockades led to several violent incidents. Protesters suspended their agitation after the state government offered talks.
Opposition also developed against uranium mining projects in other Indian states, namely Andhra Pradesh, Jharkhand, and Karnataka.

In South Australia, the Beverley Four Mile Uranium in situ leach project received federal approval, which is now subject to court review.
In Western Australia, the state's new uranium-friendly policy led to a race for the first mining licenses. The proposed mines include Kintyre, Lake Way, Yeelirrie, Lake Maitland, and Wiluna. Several of the currently proposed new uranium mine projects are to use various heap leaching schemes. This method poses particular environmental challenges and was rarely used during the past two decades. It is now being reintroduced for the recovery of uranium from ores with grades so low that had not been processed during the period of low uranium prices.

Projects for recovery of uranium from alternate resources (such as phosphate, various types of tailings, coal ash, or seawater) continue at a slower pace, since they are likely to become viable at higher uranium market prices only.

Issues at operating uranium mines
The life of two major mines is to be extended further, after both of them narrowly avoided permanent closure: Energy Resources of Australia (ERA) is keen to keep the Ranger uranium mine in Australia open beyond 2021, to the dismay of the Traditional Owners. Rössing expects to produce 4,000 t uranium per year at its mine in Namibia until 2023.

The size of the massive expansion planned for BHP's Olympic Dam copper/uranium mine in South Australia is still unclear. Eminent scientists warned of a "mind-blowing" health risk from the mine expansion.
Expansion plans were also announced for the Langer Heinrich mine in Namibia and the Kayelekera mine in Malawi (both only recently commissioned), the Jaduguda mine in Jharkand (India), and the Beverley in situ leach mine in South Australia.

During the course of the year, several existing mines had to shut down for insufficient feasibility: the mine on the Caribou ore body at McClean Lake (Saskatchewan, Canada), the uranium in situ leach mines at Vasquez, Kingsville Dome and Rosita (Texas), the Sunday Mine (Colorado) and the Rim mine (Utah). In addition, the White Mesa mill in Utah (the only operating uranium mill in the U.S.!) halted processing of uranium ores and currently only processes certain uranium-containing wastes, called alternate feed materials.

A major production setback at the Olympic Dam mine in Australia scared the uranium market participants, leading to a temporary recovery of the spot

market price: a breakdown of the ore haulage system seriously affects production since October.

Abandoned mines and decommissioning issues

Toxic water filling abandoned gold/ uranium mines near Johannesburg (South Africa) may reach the surface and pose a health nightmare for up to 1000 residents in informal settlements. A report prepared by international experts calls for immediate action.

In Kyrgyzstan, a UN Special Rapporteur found that the country has not properly addressed the hazards of abandoned uranium mill tailings; the General Prosecutor's Office then demanded Mailuu-Suu local authorities to remedy violations at the uranium tailings dumps.

In the U.S., the long-awaited relocation of the Atlas Moab uranium mill tailings pile in Utah from the bank of the Colorado River to a safer disposal site finally started - 25 years after the shutdown of the mill. Officials are now developing "aggressive solutions" for groundwater remediation at the site.
At the former Midnite Mine site in Washington, public health hazards are possible, according to a report prepared by a federal government agency.
At the Smith Ranch site (Wyoming), the U.S. NRC cited Cameco for failure to decommission in-situ leach mine units in time.

In France, Areva tried to block a TV documentary on residual contamination left around former uranium mine sites in France. Subsequently, a new NGO announced to monitor radiation at former uranium mine sites in the Limousin area.

In Gabon, a survey conducted by NGOs still identified elevated radiation levels around Cogema/Areva's decommissioned Mounana uranium mine site, while Areva eyes resumption of uranium mining in Gabon.

Legal and regulatory issues

Worldwide, three environmental activists are currently imprisoned for their work on uranium mining:
In China, Sun Xiaodi was sentenced to two years of Reeducation-Through-Labor, his daughter Sun Dunbai to one year and a half. The authorities assert that Sun Xiaodi stole information relating to the state-owned No. 792 Uranium Mine in Gansu, and gave it to his daughter to supply to overseas organizations.
In the Democratic Republic of Congo, human rights association ASADHO/ Katanga issued a report on the history of illicit mining at Shinkolobwe, whereupon Golden Misabiko, president of the association, was arrested and sentenced to one year of imprisonment.

Problems do not only exist with the environmental impacts of uranium mine operations, but also at the regulatory level:
The Environment ministry of Saskatchewan - one of the world's largest uranium mining provinces - has a "massive capability and capacity deficit" in the uranium mining sector, according to a consultant's report. The consultant suggested the province could contract a private sector expert [!] to support its uranium regulation work.
Malawi's draft uranium regulations are "essentially a self-regulation system, which will ultimately result in releases (of contaminated water) that are under-reported, uncontrolled and hidden from the affected public", according to a report by Australian scientific consultant Howard Smith.
As many new countries are planning now to join the uranium mining business, the problem of inadequate regulatory oversight is likely to widen in the near future. The International Atomic Energy Agency (IAEA) is currently organizing a series of related beginners' courses, but these can only be seen as a first step to deal with the problem. Likewise, the NGOs in these countries have to train their skills to deal with the new threat. Related workshops were held in several African countries for this purpose, already.

Uranium Trade and Foreign Investments

After obtaining, in 2008, the Nuclear Suppliers Group's (NSG) nod for uranium imports, Non-NPT signatory India signed uranium supply deals with Kazakhstan, Namibia, and Mongolia, among others. Canada, too, hopes to supply uranium to India soon, while Australia still declines such exports, though India is urging Australia to reassess its position. In the meantime, India did not rule out to use its domestically mined uranium for non-peaceful uses.

China received the first shipment of uranium from Australia's Olympic Dam mine. It further came to light that export of uranium-containing tailings from Indonesia to China is taking place unregulated since 2005.

China, India, Russia, Japan, and France are aggressively securing promising uranium deposits in many parts of the world now, mainly in Africa, Asia and Australia. So far, nuclear power production is quite low in both China and India, but they intend to massively expand it, while their known domestic uranium resources are only inferior.

The current spread of uranium activities to many new countries urges a more efficient safeguards scheme; this was highlighted by Malawi government's ignorance of the uranium tonnage exported from the new Kayelekera mine. It is unclear, how the International Atomic Energy Agency (IAEA) will keep up with these new developments.

Quote of the year:

"We're taking the uranium out of the ground, we're exporting it to be used for productive purposes, so we should be getting a medal for cleaning up the environment."
(Neville Huxham, Malawi country director for Paladin Energy Africa, IPS Aug. 24, 2009)

Earlier annual uranium mining reviews can be found in Nuclear Monitor issues 682 (2008), 665 (2007), 650 (2006), 640 (2005), 623 (2004), 600 (2003), 579 (2002), 560 (2001), 540 (2000), 522 (1999) and 504 (1998) or at http://www.wise-uranium.org/uissr09.html

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RESTARTING MONJU – LIKE PLAYING RUSSIAN ROULETTE

Japan's Monju Prototype Fast Breeder Reactor (FBR, 280MWe) is scheduled to restart by the end of the 2009 fiscal year (March 31, 2010). If it does so, it will be the first time the plant has operated since it was shut down as a result of a sodium leak and fire fourteen years ago. This article reviews the history and current status of Monju and Japan's FBR program.

(702.6006) CNIC Japan - Construction of the Monju Fast Breeder Reactor began in May 1986. It first achieved criticality on April 5, 1994 and was temporarily connected to the grid on August 29, 1995. At the time of the accident Monju was undergoing tests at 40% power output in preparation for full operation

The sodium accident

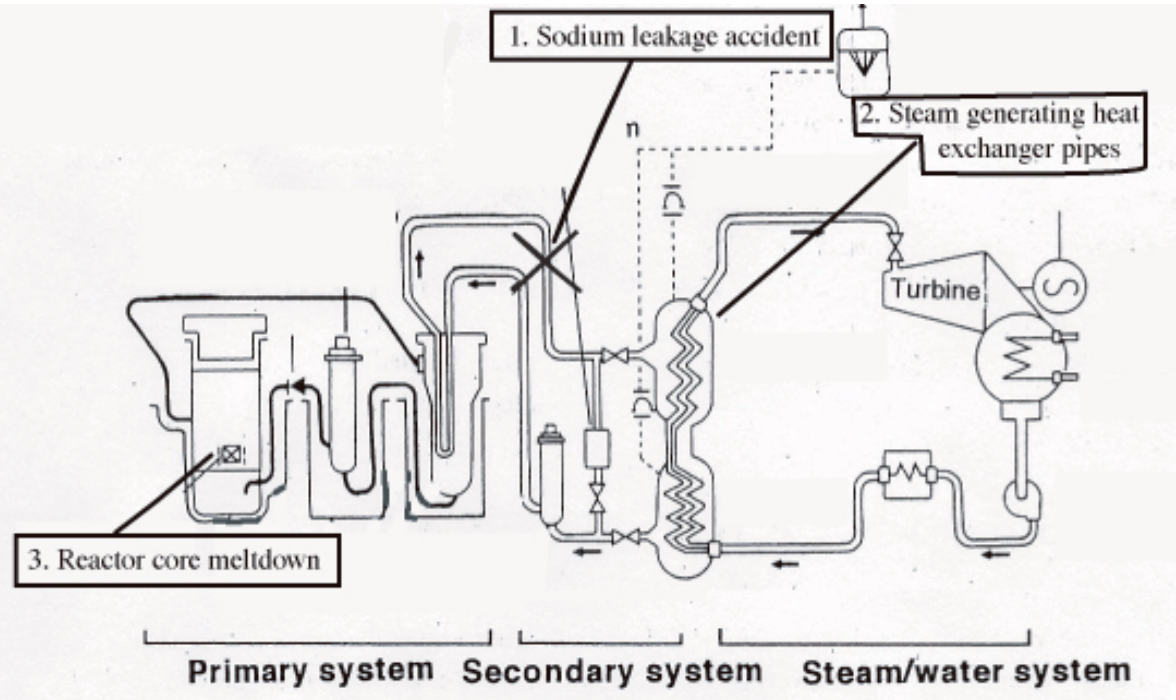
On December 8, 1995 at 19:47 an alarm went off indicating high sodium temperature at the exit of the intermediate heat exchanger in C-loop of Monju's secondary coolant system. One minute later an alarm sounded indicating a sodium leak. At 19:52 staff confirmed that white fumes were coming from the area near the alarm sensors. The reactor was tripped manually at 21:20. Draining of sodium out of C-loop was started at 22:40 and completed at 0:15 on December 9. In other words, the operators waited for about an hour and a half before stopping the reactor and nearly three hours before taking action to stop the leak

The leaked sodium reacted with the air in secondary coolant piping room C, causing a spray-fire and filling the room with fumes. It melted scaffolding and a ventilation duct and damaged the floor's steel liner. According to official reports, the temperature of the steel liner reached 700oC~750oC. Had the sodium melted through the metal liner and come in contact with the concrete below, the accident would have been even more serious. It was eventually estimated that about 640 kilograms of sodium leaked into the piping room.

The Monju reactor is cooled by molten sodium flowing through a three-loop primary system. Heat from the primary loops is transferred to secondary loops, which are also filled with sodium. Heat from the secondary system is then transferred via steam generators to the tertiary system to produce steam to drive the turbines (see figure 1). Since sodium reacts explosively with water, it is essential that sodium not come into contact with the water and steam in the tertiary system. Cracks and holes in the steam generator pipes must be prevented at all costs.

The direct cause of the accident was a broken thermocouple in a pipe in the secondary system. Sodium leaked through the aperture that was created. The thermocouple sheath broke as a result of metal (high-cycle) fatigue from vibration caused by the sodium flow. It was finally recovered over four months later 160m downstream from its original location. The thermocouple, manufactured by Ishikawajima-Harima Heavy Industries (IHI), suffered from a fatal design error. The angular structure of the section that penetrated the pipe meant that it was exposed to resonant vibration caused by a symmetrical vortex in the sodium flow. It is suspected that it was already cracked at least six months and perhaps as long as two years before the accident. It could be said, therefore, that this was an accident waiting to happen.

Besides the direct technical cause, it is possible to identify institutional and policy failures that created an environment in which such accidents were bound to happen. CNIC organized a Monju Committee to make an overall assessment of the accident from technological, legal/institutional and policy perspectives. The Monju Committee pointed out that the rules governing the Monju project as a whole



made it virtually impossible to check in advance for design flaws. It also noted that the manual for dealing with accidents was flawed in that portions of it contradicted the original safety review for licensing. More fundamentally, with respect to the government's plutonium policy the report said that no lessons were learned from fast breeder development in other countries and that the accident may well have been caused by the high priority placed on getting Monju operational as quickly as possible. The report called for a thorough reconsideration of the underlying assumption of the government's plutonium policy, namely that breeding plutonium is an effective way of addressing Japan's future energy needs.

The official review process was flawed from the beginning. The initial investigations were carried out by Monju's owner and operator, Power Reactor and Nuclear Fuel Development Corporation (PNC) (*1). PNC's controlling agency, the Science and Technology Agency (STA)(*2) also carried out an investigation, as did the Nuclear Safety Commission (NSC). However, these reports lacked objectivity and provided minimal information to the public. It was only as a result of massive public pressure that STA gradually became more willing to release information.
The Monju accident triggered an outburst of dissatisfaction with the government's handling of nuclear power development. On January 23, 1996 the governors of Fukui, Fukushima and Niigata Prefectures (these three prefectures are home to the overwhelming majority of Japan's nuclear power plants. Monju is located in Tsuruga City in Fukui Prefecture) issued a joint statement and resolutions were adopted by over two hundred local and prefectural assemblies. The resolutions called either for the decommissioning of Monju, or for a reassessment of its development plan.

PNC initially attempted to cover up the seriousness of the accident. Video footage was released immediately after the accident, but it was later discovered that this one-minute tape was an edited version of two original videos, which PNC judged too shocking to release. The edited version only showed a lump of sodium product in a corner of the room, while all other pipes and structures appeared to be intact. The longer versions showed serious damage to the pipes and ducts, as well as large amounts of sodium product spread all around.

An in-house team was tasked with looking into the cover-up, but the investigation took a tragic turn on January 13, 1996, when one of the team leaders, Shigeo Nishimura, deputy general manager of PNC's general affairs department, jumped to his death from a hotel in Tokyo. His widow, Toshiko, has been pursuing justice for her deceased husband ever since, suing PNC for failing in its duty of care. She appealed to the Supreme Court after the Tokyo High Court rejected her case on October 29, 2009.

Obstacles and delays
On January 27, 2003 the Nagoya High Court's Kanazawa branch handed down a historic ruling nullifying the government's 1983 permission for construction of Monju. The verdict recognized three main areas in which the Nuclear Safety Commission's (NSC) pre-construction safety review was inadequate.
In light of inadequacies in the design of the steel floor liner, which became evident as a result the Monju accident, the Court accepted that the radioactive substances in the nuclear reactor container could be released into the environment in a situation where the secondary cooling system ceased to function.
The Court recognized that NSC's safety review did not fully address preventive measures against simultaneous rupture of steam generator tubes, where the rupture of one tube triggers ruptures in peripheral tubes under high temperatures.
The Court concluded that NSC's analysis was inadequate in relation to prevention of core meltdown.

On May 30, 2005 the Supreme Court reversed the Nagoya High Court decision on the narrow grounds that NSC's safety assessment was "not unreasonable" and that it did not "contain flaws that could not be overlooked". However, the Supreme Court did not say that Monju was safe to operate.

Shortly before the Supreme Court verdict, on February 7, 2005, Fukui Governor, Issei Nishikawa, granted approval for the start of modifications to Monju. The modifications began on September 1, 2005 after the reactor had been shut down for nearly ten years and were completed on August 30, 2007. Modifications included the following: removal and replacement of the temperature gauge that was the cause of the accident; modification of the sodium drainage system; installation of insulation on walls and ceilings, nitrogen gas infusion apparatus, and a comprehensive video monitoring system; and measures to deal with a water-sodium reaction accident arising from a water leak from the steam generator heat transfer tubes. These measures mainly relate to sodium, but other dangers inherent to the Monju design, including the possibility of a run-away chain reaction and problems related to seismic safety, remain unchanged.

The danger of a loss of control over reactivity leading to collapse of the reactor core is much greater in FBRs than in light water reactors (LWR). FBR fuel assemblies are packed much more densely than in LWRs. If the fuel assemblies bend for any reason, the distance between them is reduced even further, increasing core reactivity and creating the risk of a runaway chain reaction and core melt down. FBRs of Monju class and larger have the additional weakness of a "positive void", meaning that if bubbles form in the coolant, core reactivity tends to increase. Although not an FBR, a positive void was instrumental in causing the 1986 Chernobyl accident. Both these weaknesses could come into play if a loss of electric power caused the primary coolant pumps to stop working.

In regard to seismic safety, there are problems with the design of Monju's piping system. To cope with sudden temperature changes due to the high heat conductivity of sodium, Monju's piping is much thinner than in light water reactors. Also, it is not fixed and it is not straight. Instead, it winds around above the reactor. This represents a very real danger in earthquake-prone Japan, especially given that the Headquarters for Earthquake Research Promotion discovered a previously unknown active fault. The Urasoko fault connects with the Yanagaseyama fault on the ocean floor of Tsuruga Bay, with the latter extending to Shiga Prefecture. The seismic safety assessment is now being redone by a subcommittee of the Nuclear Industrial and Safety Agency (NISA).

The original target date for restart was February 2008, but this date has been delayed on four occasions. The main reasons for the delay are JAEA's inability to

rectify problems with its sodium leak detectors, corrosion in the exhaust duct and the need to replace degraded fuel. The leak detectors have gone off repeatedly in various locations, even though there was no sodium leak. The exhaust duct had not been inspected for ten years, because no inspection plan had been prepared. The problem with the fuel was that since it was first fabricated over half of the original "fissile" plutonium-241 (241Pu has a half-life of 14 years) had decayed into americium-241. In order for Monju to reach criticality, new fuel assemblies had to be fabricated.

Recent developments

On December 8, 2009 JAEA announced its schedule for performance testing leading to full operation of Monju. The tests are scheduled to begin by the end of March 2010 and will be conducted over a period of three years in the following three phases: reactor core confirmation tests, plant confirmation tests at 40% power, tests raising power output. If the tests proceed according to plan, Monju will begin full operations by the end of March 2013.

After carrying out four special safety inspections from May 2008 to March 2009, on April 22, 2009 NISA finally reported to the Advisory Committee for Natural Resources and Energy's Investigation Committee for Confirmation of the Safety of Monju that an independent quality control system had begun to operate. However, the overall structure has not changed and it is unclear from NISA's report how the organizational reforms will solve the problems. Monju is owned by JAEA, but it is managed in cooperation with the nuclear power companies and major plant makers Mitsubishi Heavy Industries, Toshiba and Hitachi. Below these there are numerous subcontractors and sub-subcontractors. The channels of communication between top and bottom of the chain were not operating effectively and morale was very low.

On July 14, 2009 84 fuel assemblies and 19 control rods were replaced. Then on August 12 a 141-point plant confirmation test was completed. The same day JAEA announced that it planned to restart the plant by the end of the 2009 fiscal year. No doubt there were political considerations behind the announcement. JAEA needed to indicate that it would restart Monju in FY2009 in order to secure its FY2010 budget allocation for Monju. There was a change of government shortly after the announcement and the new government is seeking areas where it can cut spending.

According to JAEA, another reason for the target start-up date was that seismic safety improvements would take until the end of November to complete. However, the logical thing would have been to wait for NISA to complete its seismic safety checks before commencing seismic safety improvements, especially considering that Monju had not yet commenced full operations when the sodium accident occurred. When Monju was first constructed the design base ground motion for an "extreme design earthquake" (S2) was set at 450 Gal. Revised seismic design guidelines published in September 2006 established a new design base ground motion, Ss. At first, Ss for Monju was set at 600 Gal, but after consideration by NISA it was raised to 760 Gal. Confirmation of seismic safety based on this figure has not been completed.

Problems continue with the sodium leak detectors. On October 7, 2009 the electric power supply was switched off in order to check the leak detectors, but at the same time the power supply to the equipment for measuring the sodium level in the reactor was switched off. This caused another false alarm. The fact that the power supply for both items of equipment was connected had not previously been noticed. Then on October 23 the pumps for sodium leak detectors in both the primary and secondary circuits went down. As a result, the detectors were out of action for one hour and fifteen minutes. JAEA is trying to get an exemption from the requirement that false alarms during inspections be reported. So far NISA has not approved such an exemption. Nor should it. Such an exemption would create a dangerous grey zone. The fact that JAEA has the audacity to ask for such an exemption is a problem in itself.

Cost without benefit

Documents published by the new government's Administrative Reform Council, which was established to identify wasteful projects, show that up to and including FY2009 the government has spent over 900 billion yen (US$ 9.8 billion or 6.7 billion Euro) on construction and maintenance of Monju. Of this 230 billion yen represents maintenance costs since the accident. This does not include other FBR-related research and development. Monju's fuel was not removed after the accident, remaining submerged in sodium. Circulation of sodium was maintained in the three loops of the primary system and in one of the three secondary loops. The other two secondary loops were filled with argon gas. Electric motors have continued to pump sodium, electrically heated to 200oC, through the pipes. The need to keep the molten sodium circulating means that Monju has continued to consume a large quantity of electricity.

On November 11 a working group of the Administrative Reform Council recommended that Monju be allowed to restart, but that the rest of the FBR program should be frozen while the respective responsibilities and roles of METI and MEXT are sorted out. However, in the new government's draft budget for the 2010 fiscal year 23.3 billion yen (US$254 million or 175 million Euro) is allocated for Monju (an increase of 2.9 billion yen compared to 2009), while 37 billion yen is allocated for FBR related research (1.4 billion yen less that the original budget request, but still an increase of 2.3 billion yen compared to 2009.)

International context

It is a great irony that the first nuclear reactor to generate electricity was a FBR. The Idaho National Laboratory's EBR-I generated a tiny amount of electricity in 1951, but in 1955 it suffered a runaway chain reaction resulting in a partial core meltdown. FBRs have been plagued by cost, safety and proliferation problems ever since. Nevertheless, the dream of a virtually inexhaustible source of energy still mesmerizes some, while the counter-intuitive theory that these reactors might help solve the problem of radioactive waste has taken on a life of its own in recent years. Besides Japan, there is still political support of some sort or other for fast reactor development in countries including the US, France, Russia, China and India, although the degree and nature of the support varies from country to country.

The US withdrew from FBR development in response to India's 1974 nuclear test. In 1977 the Carter Administration froze the US's commercial plutonium use program, including FBR, on non-proliferation grounds. Congress stopped funding for the Clinch River FBR project in 1983 and

finally halted the FBR program altogether in 1994. The idea of fast reactors made a come back in February 2006 under the Bush Administration's Global Nuclear Energy Partnership (GNEP). However, the focus was no longer on breeding plutonium, which was still seen as a proliferation risk, but rather on burning surplus plutonium and minor actinides to reduce the radioactive waste burden. The pendulum swung back the other way again in June 2009, when the Obama Administration cancelled the program to develop spent nuclear fuel reprocessing and fast reactor technologies in cooperation with other countries. GNEP's domestic research and development initiative was retained, but the aim is no longer to develop near-term commercial projects. Instead the focus is on long-term R&D on advanced reprocessing and fast-reactor technologies.

France achieved criticality with its first FBR, Rapsodie, in 1967 and connected the demonstration FBR Superphenix (at 1,200 MWe the world's largest FBR ever built) to the grid in 1986. However, the 1991 nuclear waste law shifted the focus of Superphenix from breeding plutonium to transmuting surplus plutonium and minor actinides into shorter-lived isotopes as a radioactive waste management strategy. In 1998 Superphenix was finally closed down permanently. With a cumulative load factor of just 7.79% it had proved to be a costly white elephant. France's Phenix fast reactor, first connected to the grid in 1973, was finally disconnected in March 2009. A ceremony to mark the end of operation was held on September 12, 2009.

The US and France now face practical problems if they want to develop fast reactors. The US has been out of the business for so long that it has a skill shortage, while France no longer has a fast reactor to carry out transmutation tests. They are therefore looking to Japan for support. In August 2009 France, Japan and the US amended an earlier agreement to cooperate on sodium-cooled fast reactor research and development. One focus is to determine whether Monju could be used for international transmutation research. If Monju is restarted, the three countries plan to use it to carry out an irradiation program in the framework of the Generation IV International Forum.

Russia and China have FBR programs, although they are significantly different from Japan's program. Russia's BN-600 reactor (Beloyarsk-3), which was connected to the grid in 1980, uses chiefly uranium dioxide fuel with an enrichment of 17-26%. It is probably the only fast reactor in the world still generating electricity, unless the Indian fast breeder test reactor at Kalpakkam is still generating a tiny amount of electricity. BN-600 is not well suited to a breeder program, but Russia is currently constructing a BN-800 demonstration FBR (Beloyarsk-4), which can use MOX fuel and might be used to breed plutonium. Start-up of Beloyarsk-4 is currently scheduled for 2014, two years later than originally planned.

China's FBR program is based on Russia's. In October 2009 China and Russia signed an agreement to start pre-project and design works for two BN-800 reactors in China. Russia and China are already cooperating on one fast reactor, a small 65 MWt sodium-cooled unit known as the Chinese Experimental Fast Reactor at the China Institute of Atomic Energy near Beijing.

India is constructing a 500 MWe prototype FBR at Kalpakkam. However, it is important to remember that the Indian program is not "peaceful". In 2008 the Nuclear Suppliers Group made a special exception to its rules to allow nuclear trade with India. In return, India agreed to place more of its nuclear facilities under International Atomic Energy Agency (IAEA) safeguards, but India's FBRs were not included in the list of "civilian" facilities submitted to the IAEA. They are officially military facilities and India is still producing fissile material for weapons use. Therefore, Japan would be wise not to point to India as evidence that it is not alone in pursuing a plutonium-breeding program.

Conclusions

Monju shares the same problems of nuclear proliferation, safety and cost that have plagued fast breeder reactors in other countries. There is no sign that the benefits that are supposed to compensate for these dangers, namely breeding of plutonium as an inexhaustible civilian energy source and transmutation of radioactive waste, will ever be viable. The Japanese government will try to trumpet the value of Monju for international transmutation research, but it is highly unlikely that Monju will be used as a breeder reactor.

Japan's fuel cycle program, of which Monju is a key part, represents a serious nuclear proliferation problem. The rationale for Japan separating plutonium from spent nuclear fuel was to supply its FBR program, but there were warnings from all around the world about the massive stockpile of surplus plutonium that Japan would accumulate in the process. These warnings were proved correct. Japan now has about 47 tons of separated plutonium, nearly 10 tons of which is stockpiled in Japan. The rest is held in France and the UK. Regardless of Japan's own intentions, this plutonium stockpile sets a bad example for other would-be nuclear proliferators.

From a safety perspective, if anything the danger of operating Monju is even greater than it was before the sodium accident. During the fourteen years that Monju has been sitting idle, pipes and equipment would have degraded. However, it is impossible to check for cracks and holes throughout the whole plant, especially where sodium prevents visual inspection. Furthermore, JAEA's attitude has not changed. Its instinct is still to cover up problems, as evidenced by its proposal not to report false alarms of sodium leaks. The condition of the plant and the nature of the operator both suggest that more trouble lies ahead. To restart Monju now would be like playing Russian roulette.

Regarding cost, Monju is one of Japan's most wasteful projects. If the government is serious about redirecting taxpayers' money to where it is most needed, it should not wait for further troubles to arise before withdrawing support for Monju and the FBR program.

Notes and references

*1. Plagued by problems, PNC subsequently changed its name to Japan Nuclear Fuel Cycle Development Institute (JNC). JNC later merged with the Japan Atomic Energy Research Institute (JAERI) to form the Japan Atomic Energy Agency (JAEA), which is now under the auspices of the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

*2. STA was headed by a Cabinet Minister, but government ministries were restructured on January 6, 2000. STA's R&D role was transferred to the JNC later

merged with the Japan Atomic Energy Research Institute (JAERI) to form the Japan Atomic Energy Agency (JAEA), which is now under the auspices of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and its regulatory role was transferred to the Nuclear Industrial and Safety Agency (NISA) within the Ministry of Economy, Trade and Industry (METI).

Sources: Philip White and Hideyuki Ban, Nuke Info Tokyo nr. 134, Nov/Dec. 2009
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IN BRIEF

Non-proven Korean reactors for Middle-East. A South Korean consortium has beaten French, US and Japanese competition and won a US$20.4 billion contract for developing a civilian nuclear program for the United Arab Emirates. Lead by KEPCO the groups also includes companies as Hyundai Engineering and Construction, Samsung and Doosan Heavy Industries. Korea Nuclear Fuel Co, or KNF, will provide the nuclear fuel while Korea Plant Service and Engineering Co (KPS) will be involved in plant maintenance. Non-Korean companies involved in the Kepco team include Westinghouse of the US and Toshiba of Japan. Kepco is owned by the South Korean government and is the world's third largest nuclear energy businesses. The other bidders in the year-long process included a consortium of French companies – Areva, Total and GDF Suez – by many seen as the most likely winner of the tender - and a third consortium of US and Japanese companies, including General Electric and Hitachi. Loss of the nuclear reactor contract is a major blow to especially the French nuclear industry. French President Sarkozy has extensively been traveling the Middle East , including the UAE in an attempt to bring new orders back home to the state-owned Areva.
The UAE is hoping to become the first Arab Gulf state to develop a civilian nuclear program and the contract involves the design and construction of four 1,400 megawatt units of the APR1400-type, Generation III units. Design was developed by the Korean nuclear industry under the leadership of Kepco over a period of 10 years beginning 1992. The first of the APR1,400 units, Shin-Kori units 3 and 4, are now under construction, having obtained a construction permit from the Korean regulatory authority. Shin-Kori unit 3 is scheduled to be connected to Korea's grid by 2013. According to the UAE nuclear safety regulator, the Federal Authority for Nuclear Regulation (FANR), Kepco will construct plants that are essentially the same as the "reference plants," but supplemented with changes required to adapt to UAE climactic conditions and any specific requirements of the UAE.
The UAE hopes the first of its nuclear units will begin producing electricity to its grid in 2017, with the other three being completed in 2020. In spite of being the world's third largest oil exporter and home to the world's fifth largest proven natural gas reserves, the UAE is already a net importer of gas to fuel industries and power stations. Demand for electricity in the UAE is currently about 15 GWe, but is projected to nearly triple in just 12 years. Natural gas is the fuel of choice for peak power and half of base load demand in the UAE. Oil provides the rest. No coal is burned in the UAE for electricity. The heart of the UAE base load energy plan is to swap out the natural gas plants for nuclear energy to power water desalinization and electricity for household and industrial use.
Sources: http://djysrv.blogspot.com/2009/12/south-korea-wins-uae-204-billion.html / Financial Times, 27 December 2009 / Khaleej Times, 28 December 2009

England: Tories: We will not build nuclear power stations if elected. Political Parties not in the government have to speak out against the ruling parties to show they are in opposition. Sometimes that mechanism has strange consequences. The English Conservative Party is a well known proponent of nuclear power. But since the ruling Labour Party shows some dedication to build nuclear reactors, the Tories, changed position. Well, it seems… Early December, the green adviser of Tory leader David Cameron has thrown more doubt on where the party stands over nuclear power after declaring no new stations would be built under a Tory government. Zac Goldsmith, one of Mr Cameron's closest advisers on the environment, insisted no new nuclear power stations would be built if the Conservatives were to win the next general election. He said Tory policy "was to give a green light to nuclear power as long as there is no call on the taxpayer, not just in terms of building, but maintenance, security and disposal of waste." His next sentence was a very surprising one: "In the history of nuclear power there has never been a station built without huge use of taxpayers' subsidy."
Jamie Reed, Labour member of parliament for Copeland (Cunbria) reacted: "This is not a policy, it is ignorant, confused nonsense and is in effect an anti-nuclear policy. David Cameron is all over the place on nuclear. He has stated that it is a "last resort". And concluding: "With others I have worked hard to build a cross party consensus and I am saddened by the fact that David Cameron and Zac Goldsmith remain anti nuclear."
Well, that has to be seen, but let's hope that is still the case when they win the next elections.
North West Evening Mail (UK), 2 December 2009

Areva confirms Greenpeace's alarming radiation findings in Niger. Following Greenpeace's report of radioactive hotspots in the uranium mining city Akokan in Niger, Areva has confirmed that the radioactivity in the streets of Akokan was unacceptably high. Under pressure from civil society the French nuclear company has taken action to clean up the spots indicated by Greenpeace. "Areva's reaction supports our call for a comprehensive, transparent and independent environmental assessment of the area," said Dr. Rianne Teule of Greenpeace International. "We are glad that the streets of Akokan have been partly cleaned up, but remain very concerned that other problems cannot be ruled out without a comprehensive study. Decades of uranium mining have created radioactive dangers to the people of Akokan, a typical example of environmental and health threats posed by the nuclear industry."
A Greenpeace team visited Areva's two uranium mines in Niger at the beginning of November 2009. During this visit Greenpeace identified dangerous levels of radiation in the streets of Akokan, at one location up to 500 times higher than the normal background levels. Areva had earlier declared the streets safe. A comprehensive report on Greenpeace's findings will be published in early 2010.

Greenpeace International Press release, 5 January 2010

Preparations for first ever High Level Waste shipment from Sellafield. More than ten years later than originally scheduled, the first shipment of vitrified High Level Waste (HLW) is expected to be shipped from Sellafield to Japan early in 2010. Sellafield Ltd announced November 25, that the first HLW return shipment to Japan was expected to be completed by next in March. Depending on which of three recognised sea routes was selected, the return could take up to 6 weeks – indicating a departure from the UK sometime in January 2010. It is likely that the HLW, loaded into transport containers, will be sent from Sellafield to Barrow docks by rail and loaded onto the Pacific Sandpiper for the 25,000km voyage to Japan.
The upcoming shipment will be the first repatriation of any category of foreign waste to overseas customers – despite Japanese and other wastes having been produced for more than thirty years by the reprocessing of Japanese spent fuel at Sellafield's Magnox and THORP plant. Whilst overseas reprocessing contracts signed after 1976 required customers to take back all reprocessing wastes, a system of 'waste substitution' was agreed between Government, Sellafield and customers in 2004 whereby only HLW would be returned – leaving the significantly larger volumes of Intermediate and Low level wastes to be disposed of in the UK. To compensate for the amount of radioactivity in those wastes that will remain in the UK, a 'radiological equivalance' will be returned to overseas customers in the form of additional HLW. For Japan, whose utilities will receive around 850 canisters of HLW directly resulting from their reprocessing contracts, the equivalence amounts to an extra 150 canisters, making 1000 in total.
Sellafield owners NDA have said that an overall total of 1850 HLW canisters are due to be repatriated to Japanese and European customers over the coming years. INS has confirmed that following the first return to Japan, the next HLW shipment will be to the Netherlands.

CORE Briefing, 16 November 2009

Unlimited license for Swiss nuclear power plant.
An environment ministry decision to grant an unlimited licence to the Mühleberg nuclear power station has prompted mixed reaction.The operators of the Mühleberg plant (outside the capital Bern) said they welcomed the move because it finally puts all five nuclear power stations in Switzerland on par with each other. The Mühleberg facility became operational in 1972 and had a licence that was due to run out by the end of 2012. An application has already been handed in to built a new reactor in ten years' time.
Critics of nuclear power described the decision as irresponsible and scandalous. They pledged to challenge it in court. The Swiss Energy Foundation said the Mühleberg plant had safety problems. The technology used at the plant is also outdated according to the centre-left Social Democrats and the Green Party. In November 2009 voters in canton Vaud came out against extending the life of the plant beyond 2012. The governments in four other cantons which are customers of the plant were divided.

Swissinfo.ch, 22 December 2009

Canada: Sept-Iles residents want Quebec to halt uranium mining. Some 1,000 protesters gathered on December 13, in the town of Sept-Iles about 900 kilometers northwest of Montreal on the North Shore to protest against uranium mining. The residents continue to pressure Quebec to slap a moratorium on uranium exploration in the province, despite the government's promise to open a debate on health and safety concerns surrounding the industry. The protesters were backing 20 doctors who threatened to quit their practice in the remote Quebec region because of plans to build a uranium mine nearby. "We're showing our support," said Marc Fafard, spokesman and founder of a grassroots group opposed to uranium mining in the province. "We want to show how proud we are of the doctors to have finally made this a provincial debate. Like it should be." The province's head of public health, Dr. Alain Poirier, met with the doctors the week before the demonstration and announced Quebec would create a special committee to study the potential risks of uranium exploration and mining on health and safety.

The uranium debate has been raging in the region for more than a year, since mining company Terra Ventures Inc. began exploration for low-grade uranium near Lac Kachiwiss, some 20 kilometers north of Sept-Iles. Residents have concerns over the health and safety of uranium mines and fear the mining waste could contaminate local drinking water.
The Canadian Press, 13 December 2009

Canada: Province threatens lawsuit over cost overruns. The Province of New Brunswick said Canada's federal government should cover cost overruns on the refurbishment of the Point Lepreau nuclear power plant or the province will sue Atomic Energy of Canada Ltd., according to the Canadian press reports. AECL is the government-controlled "crown corporation" that is performing the Can$ 1.4 billion (US$1.36 billion, 937 million Euro) renovation of Atlantic Canada's only nuclear power plant. The project was supposed to have been completed last September, but is running 18 months behind schedule. If the project remains behind schedule, officials say it could cost the province about $400 million (US$387 million) to buy replacement power. Under a memorandum of understanding signed last fall, New Brunswick won't be paid for Point Lepreau until the refurbishment is complete and the plant is generating electricity.
This is the first refurbishment of a Candu-6 reactor and AECL is hoping to use Point Lepreau as a showcase to refurbish similar reactors around the world.
In November two units of the Bruce A nuclear plant (earlier CANDU-types) have been given regulatory approval for refuelling and restart after being out of service for more than a decade. Their major refurbishment (amongst others the replacement of fuel channels and steam generators) was over budget for almost Can$ 1 billion and 12 months behind schedule. (more in 'Restart go-ahead for refurbished Canadian units'; Nuclear Monitor 698, 27 November 2009)
Power Engineering International, 11 January 2010 / Nuclear Monitor 698, 27 November 2009

Heavy forging facility in India. Construction has started on a steel manufacturing and heavy forging facility in Gujarat state, India, as part of a joint venture between Nuclear Power Corporation of India Ltd (NPCIL) and Larsen & Toubro (L&T). During a ceremony on 9 January the foundation stone for the new facility was laid at L&T's existing manufacturing site in Hazira, Surat. The new facility will have a dedicated steel melt shop producing ingots of up to 600 tons, as well as a heavy forge shop equipped with a forging press that will be amongst the largest in the world. The facility will supply finished forgings for nuclear reactors, pressurizers and steam generators, and also heavy forgings for critical equipment in the hydrocarbon sector and for thermal power plants. L&T is India's biggest engineering and construction company and makes reactor pressure vessels for the country's pressurized heavy water reactors (PHWRs), fast breeder reactor and steam generators. It has been involved in supply of equipment, systems and services for nearly all the PHWRs that have been indigenously built, including the manufacture of calandrias, end-shields, steam generators, primary heat transport system and heat exchangers.
The capacity worldwide for heavy forging for nuclear reactors is very limited. At least in the short term, only one facility in the world, Japan Steel Works, can cast large forgings for certain reactor pressure vessels. JSW is aiming to produce sufficient forgings to supply theequivalent of about 8.5 sets a year by 2010 and the maximum ingot size is to be increased to 650 t.. The problem is the term “equivalent” because it is unclear how much of the forging capacity is dedicated in practice to new nuclear projects. JSW also supplies, for example, about 100 forgings a year for fossil fuel turbine and generator rotors to China alone.
World Nuclear news, 11 January 2010 / World Nuclear Industry Status Report 2009, M. Schneider, S. Thomas, A. Froggatt, D. Koplow

WISE/NIRS NUCLEAR MONITOR

The Nuclear Information & Resource Service was founded in 1978 and is based in Washington, US. The World Information Service on Energy was set up in the same year and houses in Amsterdam, Netherlands. NIRS and WISE Amsterdam joined forces in 2000, creating a worldwide network of information and resource centers for citizens and environmental organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy issues.

The WISE/NIRS Nuclear Monitor publishes international information in English 20 times a year. A Spanish translation of this newsletter is available on the WISE Amsterdam website (www.antenna.nl/wise/esp). A Russian version is published by WISE Russia and a Ukrainian version is published by WISE Ukraine. The WISE/NIRS Nuclear Monitor can be obtained both on paper and in an email version (pdf format). Old issues are (after two months) available through the WISE Amsterdam homepage: www.antenna.nl/wise and at www.nirs.org.

US and Canada based readers should contact NIRS for details of how to receive the Nuclear Monitor (address see page 11). Others receive the Nuclear Monitor through WISE Amsterdam.

Nuclear Power, The Critical Question, which appeared as a special Nuclear Monitor issue, is now available in a full-color printed copy. To obtain your copy, visit NIRS website at www.nirs.org.

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