

# NUCLEAR MONITOR

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**wise**  
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## MONITORED THIS ISSUE:

## MARCOULE EXPLOSION FIGURES "ERRONEOUS IF NOT LIES"

**The September 12 explosion in a furnace at the Centraco low-level radioactive waste processing facility at Marcoule in southern France has been rated at Level 1 on the International Nuclear Event Scale (INES). The blast at the facility, owned by EDF subsidiary Socodei, resulted in the death of one worker and injury to four others. CRIIRAD found out that the figures given concerning the radioactivity of wastes at the Centraco furnace were erroneous, and probably deliberate lies.**

**(734.6171) CRIIRAD** - In nuclear matters, the files keep changing yet the same conclusions can be drawn: every time the companies involved underestimate the risks, and the official experts show a lack of critical thinking, even a certain complacency.

On 23 September, the CRIIRAD contacted the French Nuclear Safety Authority (Autorité de sûreté nucléaire -ASN) and the ministries of Health, Industry and Ecology. Its task is to regulate nuclear safety and radiation protection, on behalf of the State, in order to protect workers, patients, the public and the environment from the risks involved in nuclear activities.

In their letter, CRIIRAD denounced the secrecy shrouding the key elements of the Centraco file, as well as the publication by IRSN (Institute for Radioprotection and Nuclear Security) which presented an astoundingly low figure (63 000 Bq) for the activity of 4 tons of metallic wastes present in the furnace at the time of the September 12 explosion. CRIIRAD considered this figure "absolutely incompatible" with the dose rate of 8,5 µSv/h (microSievert/hour) reportedly measured in the body of the explosion victim. Since the information on the dose came from an unofficial source, the CRIIRAD had not gone further than asking questions and seeking clarification from ASN.

On 28 September, from the website of Le Dauphiné Libéré, the CRIIRAD learnt of the declarations of the Procureur in

charge of inquiries, M. Robert Gelli, its declarations confirmed the dose findings. CRIIRAD therefore sent an official letter to the Procureur de la République (a high-level attorney), emphasizing that it is "impossible to measure such a high dose rate if the contamination comes from metallic wastes as weakly contaminated as the operator and the IRSN claim them to be", and calling on the inquiries office to carry out dosimetric cartography and laboratory analyses in order to establish the real activity of the 4 tons of radioactive wastes.

On September 29, CRIIRAD sent a letter to ASN saying CRIIRAD has just become aware of the information published by ASN on its website the day before, which indicates that the "the furnace contained, at the moment of the accident, a load of about 4 tons of waste with an activity of 30 million Bq and not 63 thousand Bq as the operator at first announced". This new figure is 476 times higher than the one that had been circulating since September 12.

This information prompts some very serious questions:

1. Would those new numbers also have been published if CRIIRAD had not officially, by registered mail, contacted the various authorities on September 23?
2. How come the state's expert body, the IRSN, which was present onsite and has far greater resources than CRIIRAD, accepted without reservation the suspect figures given by SOCODEI, the operator. The figure of 63 kBq was published on September 12, by IRSN

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without any subsequent correction.

3. What credibility can we give to the operator's self-monitoring, which is an essential aspect of the Centraco plant? From 63 kBq to 30 MBq, the discrepancy is not 10 or 20% but nearly 500 times! And it is highly improbable that this was a mere unlucky set of circumstances, that the explosion involved the operator's only set of ill-measured wastes. CRIIRAD has studied the original project plan for the Centraco plant and one of its main criticisms at the time concerned specifically the lack of a reliable system for monitoring the activity of wastes.

Is the Centraco plant not operating in complete breach of the rules prescribed for its operation? Does the plant not violate the authorization decree that

limits the total activity it may hold; and exceed of the ceilings for radioactive and chemical pollutants discharged into the atmosphere and the Rhone river. If the real discharges are 10 times or 100 times greater than those declared, the limits for discharge of, for example, tritium or alpha emitters would certainly be exceeded.

The inquiries office will have to determine whether the underestimation of the activity of waste is due to a deliberate action by the operator or a failure to master the radioactive substances it deals with. Whichever explanation is the correct one, both are very worrying.

In order to obtain access to all parts of the dossier, the management of CRIIRAD have decided to place a Depot

d'une Plainte en Justice (formal legal complaint) on the agenda of ASN's next administration council meeting, scheduled for 14 October next.

The objective is to make sure that all responsibilities are well researched and well established. The explosion caused the death of an employee, and another is in a critical condition. Full light must be shed on the plant's operating conditions and monitoring systems.

**Source and contact:** CRIIRAD (Commission de Recherche et d'Information Indépendantes sur la Radioactivité), 471 Av. V Hugo, 26000 Valence, France  
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## IAEA SEEKS BUDGET FOR NUCLEAR SAFETY

**On 22 September 2011, the IAEA 55th General Conference unanimously endorsed the Action Plan on Nuclear Safety that Ministers in their Declaration at the IAEA's June Ministerial Conference on Nuclear Safety requested. The plan, criticized by many for not going far enough towards more mandatory measures, outlines a series of voluntary steps aimed at improving reactor safety and emergency preparedness.**

**(734.6172) WISE Amsterdam** - IAEA Director General Amano made clear the agency needed more money to turn the plan into reality, but did not give details. "Meeting new and expanding demands for assistance from member states in nuclear safety, as well as in other areas, will require an increase in the agency's resources," he said.

Even before Fukushima added to its workload, experts warned that budget austerity in member states may block funding required by the IAEA to deal with growing demand for atomic energy and the attendant risk of weapons proliferation. The bulk of money for the IAEA, which has more than 2 300 staff, comes from Western member states on a voluntary basis.

The IAEA 'Program and Budget for 2012-2013' was adopted by the General Conference in September. The total proposed budget for 2012 is 341.4 million euro (US\$ 451 million) which represents a 2.1% increase, plus a 1.1% price adjustment. This differs from the Director-General's original proposal to the Board of Governors of a 2.8% increase. Of this regular budget, 39% is allocated to nuclear verification. In addition, voluntary contributions can be made by member states to specific funds such as the Technical Cooperation and Nuclear

Security Funds.

The recently-published 'Programme and budget for 2012-2013' warns that 'demands for the Agency's services are growing at a rate beyond what can realistically be funded through the regular budget'. Therefore, some of the money will need to be delivered to the Agency on an extrabudgetary basis, and in support for specific projects. This is not without risk. The program and budget notes that these 'are unpredictable, often tied to restrictive conditions and thus involve some risk for the program'.

Reasons mentioned by the IAEA for expanding the budget are:

- An increasing number of States are contemplating the establishment or enhancement of safe nuclear power programmes and look to the Agency for advice and assistance.
- Basic human needs in developing countries regarding health, water and food — areas where nuclear techniques are of proven benefit — increasingly call for Agency support.
- The Agency's nuclear security activities remain extensively reliant on uncertain extrabudgetary contributions.
- With increases in the number of facilities and nuclear material the Agency's verification responsibilities continue to grow.

• The interrelationship between complex global issues and the development needs of Member States, to be addressed by the Agency in a coordinated manner, is increasing.

• The Agency's considerable infrastructure requirements have begun to be addressed, but much remains underfunded. Despite the establishment of a Major Capital Investment mechanism, there is a lack of funding to it that prevents fund accumulation. Meeting capital needs is therefore contingent upon the Agency's receiving adequate extrabudgetary contributions.

As said, the General Conference of the IAEA agreed on a budgetary increase of no more than 2.1 per cent (plus a 1.1 per cent inflation increase) but the IAEA Secretariat will still have to try to deliver more services—which means that the IAEA has to deal with the challenges of both effectiveness and efficiency.

At a time of economic problems squeezing government finances, some European states have resisted budget hikes for the agency.

**Sources:** Trust & Verify, July-September 2011 / IAEA 'Programme and budget 2012-2013', at: [www.iaea.org/About/Policy/GC/GC55/GC55Documents/English/gc55-5\\_en.pdf](http://www.iaea.org/About/Policy/GC/GC55/GC55Documents/English/gc55-5_en.pdf)

# COLD SHUTDOWN REACHED AT FUKUSHIMA?

**September 28, 2011 marked a milestone of sorts for the Fukushima Daiichi reactors: some six-and-a-half months after the onset of the accident, temperature levels at all of the reactors and fuel pools fell below the boiling point (100 degrees Celsius) for the first time since March 11. But there are some caveats to that statement. Meanwhile, hydrogen detected in a pipe will cause no explosion "in the immediate future". Plutonium has been found as far as 45 km from the plant.**

**(734.6173) WISE Amsterdam** - The temperature at Unit 2 fell only to 99.4 degrees Celsius, and has been going up and down in recent days, so could quickly return to the boiling point. Moreover, while the reactor temperatures are measured at the bottom of the pressure vessel, it's not clear that is where the hottest temperatures are. Since fuel melted and containments failed, allowing fuel to go below the pressure vessel, temperatures below the vessel where the molten fuel has collected may remain higher than the boiling point.

Meanwhile, the cooling system that has brought down temperatures is a jerry-rigged system nothing akin to the normal cooling systems found in reactors, and its long-term reliability is in serious question. This is especially so because the region continues to suffer earthquakes (a 5.6 earthquake struck the region on September 29), not to mention typhoons and other problems.

In other words, there remains some time before cold shutdown of the reactors can be proclaimed. And in the meantime, radiation releases continue, although they are reported to be a small fraction of earlier releases. They're now on the order of one million becquerels/hour (as opposed to a trillion/hour a few months ago and thousands of times more than that in March). Although, a caveat to that too: Tepco has admitted that it doesn't really know how much radiation is being emitted--it's estimating.

On Oct 2, Tepco announced that it had estimated that the interruption for about 38 hours of water injection into the cores would prompt their nuclear fuels to melt again. Unless water injection is restarted about 18 hours after being stopped, a massive amount of radioactive substances would be released into the environment. In the estimate for the No. 1 to No. 3 reactors at the March disaster-

ravaged Fukushima No. 1 nuclear power plant, TEPCO assumed that their pressure vessels would have no water to cool nuclear fuels when water injection stops. The temperature of the nuclear fuels would rise by about 50 degrees Celsius every hour from 300 degrees at the time of the coolant loss and reach 2,200 degrees about 38 hours later, the power utility estimated. At that time, the nuclear fuel would start melting, and some would break through the pressure vessel to fall into the containment structure, according to the company.

**Largest trade union changes policy on nuclear power.** The leadership of Rengo, Japan's largest trade union organization will rethink the body's energy policy in light of the Fukushima nuclear crisis, with a view to shifting from its stance of promoting nuclear power to one that aims for a society not reliant on atomic energy, according to Rengo sources on October 3. Since Rengo is the largest supporter of the ruling Democratic Party of Japan, the turnaround is expected to have an impact on the energy policy of the DPJ-led government. Rengo, which counts labor unions of power utilities among its members, has struggled to reconcile differences within the organization over nuclear energy policy. But its leadership has decided on the policy turnaround by taking into account the seriousness of damage brought by the Fukushima nuclear plant disaster, they said. In August 2010, Rengo decided for the first time to promote nuclear power generation and back construction of new nuclear power plants.  
**Japan Times, 5 October 2011**

A couple of reports have struck us recently. One widely reported is that Tepco seriously considering abandoning the Fukushima facility in mid-March when it reduced its on-site workforce to 50 people. Another, also widely reported, is that then-Prime Minister Kan was actively considering ordering an evacuation of Tokyo in mid-March as conditions deteriorated and foresaw a potential end to Japan as a functioning nation. It may go without saying that if Tepco actually had abandoned its efforts at the time, that's exactly what would have happened.

On September 23, Tepco said that hydrogen has been detected in a pipe at the No. 1 reactor, but there is no possibility it will cause an explosion "in the immediate future". According to Tokyo Electric Power Co., hydrogen of at least 10,000 parts per million was detected at two spots in a pipe passing through the containment vessel on the reactor building's first floor. This concentration was higher than Tepco had anticipated. Although Tepco is not certain how much hydrogen is still inside the vessel, the utility believes it is possible the concentration of the highly flammable gas is higher than had been assumed.

In air and liquid, 10,000 ppm is equivalent to 1 percent. Air containing at least 4 percent hydrogen and 5 percent oxygen is at risk of causing explosion. Tepco has been injecting nitrogen into the containment vessel since April so it is assumed there is virtually no oxygen. As a result, the utility ruled out the possibility of an explosion "in the immediate future."

Japanese officials said they have found, for the first time, small amounts of plutonium from the damaged Fukushima nuclear power plant as far as 28 miles (45 kilometers) away. At a October 2, Tokyo news conference, federal officials announced the first discovery plutonium outside the immediate vicinity of the power plant, as well as radioactive strontium in 45 spots as far as 50 miles (80km) from the reactors, The Wall Street Journal reported.

Meanwhile, Tepco is fighting to keep its pre-disaster emergency-response procedures a secret from politicians and the public, arguing they contain valuable trade information. In September the company angered members of a parliamentary committee when it handed over manuals outlining steps that its nuclear plant operators are meant to follow in the case of accidents. All but

a few words of the texts were redacted with black ink.

The storm of controversy that followed – one newspaper columnist compared it to wartime censorship – seems not to have softened the company's stance. Early October it asked Japan's nuclear safety regulator, which had ordered it to resubmit the manuals without redaction, to allow it to keep much of the material secret. So far only the regulator, the Nuclear and Industrial Safety Agency (Nisa), has seen the originals, which run to thousands of pages. It has not passed

them on to the lawmakers who originally requested them.

Tepeco has told Nisa that if the manuals are to be made public, 90 per cent of the content related to "severe accidents" such as that at Fukushima should be kept under black ink. "The manuals contain knowhow that we have built up over a long period of operation," a company spokesman said. "There are also issues of national security."

**Sources:** The Yomiuri Shimbun, 24 September 2011 / NIRS Fukushima Update, 29 September 2011 / Jiji Press,

2 October 2011 / UPI, 2 October 2011 / Financial Times (UK), 5 October 2011

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## URANIUM ACTIVISTS ARRESTED IN CENTRAL AFRICAN REPUBLIC

**Six uranium activists were arrested and imprisoned without charge in the Central African Republic on September 16. After a week in detention, during which it was insinuated that the activists were involved in terrorist activities, espionage, and/or general destabilizing of the country, all were released**

**(734.6174) WISE Amsterdam** – The activists were on their way to a workshop in Bakouma, where French nuclear company AREVA owns a uranium mine, when they were halted by armed military forces. Without being informed about the reason for arrest, they were transported back to the country's capital Bangui, interrogated, and immediately detained.

Purpose of the activists travelling to Bakouma was to organise a workshop for local citizens and non-governmental organisations (NGOs) to inform them about the social, economic, and environmental impacts of uranium mining.

Upon arrest, the authorities claimed that the activists were not authorised by the Ministry of Mining to travel to Bakouma. In fact, the activists had demanded and received permission from the Ministry previous to their trip – even though the authorisation was officially only needed for the one foreigner in the group of activists. This surprising and obviously erroneous claim by the authorities make one wonder what the real reasons for the arrest might have been.

Infrequent uranium exploration activities have been conducted in the region since decades. Although ore grades at the Bakouma deposit are relatively high compared to some other African mining sites, the infrastructural and political situation made the Central African deposit less attractive for commercial mining operations.

Until today, only French nuclear com-

pany AREVA has opened a uranium mine in Bakouma. The Central African government, desperate to attract any kind of foreign investment into the economically underdeveloped country, was hoping for the first uranium production to be realised by 2010. However, despite government pressure and promises by AREVA, the French still have not shown much interest in starting production.

Meanwhile, the habitants of the region remain uninformed about the developments taking place at government and company level. Local populations live in a remote area where access to education, services, health care and justice is absolutely minimal. Scarce and biased information is provided by government and industry.

With the aim to inform the communities about mining hazards, NGOs based in Bangui are making efforts to get access to the Bakouma population. For information and support, the Central African NGOs are supported by various international organisations. The arrested activists were representatives of the Organisation Centrafricaine pour la Défense de la Nature, l'Observatoire Centrafricain des Droits de l'Homme, the Groupement des Agriculteurs pour la Lutte contre la Désertification et la Pauvreté, the Association pour la Protection Environnementale et le Développement Durable, the Association Centrafricaine des Professionnels en Evaluation Environnementale, and Capacity for Deve-

lopment. As serious problems related to uranium mining operations are undoubtedly occurring in the Central African Republic – lack of public participation, radiological and toxic contamination of the mining area, neglect of human rights, etc – the Central African human rights and environmental experts who were arrested are receiving much support from foreign organisations, who offer their expertise and support. Organisations such as Capacity for Development (Belgium), CED (Cameroon) and Croissance Saine Environnement (Gabon), along with other organisations, are actively involved in empowering the Central African organisations, and are closely monitoring the Central African developments.

Now that the Central African activist movement to struggle for more information, more public participation, and better protection of environment and humans, becomes better-organised and more powerful, it seems that the Central African government are not so pleased with this new, more mature civil society: hence the arrest of the activists. AREVA, equally, has proven to find it difficult to accept the role of civil society in decision-making on mining activities. The company has not shown much willingness to keep Central African citizens informed and to communicate openly with NGOs.

Meanwhile, the activists do not at all seem discouraged by the unexpected turn of events. Fiercely claiming their rights and confronting their authorities, while enjoying support and protection

by the international community, it is expected that the activists will continue to enhance public participation and disclosure of information in the Central African Republic.

The prisoners were suddenly released

on September 22. One of the activists, a foreigner, forcibly returned to Europe. All other activists, of Central African nationality, remain in the country. The Central African activists are planning to discuss their arrest with the authorities and will seek clarification from them. It is still unknown when the activists will attempt

once again to reach the communities in Bakouma.

**Sources:** personal contact with involved activists

**Contact:** WISE Amsterdam

## IAEA: SLOWER NUCLEAR GROWTH AFTER FUKUSHIMA

**The Fukushima-Daiichi nuclear accident will slow growth in nuclear power but not reverse it, according to the latest projections by the IAEA. The 2011 updates take into account the effects of the 11 March 2011 accident. But this projection means that the market share of nuclear power in the world's total generation of electricity may more than halve to just over 6 percent by 2050 despite growth in the number of reactors in use.**

**(734.6175) WISE Amsterdam** – The IAEA publishes annually two updated projections for the world's nuclear power generating capacity, a low projection and a high projection. But even in the high-growth scenario the market share will not change much from last year's 13.5 percent of total electricity generation, rising to 14 percent in 2030 before falling to 13.5 percent in 2050, the IAEA forecast said. This reflects an anticipated rapid increase in total electricity output in the world over the coming four decades -- expected to more than triple by 2050.

In the updated low projection, the world's installed nuclear power capacity grows from 367 gigawatts (GW) today to 501 GW in 2030, down 8% from what was projected last year. In the updated high projection, it grows to 746 GW in 2030, down 7% from last year. A GW equals one billion watts (1000 MW) of electrical power.

The number of operating nuclear reactors increases by about 90 by 2030 in the low projection and by about 350 in the high projection, from the current total of 433 reactors. Most of the growth will occur in countries that already have operating nuclear power plants.

Projected growth is greatest in the Far East notably in China and India. From 81 GW at the end of 2010, capacity grows to 180 GW in 2030 in the low projection and to 255 GW in the high. These levels are, however, lower than last year's projections by 17 GW and 12 GW respectively.

Western Europe shows the biggest difference between the low and high projections. In the low projection, Western Europe's nuclear power capacity drops from 123 GW at the end of 2010 to 83 GW in 2030. In the high projection, nuclear power grows to 141 GW, but that is 17 GW below the growth projected last year.

In North America, the low case projects a small decline, from 114 GW at the end of 2010 to 111 GW in 2030. The high projection projects an increase to 149 GW, still 17 GW below last year's projection.

Other regions with substantial nuclear

**IAEA's optimism.** IAEA has always been over-optimistic about the future of nuclear power. In 1975 the IAEA made a forecast of 1,600 GW (1 GigaWatt = 1000MW) by the year 1990. In reality, nuclear power installed in 1990 was 325 GW. Their prognosis in 1975 for the year 2000 was 2,300 GW installed nuclear energy (which was half of the expectations a year before!). In 1997 the IAEA expected an installed capacity for the year 2000 of 360 GW. In December 2000, 438 nuclear power plants were in operation with a net stalled capacity of 351 GW. The 1995 IAEA prognosis assumes an increase of nuclear power by 50% in 20 years, from 345 GW in 1995 to 515 GW in 2015 (2.5%/year). Today's installed capacity is 367 GW.

power programs are Eastern Europe, which includes Russia, and the Middle East and South Asia, which includes India and Pakistan. Nuclear power expands in both regions in both the low and high projections - to only slightly lower levels than projected last year. The same is true for regions with smaller programs - Latin America, Africa and South East Asia.

The low projection assumes current trends continue with few changes in policies affecting nuclear power. But it does not necessarily assume that all national targets for nuclear power will be achieved. It is a "conservative but plausible" projection.

The high projection assumes that the current financial and economic crises will be overcome relatively soon and past rates of economic growth and electricity demand would resume, notably in the Far East. It assumes stringent global policies to mitigate climate change.

The low and high projections are developed by experts from around the world who are assembled by the IAEA each spring. They consider all the operating reactors, possible license renewals, planned shutdowns and plausible construction projects foreseen for the next several decades. They build the projections project-by-project by assessing the plausibility of each in light of, first, the low projection's assumptions and, second, the high projection's assumptions.

**Source:** Reuters, 20 September 2011 / IAEA September 2011: "Energy, electricity and nuclear power estimates for the period up to 2050" available at: [http://www-pub.iaea.org/MTCD/Publications/PDF/RDS1\\_31.pdf](http://www-pub.iaea.org/MTCD/Publications/PDF/RDS1_31.pdf)

# INITIAL SUCCESS FOR KOODANKULAM PROTESTS

**The struggle did not gain the same national prominence as the hunger strike waged by Anna Hazare, against rampant corruption of India's top-politicians. Yet a landmark it surely was, - a landmark in the history of India's nuclear program. As reported in the Nuclear Monitor 732 (September 9) a group of activists started a hunger strike near Koodankulam, in the southern tip of Tamil Nadu state on August 17. The action was directed against plans of the Indian government to commission a 1000 MW Russian-built nuclear plant soon.**

**(734.6176) Peter Custers** - From the very start it was apparent that this was not a struggle waged by a small disgruntled minority. For the hunger strike was both preceded and accompanied by mass demonstrations in which literally thousands of fisher folk from surrounding villages took part. Moreover, whereas the Gandhian-style protests were temporarily suspended in late August, they were resumed after the Department of Energy (DAE) indicated it would ignore the protestors' demand. Then, in the second phase starting September 11, the movement peaked once more. This time, over a hundred people, including priests and nuns, went on an indefinite hunger strike in the village of Idinthakarai. Every day 10 thousand people or more would gather from the surrounding area to demonstrate their support. And every day support kept expanding, as students boycotted schools, merchants closed their shops, and gruel kitchens were set up in adjacent villages where fisher-folk refused to go out to catch fish. This time Tamil Nadu's politicians just had to respond. On September 19, Jayalalitha, Tamil Nadu's Chief Minister wrote an open letter to India's Prime Minister Manmohan Singh, insisting the protestors should be heard.

Jayalalitha's move capped an initial success for the protests, which arguably are the most widespread and sustained local protest ever to have occurred against nuclear energy in India. They closely follow on the open discontent which earlier this year was registered against nuclear construction plans in Jaitapur, along the coast of Maharashtra. Both Jaitapur and Koodankulam are crucial links in India's plans to expand its reliance on nuclear energy. But whereas the technology for the new nuclear plants in Jaitapur are to be supplied by the French company Areva, - the reactors being installed at the plants in Koodankulam are Russian in origin. They are known as the 'VVER-1000/392'-design. Though based on a design for light- water reactors that

has been in use for long, the design is a new variant. Indian scientists have for long questioned whether Russia's VVER-1000 technology is safe. Doubts have further been fuelled by last March's Fukushima disaster in Japan, and by the new assessments on nuclear safety made since then. In a report leaked to environmental organizations in June, an amalgam of Russian state agencies admitted that Russia's nuclear industry is extremely vulnerable to natural and man-made disasters. Some 31 security flaws were listed. The document amongst others questions the capacity of Russian reactors to continue functioning safely, if cooling systems fail. It also pinpoints the risks of hydrogen explosions. Sergei Kiriyenko, the chief of Russia's nuclear

Late September, 10 days after the protests against the construction of the nuclear plant at Koodankulam was withdrawn, the anti-nuclear activists have said to revive the protest if the ongoing work in the Koodankulam Nuclear Power Project (KKNPP), was not suspended. The activists would embark on a mass fast from October 9, if the Central government failed to suspend the ongoing commissioning work in the nuclear plant by October 7. Times of India, 3 October 2011

coordinating body Rosatom, reacted saying the deficiencies can be overcome if only enough money is forthcoming (!). But Indian critics don't feel re-assured. Fisherfolk in the south of Tamil Nadu are also concerned that the dependence of the light-water reactors on sea water for cooling, and the flushing of effluents into the sea, will seriously disrupt the ecology along their coast.

Furthermore, Koodankulam protesters have pointed their finger at experiences gathered at Kalpakkam, the nuclear complex located close to Tamil Nadu's capital Chennai, along the state's eastern coast. In fact, here the wider significance of their movement becomes quickly evident. For the Kalpakkam

complex does not just harbor a nuclear power plant, but also a reprocessing facility. The nuclear fuel rods from the reactors at Koodankulam, once depreciated, will most likely be reprocessed at Kalpakkam. Yet Kalpakkam has already proven to be a dangerous hotspot. Here, in January 2003, a valve connecting a high-level radioactive liquid waste tank and a low level waste tank leaked, leading to radiation exposure for at least six employees, an unknown number of deaths, and temporary closure of Kalpakkam's main plant. The Kalpakkam nuclear complex also holds the dubious distinction of having been flooded when the devastating tsunami of 2004 struck.

Kalpakkam hence is an additional reason for worries. Not least because of the fact that the nuclear complex harbors a test reactor constructed towards enabling India build a plutonium economy. Indian peace activists have expressed suspicions that the plutonium separated at Indian civilian reprocessing facilities will be diverted and used to increase the country's stock of atomic weapons. These suspicions have not been allayed by recent developments. Since the beginning of this year, India boasts three reprocessing plants.

Further, the US government has in principle granted the Indian government permission to domestically reprocess fuel elements from reactors to be supplied under the 2008 US-India deal. Hence, diversion of plutonium towards India's weapons' program is quite well possible. Again, the use of plutonium separated at Kalpakkam for civilian purposes is no less questionable.

In short, the significance of the struggle waged by villagers in the south of Tamil Nadu stretches well beyond the Koodankulam nuclear project itself. Resistance was called off after the Union Government in Delhi sent a Minister of State, Narayanasamy, to Tamil Nadu, to talk to the Koodankulam protestors. Still, it would be wrong to believe that

the demand of the protestors – that no nuclear production in Koodankulam be started – will easily be accepted. For the stakes are very large, since India's nuclear lobby has set its mind on turning India into a plutonium power. Yet

because the Koodankulam project is closely intertwined with plans for expansion of the Kalpakkam complex, the struggle is bound to reverberate throughout the state of Tamil Nadu and beyond.

**Source:** Dr. Peter Custers (theoretician on nuclear production/ author of 'Questioning Globalized Militarism' (Tulika/Merlin, 2007), 30 September 2011

# AUSTRALIAN NUCLEAR FREE ALLIANCE 2011 MEETING

**The 2011 meeting of the Australian Nuclear Free Alliance was held on the weekend September 9-11 on the land of the Undoolya people in Alice Springs. The meeting coincided with events worldwide marking six months since the Fukushima nuclear disaster began in Japan. The meeting was also at the same time as the 10 week Walk Away From Uranium Mining in Western Australia.**

**(734.6177) Australian Nuclear Free Alliance** – Formed in 1997, the Australian Nuclear Free Alliance (formerly the Alliance Against Uranium) brings together Aboriginal people and relevant NGO's concerned about existing or proposed nuclear developments in Australia, particularly on Aboriginal homelands. The Alliance provides a forum for sharing of knowledge, skills and experience. It is an opportunity to come together and find strength through our shared aims to protect country and culture from nuclear developments. The Alliance helped to build the successful campaign to stop the Jabiluka uranium mine in the Northern Territory, and more recently, a proposed national nuclear waste dump in South Australia. Currently, Aboriginal communities face a wave of uranium exploration, several proposed new uranium mines, and a proposed national nuclear waste dump.

The meeting opened with a statement from Mirarr Senior Traditional Owner Yvonne Margurula who has expressed great sadness that uranium mined from her country in Kakadu National Park is fuelling the radiation problems at Fukushima. A message of solidarity was also sent from Djok Senior Traditional Owner Jeffery Lee, who is fighting to see his country at Koongarra incorporated into Kakadu National Park to protect it forever from uranium mining.

Some of the statements:

## **Exploration/Land Tenure**

It is important to expose the fact that Aboriginal people have very limited rights to say no to uranium mining: Land Rights give you some rights; Native Title gives you no rights.

Following a legal briefing the meeting agreed to:

- work with groups that campaign and advocate on this issue and inform Land Councils and representative bodies of

this concern

- challenge and push Land Councils and representative bodies to represent their constituents and ensure the counter-industry view is provided

- remind Land Councils and representative bodies that they are legally required to represent Traditional Owners and not mining companies and they need to start doing this or face legal action.

## **Health**

Despite nuclear industry assurances, we know that there is no safe dose of radiation. Many people at ANFA have personal or family experiences of these health effects including from the atomic tests. There has never been compensation for atomic testing, which impacted Aboriginal people so greatly. The industry claims that low levels of exposure to radiation are safe, that we need a nuclear industry to treat people with cancer, or that previous nuclear accidents like the recent Fukushima explosion are not too bad, but these claims are all false. The meeting affirmed its commitment to challenging the false claims of the nuclear industry and to building and strengthening alliance with Aboriginal and mainstream health groups.

## **Fukushima**

The meeting heard a first hand report on the Fukushima Daiichi nuclear disaster and the spread of radioactive contamination in Japan. Supported by anti-nuclear groups, people in Japan are fighting the lax radiation protection standards set by the government. The ongoing Fukushima disaster makes it imperative that Australia acknowledges the costs and consequences of exporting uranium. This is particularly important given that uranium from Ranger and Olympic Dam is sold to Japanese utilities.

## **Radioactive Waste**

The meeting heard from Muckaty Traditional Owners and representatives from other Northern Territories (NT) communities targeted for a national radioactive waste dump. The current plan offers Traditional Owners at Muckaty compensation to host the dump in the form of roads, housing and education scholarships. These are basic human rights and essential services and should be provided by government anyway – citizenship entitlements should not be dependent on communities accepting a radioactive waste dump. The meeting resolved to support any Traditional Owners facing this toxic bargain, urged people to resist waste transport through their land and called for responsible radioactive waste management by leaving it close to the site of production, scientific expertise and scrutiny.

## **Trade Unions**

The meeting shared stories of working with trade unions. Unions have a long and successful history of campaigning on behalf of their members and of supporting communities including the campaign against the Lucas Heights nuclear reactor. The meeting heard that there are many simple ways to work with unions to make campaigns stronger. Union liaison and cooperation on the NT waste dump campaign is set to grow in the coming period.

## **Moratorium**

The meeting called for a moratorium on all uranium mining and dumping of nuclear waste in Australia, pending a public inquiry into the impacts of uranium exports overseas and implications of Australian uranium used in Japan by TEPCO at the Fukushima reactor.

**Source and contact:** Australian Nuclear Free Alliance  
Web: [www.anfa.org.au](http://www.anfa.org.au)

## IN BRIEF

**Oppose Nigeria's nuclear plans.** On September 15, President Goodluck Jonathan formally inaugurated Nigeria's Atomic Energy Commission and urged its members headed by Erepamo Osaisai to quickly evolve implementable plans and timelines for the delivery of atomic energy for peaceful purposes in the country. We recall that the Nigeria Atomic Energy Commission was established in 1976 to investigate the development of nuclear energy but little progress was made. It was reactivated in 2006 and President Jonathan appointed a new team this year.

Nigeria has the world's seventh-largest natural gas reserves, yet the nation is blighted by persistent electricity outages which force businesses and individuals who can afford them to rely on generators. Much of this vast gas reserves sit untouched under the ground or are flared into the sky. Despite being Africa's biggest crude oil exporter, decades of corruption and mismanagement mean Nigeria has never built the infrastructure to farm its huge oil and gas resources for much-needed domestic use.

Deficits in our existing institutions remain a defining albatross on the path to meaningful development. Cut to the bone, this scenario suggests that Nigeria currently lacks the indigenous capacity, supporting infrastructure, discipline and security wherewithal to build and manage an atomic power plant. It simply is another way of courting disaster - one we cannot manage.

Let us explore and exploit other safer, rational options. These include solar, gas, hydro, wind and coal options. Nigeria has these resources in stupendous quantities. A presidential directive requesting timelines for the generation of electricity through these options is far better than the timelines he recently demanded from the newly-inaugurated Atomic Energy Commission. Our scientist-president should think again.

**Editorial Leadership newspaper (Nigeria), AllAfrica.com, 3 October, 2011**

**Belene construction agreement extended.** Russia's AtomStroyExport (ASE) and Bulgaria's National Electricity Company (NEK) have signed a supplement to their agreement on the construction of the Belene nuclear power plant, extending it until the end of March 2012. Under an earlier extension, the agreement - originally signed in 2006 - was extended until 30 September. According to ASE, the extension 'confirms the parties' interest in the continuation of the project.' NEK said that during the next six months, the two companies will continue their activities related to completing a market study, clarifying the financial model and studying the project finance proposal submitted by financial advisor HSBC. It added that the extra time will allow Bulgaria to conduct an analysis of the results and recommendations of stress tests being performed at nuclear power plants across the European Union. ASE said that work on the foundation pit for the first reactor at Belene has now been completed. It said that a concrete plant at the site has already been put into operation and that water treatment plants have been built.

**World Nuclear News, 03 October 2011**

**UAE: Construction first unit will start mid-2012.** According to the Emirates Nuclear Energy Corporation (Enec), a government establishment created last year to oversee the ambitious nuclear construction project, said it would launch construction work for the infrastructure of four planned nuclear power plants in Barrakah in the western region in mid 2012 to pave the way for their operation in 2017. The UAE will award a contract in early 2012 for the supply of nuclear fuel to run its four nuclear reactors which the country is planning to construct as part of an ambitious nuclear power program.

Under the agreement to build 4 nuclear reactors, inked on December 27, the state-owned Korea Electric Power Corp (Kepco) and its partners in the consortium will design, build and run the reactors that will produce 5,600 MW of electricity. The contract to build the reactors is worth about US\$20 billion (15bn euro).

The UAE has said the project is intended to diversify its energy supply sources and meet its rapid growing electricity demand, which is projected to surge to around 40,000 MW in 2020 from nearly 15,000 MW in 2009. The nuclear project will provide nearly 25 per cent of the UAE's total energy needs of nearly 40,000 MW in 2020. Around seven per cent will be generated through renewable energy and the rest through conventional means.

**Emirates 24/7, 25 September 2011**

**Pyhäjoki location for Finland's sixth reactor.** Fennovoima has chosen Pyhäjoki as the site for its nuclear power plant. Pyhäjoki municipality is located in North Ostrobothnia and the nuclear power plant will be constructed on Hanhikivi peninsula on the coast of Bothnian Bay. For the basis of the site selection, assessments were carried out during some four years. In the beginning of Fennovoima project in summer 2007, the company had almost 40 alternative sites. The number of alternatives was decreased gradually based on assessments and in December 2009 Fennovoima ended up having two alternatives, both located in Northern Finland: Pyhäjoki and Simo municipalities. In the final site decision, safety, technical feasibility, environmental matters, construction costs and schedule were the main factors examined as well as the ability of the site region to support a project that will bring thousands of people to work and use services there.

Fennovoima continues now the planning work together with the municipality, authorities and the plant suppliers and prepares applying for various licences and permits. For example, more detailed bedrock, environmental and water studies will be carried out on the Hanhikivi peninsula. Simultaneously, other preparations for the future phases of the project are carried out together with Pyhäjoki and Raahe region. First preparatory works on Hanhikivi will be started in the end of 2012 at earliest. The construction schedule will be elaborated after the plant supplier has been selected. Fennovoima sent bid invitations for Areva and Toshiba in July 2011 and the plant supplier will be chosen in 2012-2013.

Fennovoima has two owners: Voimaosakeyhtiö SF and E.ON Kärnkraft Finland. Voimaosakeyhtiö SF owns 66 percent of Fennovoima and nuclear expert E.ON Kärnkraft Finland 34 percent. Altogether Fennovoima has 70 shareholders. Voimaosakeyhtiö SF is owned by 69 Finnish regional and local energy companies as well as companies in trade and industry.

Finland has 4 reactors in operation (two at Lovisa and two at Olkiluoto). The fifth (Olkiluoto-3) is under construction; over budget and over time.

**Press release Fennovoima, 5 October 2011 / IAEA Reactor database.**

**Health effects of radiation suppressed by tobacco companies.** Tobacco companies knew that cigarette smoke contained radioactive alpha particles for more than four decades and developed "deep and intimate" knowledge of these particles' cancer-causing potential; however, they deliberately kept their findings from the public. The study, published online in *Nicotine & Tobacco Research*, the peer-reviewed journal of the Society for Research on Nicotine and Tobacco, adds to a growing body of research detailing the industry's knowledge of cigarette smoke radioactivity and its efforts to suppress that information. The UCLA researchers analysed dozens of previously unexamined internal tobacco industry documents, made available in 1998 as the result of a legal settlement.

"The documents show that the industry was well aware of the presence of a radioactive substance in tobacco as early as 1959; furthermore, the industry was not only cognizant of the potential 'cancerous growth' in the lungs of regular smokers but also did quantitative radiobiological calculations to estimate the long-term lung radiation absorption dose of ionizing alpha particles emitted from cigarette smoke." The study's first author, Hrayr S. Karagueuzian, a professor of cardiology who conducts research at UCLA's Cardiovascular Research Laboratory, said: "We show here that the industry used misleading statements to obfuscate the hazard of ionizing alpha particles to the lungs of smokers and, more importantly, banned any and all publication on tobacco smoke radioactivity."

The radioactive substance, which the UCLA study shows was first brought to the attention of the tobacco industry in 1959, was identified in 1964 as the isotope polonium-210, which emits carcinogenic alpha radiation. Polonium-210 can be found in all commercially available domestic and foreign cigarette brands, Karagueuzian said, and is absorbed by tobacco leaves through naturally occurring radon gas in the atmosphere and through high-phosphate chemical fertilizers used by tobacco growers. The substance is eventually inhaled by smokers into the lungs.

**LA Examiner, 28 September 2011**

**Dounreay: Belgium waste to be returned.** Dounreay has announced the return of reprocessing wastes from the BR2 research reactor in Belgium. The BR2 reactor in Mol was a good customer for Dounreay over the years, receiving new enriched uranium fuel from the reprocessed spent fuel. It planned to send considerably more spent fuel to Dounreay but the reprocessing plant was closed by a leak and never reopened. Wastes have already been returned to France and Spain. One Dounreay reprocessing customer has requested the substitution of vitrified high-level wastes for the intermediate level wastes at Dounreay (a consultation on this was held in 2010). However, Belgium wants to take back the intermediate level waste, as required by the original contract with Dounreay. Dounreay also had contracts with Australia, Germany and for Italian-owned fuel from Denmark.

There are 153 tons of BR2 reprocessing wastes cemented into 500-liter drums and this will involve an estimated 21 shipments over four years, starting this autumn. The shipments will be from Scrabster and will probably involve the former roll-on/roll-off ferry, the Atlantic Osprey.

**N-Base Briefing 689, October 2011**

**IAEA Inspector exposed to radiation.** On October 5, the International Atomic Energy Agency (IAEA) reported that one of its nuclear inspectors had been exposed to radiation during a 4 October inspection of the Belgoprocess nuclear waste facility in Dessel, Belgium. The inspector, along with an inspector from Euratom and a Belgoprocess employee, apparently received a dose of radiation after a vial or flask of plutonium accidentally fell on the floor, according to releases from the company and the Belgian Federal Nuclear Control Agency (AFCN). Plutonium is dangerous if ingested, but the amount received by the inspectors was less than the legal limit, the AFCN says. No radiation has been released beyond the site.

**Nature.com, 5 October 2011**

**Atucha II, Argentina's third nuclear power plant.** President Cristina Kirchner inaugurated Atucha II, Argentina's third nuclear power plant on September 28. The German-designed reactor is expected to be fully operational in six to eight months after engineers run a series of tests. Construction of the plant began in July 1981, but work soon stopped and did not resume until 2006, when then-president Nestor Kirchner (2003-2007), the current leader's late husband, ordered the plant to be completed.

Argentina's other nuclear plants are Atucha I (335 megawatts) and the Embalse plant (600 megawatts). Once Atucha II is online 10 percent of Argentina's electricity will be produced by nuclear power. Plans are on the drawing board for Atucha III plant as well as an overhaul of the Embalse plant to add 30 years to its operational life, said Planning Minister Julio de Vido. Embalse was connected to the grid in 1983. Atucha II is located on the banks of the Parana river in the town of Zarate, some 100 kilometers north of the capital Buenos Aires. It was built at a cost of more than 2.4 billion dollars.

**AFP, 29 September 2011**

**Another USEC deadline for DOE loan guarantee.** On September 30, USEC, announced morning it will reduce its spending on the American Centrifuge Project (ACP) in Piketon by 30 percent over the next month. It will also send out notices to its 450 employees Ohio, Tennessee and Maryland that layoffs are possible if the company doesn't receive a loan guarantee before October 31. USEC has invested approximately US\$2 billion in the ACP but needs significant additional financing to complete the plant. In 2008, USEC applied for a US\$2 billion loan guarantee from Department of Energy for construction of the ACP. USEC significantly demobilized construction and machine manufacturing activities in 2009 due to delays in obtaining financing through DOE's Loan Guarantee Program. Since then, many 'final' deadlines were set by USEC (three in the past half year: June 30, Sept. 30 and now Oct. 31) to obtain the loan guarantee.

In a call with investors, USEC President and CEO John Welch said the company must see a loan guarantee during the next month or risk the end of the project. USEC expects October "to be a month of intense interaction with the DOE," in hopes of securing the loan guarantee.

The company had faced a September 30 deadline with two investors — Toshiba America Nuclear Energy Corporation and Babcock & Wilcox Investment Company — to receive a US\$2 billion loan guarantee. They agreed September 30 to extend that deadline to October 31. If USEC receives the loan guarantee, the companies have promised US\$50 million to support the project.

In a statement, DOE Spokesman Damien LaVera said, "The Department of Energy has been working closely with USEC as the

company has continued to test and validate its innovative technology, obtain private financing and meet other benchmarks that would be required for a successful loan guarantee application. We are strongly committed to developing effective, domestic nuclear enrichment capabilities and are looking at all options on a path forward.”

The ACP will utilize USEC's AC100 centrifuge machine, which has been developed, engineered and assembled in the US. The AC100 design is a disciplined evolution of classified U.S. centrifuge technology originally developed by DOE. DOE invested already US\$3 billion over 10 years to develop the centrifuge technology.

**Dayton Daily News, 1 October 2011 / ACP website: [www.americancentrifuge.com](http://www.americancentrifuge.com)**

#### **Taiwan: nuclear accident compensation increased.**

On September 30, the Taiwanese Cabinet approved an amendment to the Nuclear Damage Compensation Act that imposes heavier compensation liability on nuclear power operators in the event of natural disasters such as an earthquake or a typhoon. Under the amendment, the maximum amount of compensation for losses caused by a nuclear accident was increased from NT\$4.2 billion (US\$138 million or 103 million euro) to NT\$15 billion (US\$5 mln or 3.7 mln euro) and the allowed period for compensation claims was extended from 10 to 30 years.

The amendment came after the Atomic Energy Council reviewed the act, which had not been amended since it was first enacted in 1997, in the wake of the nuclear accident at Japan's Fukushima Daiichi Nuclear Power Plant. Democratic Progressive Party Legislator Tien Chiu-chin said the amendment fell short of her expectations as she had suggested further lifting the ceiling on compensation liability.

**Tapei Times, 30 September 2011**

**36 year old construction permit extended.** The US Nuclear Regulatory Commission (NRC) has extended the construction permit for the unfinished Bellefonte unit 1 in Alabama. The construction permit was originally granted in 1974. It was suspended in 1988, when Tennessee Valley Authority (TVA) decided to halt work on the project, but the NRC agreed in 2009 to reinstate the permit. With the reinstated permit due to expire on 1 October 2011, TVA lodged an application for an extension in October 2010. The NRC has now agreed to that extension, meaning that the construction permit will remain valid until 1 October 2020. (see more in Nuclear Monitor 732, 9 September 2011)

**World Nuclear News, 03 October 2011**

**Swiss parliament, no new reactors.** On September 28, the Council of States has followed the government's lead by voting not to replace the country's five nuclear power stations and boost renewable energy resources. Switzerland currently has five nuclear power plants that will gradually come off the power grid at the end of their 50 year (!) lifespan: the first one in 2019 and the last one in 2034. The Senate followed the House of Representatives in calling on the government to ban new nuclear plants but keep parliament "informed about innovations in the field."

The clear result of the September 28 vote - with a three to one majority - came after a parliamentary committee prepared a compromise formula, promoted by the centre-right Christian Democratic Party, which will give parliament another chance to have a say at a later stage. "Even if we were to ban nuclear power plants now our successors in parliament could still one day decide on building on new reactors," a Christian Democratic Senator, Filippo Lombardi from Ticino, said on behalf of the committee.

Discussions on nuclear power are due to continue in the new parliament which is due to convene for the first time in December following general elections next month.

The Social Democrats, the Greens as well as the Christian Democratic Party hailed the Senate decision as an important step towards a new energy policy amid calls for further measures to switch to more renewable energy sources.

The government called for a withdrawal from nuclear energy in May – a proposal backed by the House of Representatives a month later.

**Swissinfo.ch 28 September 2011**

**Hinkley Blockaded: No New Nuclear Power!** More than 300 people (even up to 400, according to a BBC-report), successfully sealed off the main entrance to Hinkley Point nuclear power station in Somerset for nine hours on 3 October in opposition to EDF Energy's plans to build two new mega-reactors on the site. EDF said of 500 employees at the plant, only essential staff had been called in and had arrived by bus at dawn.

Blockaders were joined by a theatrical troupe who enacted a nuclear disaster scenario, while Seize the Day provided a musical backdrop to the event. 206 helium balloons were released to represent the number of days since the Fukushima meltdown. The balloons will be tracked, to show which areas of the West Country would be worst affected by a nuclear disaster at Hinkley.

**Indymedia.uk; [www.stopnewnuclear.org.uk](http://www.stopnewnuclear.org.uk); BBC, 3 October 2011**

## 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](http://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](http://www.antenna.nl/wise).

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