

# THE NUCLEAR 'SAFEGUARDS' SYSTEM: AN ILLUSION OF PROTECTION

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and Friends of the Earth, Australia <http://www.foe.org.au/anti-nuclear>

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*"Again and again it has been demonstrated here and overseas that when problems over safeguards prove difficult, commercial considerations will come first."*

*-- Mike Rann, 1982, 'Uranium: Play It Safe'*

*A survey of 1000 Australians found that 56% believe that IAEA inspections are not effective while barely half as many (29%) believe they are effective (IAEA, 2005).*

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## ACRONYMS

AONM – Australian Obligated Nuclear Materials  
ASNO – Australian Safeguards and Non-proliferation Office  
CTBT Comprehensive Test Ban Treaty  
IAEA – International Atomic Energy Agency  
MUF – Material Unaccounted For  
NPT – Nuclear Non-Proliferation Treaty  
WMD – Weapons of Mass Destruction

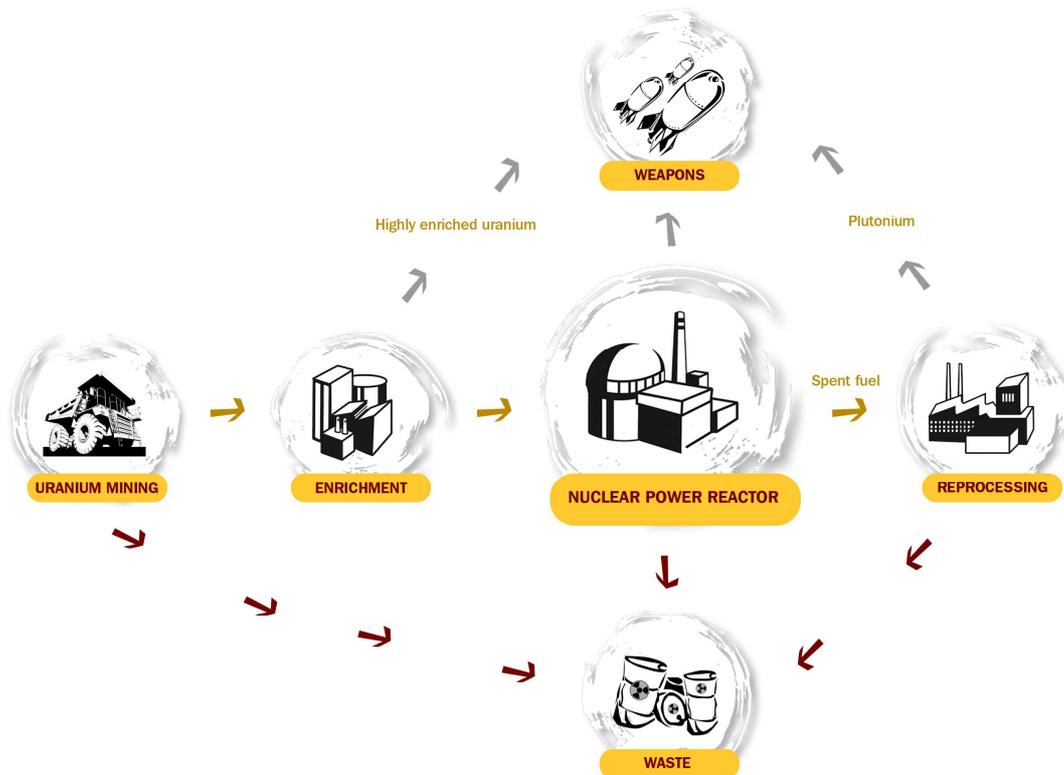
# 1. INTRODUCTION

Uranium is the only energy source with a direct and repeatedly-demonstrated connection to the proliferation of Weapons of Mass Destruction. Of the 60 countries that have built nuclear power or research reactors, over 20 are known to have used their 'peaceful' nuclear facilities for covert weapons research and/or production. Of the 10 countries to have built nuclear weapons, six did so with technical support and/or political cover from their peaceful programs (France, India, Pakistan, Israel, South Africa, North Korea)

The WMD potential of nuclear power programs is all the more important given that numerous countries are considering introducing nuclear power. Former US Vice President Al Gore has said that "if we ever got to the point where we wanted to use nuclear reactors to back out a lot of coal ... then we'd have to put them in so many places we'd run that proliferation risk right off the reasonability scale."

Likewise, the Bulletin of the Atomic Scientists (2010) editorialised: "As we see it, however, the world is not now safe for a rapid global expansion of nuclear energy. Such an expansion carries with it a high risk of misusing uranium enrichment plants and separated plutonium to create bombs."

The international nuclear safeguards system does not have the necessary authority or resources to adequately safeguard existing facilities and nuclear materials inventories and those problems will become all the more acute if a nuclear power 'renaissance' takes place.



## 2. THE LIMITATIONS OF SAFEGUARDS

*"It is clear that no international safeguards system can physically prevent diversion or the setting up of an undeclared or clandestine nuclear programme."*

-- IAEA, 1993, *Against the Spread of Nuclear Weapons: IAEA Safeguards in the 1990s*.

The uranium industry and its promoters routinely claim that safeguards "ensure" that Australian Obligated Nuclear Materials (AONM – primarily uranium and its by-products such as plutonium) will not be used in nuclear weapons.

However Australia has no authority or capacity to safeguard AONM – we are entirely reliant on the International Atomic Energy Agency (IAEA). The cornerstone of IAEA safeguards involves inspections of nuclear plants and materials stockpiles. These inspections are at best periodic and partial and at worst (e.g. Russia) non-existent.

The former Director-General of the IAEA, Dr Mohamed El Baradei, is frank about the limitations of safeguards. He has noted that the IAEA's basic rights of inspection are "fairly limited", that the safeguards system suffers from "vulnerabilities" and "clearly needs reinforcement", that efforts to tighten the system have been "half hearted" and that the IAEA safeguards system runs on a "shoestring budget ... comparable to a local police department."

In addition to resource constraints (discussed below), issues relating to national sovereignty and commercial confidentiality adversely impact on safeguards. In a 2004 paper, Harvard University academic Matthew Bunn points to the constraints enshrined in the IAEA's basic safeguards template, 'INFCIRC 153': "INFCIRC 153 is replete with provisions designed to ensure that safeguards would not be too intrusive. They are to be implemented in a manner designed "to avoid hampering" technological development, "to avoid undue interference" in civilian nuclear energy, and "to reduce to a minimum the possible inconvenience and disturbance to the State". The IAEA is not to ask for more from the state than "the minimum amount of information and data consistent with carrying out its responsibilities", and specific upper bounds are placed on the number of person-days of inspection permitted at various types of nuclear facilities."

The IAEA has no mandate to prevent the use of civil nuclear facilities and materials for weapons production, and no capacity to prevent weapons production. At best, the IAEA's safeguards system detects diversion and then the matter is handballed to the UN Security Council and to the realms of international diplomacy more generally. Numerous examples illustrate how difficult and protracted the resolution (or attempted resolution) of such issues can be, e.g. North Korea, Iran, Iraq in the 1970s and again in the early 1990s.

There are precedents for the complete breakdown of nuclear safeguards in the context of political and military conflict - examples include Iraq, Yugoslavia and several African countries. In the event of safeguards breaking down, Australia could suspend further uranium shipments of uranium., However, as Kelvin Thomson, former chair of the Australian Parliament's Joint Standing Committee on Treaties, noted at a hearing into the Howard/Putin uranium agreement, that would be "locking the stable door after the horse has bolted".

Meanwhile, there is no resolution in sight to some of the most fundamental problems with safeguards such as countries invoking their right to pull out of the Nuclear Non-Proliferation Treaty (NPT) and developing a weapons capability as North Korea has done. More generally, responses to suspected non-compliance with safeguards agreements have been highly variable, ranging from inaction to economic sanctions to UN Security Council-mandated decommissioning programmes. Some states prefer to take matters into their own hands: Israel bombed and destroyed a nuclear reactor in Iraq in

1981, the US bombed and destroyed a reactor in Iraq in 1991 and Israel bombed and destroyed a suspected reactor site in Syria in 2007.

### **3. THE SCOPE OF SAFEGUARDS ACROSS THE NUCLEAR FUEL CYCLE**

Currently, IAEA safeguards only begin at the stage of uranium enrichment. Application of IAEA safeguards should be extended to fully apply to mined uranium ores, to refined uranium oxides, to uranium hexafluoride gas, and to uranium conversion facilities, as well as enrichment and subsequent stages of the nuclear fuel cycle.

Federal Parliament's Joint Standing Committee on Treaties (2008) recommended that "the Australian Government lobbies the IAEA and the five declared nuclear weapons states under the NPT to make the safeguarding of all conversion facilities mandatory." However the Australian Government (2009) rejected the recommendation.

### **4. MATERIAL UNACCOUNTED FOR**

Nuclear accounting discrepancies are commonplace and inevitable due to the difficulty of precisely measuring nuclear materials. The accounting discrepancies are known as Material Unaccounted For (MUF). As the Australian Safeguards and Non-proliferation Office (ASNO) notes: "Every year inventory reports involving bulk material will include a component of MUF."

This problem of imprecise measurement provides an obvious loophole for diversion of nuclear materials for weapons production. In a large plant, even a tiny percentage of the annual through-put of nuclear material will suffice to build one or more weapons with virtually no chance of detection by IAEA inspectors. For example, when fully operational the Rokkasho reprocessing plant in Japan will have the capacity to separate about eight tonnes of plutonium from spent nuclear fuel each year. Diverting just 1% of that amount of plutonium would be very difficult for the IAEA to detect against the background of routine accounting discrepancies, yet it would be enough to build at least one nuclear weapon per month.

Australia's uranium has resulted in the production of 120 tonnes of plutonium – sufficient for 12,000 nuclear weapons. If just 0.1% of this plutonium is written off as MUF, that is sufficient for 12 plutonium bombs similar to that which destroyed Nagasaki.

MUF discrepancies occur in either direction – the recorded quantity may be higher or lower than the expected amount. Unfortunately, even if the recorded quantity is greater than the expected quantity, or exactly the same as the expected quantity, the possibility of diversion cannot be discounted. A key problem here is the source of the information. To a large extent, Australia is reliant on customer countries for information on nuclear materials accounting, which raises the obvious problem that any state diverting AONM for WMD production is hardly likely to own up to the fact.

As ASNO (2008) notes, a particular accounting discrepancy is not proof of diversion of nuclear materials. The problem is that imprecise measurement provides an obvious loophole – one which is difficult or impossible to rectify.

There have been incidents of large-scale MUF in Australia's uranium customer countries such as the UK and Japan. An example is given in the 'Atoms in Japan' publication. In 2003 it was discovered that of the 6.9 tons of plutonium separated at the Tokai reprocessing facility in the period from 1977 to 2002, the measured amount of plutonium was 206 kg less than it should have been. Given that the IAEA defines a "significant quantity" of plutonium as 8 kg, this means that enough plutonium was unaccounted for to make about 26 bombs. After further investigations, the Japanese government

claimed that it could explain where some of the missing plutonium had gone and reduced the figure to 59 kg, but that is still enough for seven bombs. (Japan Atomic Industrial Forum, 2003.)

The Union of Concerned Scientists (2007) provides another example involving one of Australia's uranium customer countries: "In 2005, a large leak of dissolved spent fuel at the Thorp reprocessing plant in the United Kingdom went undetected for more than eight months. The leaked solution contained some 19 metric tons of uranium and 190 kilograms of plutonium. The fact that a shortfall in the amount of plutonium produced at the plant – enough for some 30 nuclear bombs – did not arouse concern for many months suggests that the theft of a significant amount could also go undetected."

ASNO claims that: "To date, reported MUF involving AONM has been explained to ASNO's satisfaction." ASNO further states that: "In many cases MUF can be attributed to unavoidable measurement differences, but where the size of the MUF is outside the expected range further investigation is undertaken." However, ASNO refuses to provide any information on the number of occasions that it has undertaken "further investigation", which countries were involved, what the "investigation" involved, or what reasons were proffered by the country in question. It would be difficult or impossible to determine to what extent ASNO's evaluations are based on independent verification by the IAEA, and conversely, to what extent ASNO is reliant on customer countries for the information (which raises the obvious dilemma that a country diverting AONM is hardly likely to acknowledge that diversion).

ASNO (2008) refuses to publicly release information about MUF involving AONM, even aggregate, non-country-specific information.

The Joint Standing Committee on Treaties (2009) recommended that: "Further consideration is given to the justification for secrecy of Material Unaccounted For." There is no legitimate justification for the secrecy surrounding MUF. ASNO (2008) has done no better than to cite commercial confidentiality. All MUF information, past, present and future, should be reported publicly and this should be done on a country-by-country and facility-by-facility basis. Some other countries (e.g. Japan) release MUF data.

ASNO appears to favour a semantic non-solution to the problem by doing away with the term Material Unaccounted For and replacing it with a term such as "inventory difference".

The Australian Uranium Association states: "The [AUA] has examined those [ASNO] reports, which have taken a different form over the years. However, the key conclusion of the Office has been consistent: 'All Australian Obligated Nuclear Material was satisfactorily accounted for'. ASNO's stewardship and reporting show that Australia's uranium has not been diverted from peaceful purposes. Moreover, there is no evidence to the contrary that would justify a conclusion different from the one that ASNO has reached consistently."

However, the Australian public has no information whatsoever on which to assess the effectiveness of AONM accounting and safeguards. ASNO is not a trustworthy organisation (see below). ASNO relies heavily on information from customer countries for information rather than independent verification by the IAEA. In short, there is no evidence to support the Australian Uranium Association's position.

## **5. THE SCALE OF THE SAFEGUARDS CHALLENGE IS EVER-INCREASING**

The scale of the safeguards challenge is ever-increasing. Of course, the scale of the safeguards challenge does not increase in direct proportion to the tonnage of nuclear materials or the number of nuclear facilities to be safeguarded, but it increases nonetheless.

The following table shows the increase in Australian-obligated nuclear materials (AONM) overseas. AONM primarily comprises uranium and products and by-products of uranium enrichment and reactor irradiation – depleted uranium, enriched uranium and plutonium.

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DATE (31 December each year)	2002	2003	2004	2005	2006	2007	2008	Average annual increase	Increase over 6 years
<b>Total AONM (tonnes)</b>	96,988	105,245	113,531	122,326	130,756	139,165	148,566	8,596	53%
<b>Total Australian-obligated plutonium (tonnes)</b>	70.0	78.6	86.4	95.4	103.7	114.3	120	8.33	71%
<b>Separated plutonium * (tonnes)</b>	0.6	0.6	0.4	0.4	0.7	1.3	1.4	0.13	233%
<b>Total plutonium sufficient for xyz weapons. **</b>	7,000	7,860	8,640	9,540	10,370	11,430	12,000	833	71%

All data from ASNO Annual Reports: <[www.asno.dfat.gov.au/annual\\_reports.html](http://www.asno.dfat.gov.au/annual_reports.html)>

\* Separated plutonium can be used directly in nuclear weapons. Plutonium in irradiated forms, e.g. in spent nuclear fuel, would first have to be separated by reprocessing for use in weapons.

\*\* Assuming 10 kgs of plutonium per nuclear weapon.

## 6. IAEA SAFEGUARDS ARE UNDER-RESOURCED

The IAEA lacks the resources to effectively carry out its safeguards role.

The IAEA relies on voluntary funding for 90% of its nuclear security program, 30% of its nuclear safety program, and 15% of its verification/safeguards program (IAEA, 2008).

In 2006, then IAEA Director-General Dr Mohamed El Baradei told an International Safeguards symposium in Vienna: "Financial resources are another key issue. Our budget is only \$130 million; that's the budget with which we're supposed to verify the nuclear activities of the entire world. Reportedly some \$1 billion was spent by the Iraq Survey Group after the war in that country. Our budget, as I have said before, is comparable with the budget of the police department in Vienna. So we don't have the required resources in many ways to be independent, to buy our own satellite monitoring imagery, or crucial instrumentation for our inspections. We still do not have our laboratories here in Vienna equipped for state-of-the-art analysis of environmental samples."

Dr El Baradei said in 2006: "Everybody says nuclear terrorism is the No. 1 national and international security issue. But until they translate this grandstanding statement into dollars and cents, we will not be able to deal effectively with the danger we are facing. This is simple. Our safeguards budget is \$120 million a year. With that, we're supposed to verify what's happening on the entire globe. I'm sure that even our little Vienna police department has a larger budget than we have. One of the most daunting challenges is to try to discover undeclared activities: the small enrichment facility tucked somewhere in a huge country, or some weaponization activities that are taking place somewhere underground. To do that you need a lot." (Dickey, 2006.)

Dr. El Baradei said in his 11 June 2007 speech to the IAEA Board of Governors: "I should also underline that, even with the proposed budget, the Agency's financial situation remains vulnerable, and we still fall short of what is needed to carry out our mission in an effective manner. Significant additional resources are still sorely needed. Our laboratories are full of equipment that is outdated, although vital to carry out essential verification, safety and development functions. Our nuclear security programme remains 90% funded through unpredictable and heavily conditioned voluntary contributions. Our safety department continues to rely heavily on extra-budgetary staff."

Dr El Baradei told the IAEA Board of Governors in 2009: "I will be cheating world public opinion to be creating the impression that we are doing what we're supposed to do, when we know we don't have the money to do it."

Dr El Baradei and a 2008 Commission of Eminent Persons both recommended a doubling of the budget by 2020.

The underfunding of the IAEA's safeguards functions could easily be resolved, but it persists year after year, decade after decade.

Australia contributes just 1.77% of the IAEA's regular budget (Joint Standing Committee on Treaties, 2009) in addition to some voluntary contributions to support aspects of the IAEA's work.

## **7. AUSTRALIA'S BILATERAL URANIUM AGREEMENTS**

In addition to IAEA safeguards, countries purchasing Australian uranium must sign a bilateral agreement. However there are no Australian inspections of nuclear materials stockpiles or facilities using AONM – Australia is entirely reliant on the partial and underfunded inspection system of the IAEA.

The most important provisions in bilateral agreements are for prior Australian consent before Australian nuclear material is transferred to a third party, enriched beyond 20% uranium-235, or reprocessing. However no Australian government has ever refused permission to separate plutonium from spent fuel via reprocessing (and there has never been a request to enrich beyond 20% U-235). Even when reprocessing leads to the stockpiling of plutonium (which can be used directly in nuclear weapons), ongoing or 'programmatic' permission has been granted by Australian governments. Hence there are stockpiles of Australian-obligated separated plutonium in Japan and in some European countries.

Globally, the amount of separated 'civil' plutonium continues to steadily increase and now amounts to about 270 tonnes, enough for about 27,000 nuclear weapons. The resolution to this problem could hardly be simpler – suspending or reducing the rate of reprocessing to draw down civil stockpiles of separated plutonium. But commercial imperatives come first. Australia could take a lead role by tying uranium export approvals to the draw-down of separated plutonium stockpiles – but commercial imperatives come first.

## **8. NOT ALL FACILITIES PROCESSING AONM ARE SUBJECT TO IAEA INSPECTIONS**

Australia allows the processing of AONM in facilities which are not covered by IAEA safeguards at all. While AONM is meant to be subject to IAEA safeguards from the enrichment stage onwards, ASNO is willing to make exceptions.

For example ASNO has recommended that the Australian government agree to the processing of Australian uranium in unsafeguarded enrichment plants in Russia. ASNO (2008b) states: "Russia does not propose to place these enrichment facilities on its Eligible Facilities List because the facilities were never designed for the application of safeguards and could not be readily adapted for safeguards purposes."

The enrichment facilities would not require any adaptation whatsoever. Russia simply needs to permit the application of safeguards and the IAEA could then adopt safeguards measures such as inspections, the use of video monitoring etc.

## **9. AUSTRALIA EXPORTS URANIUM TO COUNTRIES WITH UNACCEPTABLE PROLIFERATION / DISARMAMENT RECORDS**

According to ASNO's former Director-General John Carlson (1998), "One of the features of Australian policy ... is very careful selection of our treaty partners. We have concluded bilateral arrangements only with countries whose credentials are impeccable in this area."

However Australia exports uranium to:

- \* all five of the 'declared' nuclear weapons states (USA, UK, China, France), none of which has fulfilled its disarmament obligations under the NPT;
- \* countries with a history of weapons-related research based on their civil nuclear programs (such as South Korea and Taiwan)
- \* countries which have not ratified the Comprehensive Test Ban Treaty (China, USA)
- \* countries blocking progress on the proposed Fissile Material Cut-Off Treaty (e.g. USA).

Australia also exports uranium to one country which is not a signatory to the NPT – Taiwan. However it can reasonably be assumed that Taiwan would be a signatory to the NPT if not for its complicated status *vis a vis* China.

Coalition/Labor support and approval for uranium sales to China in 2006 set a new precedent: uranium sales to undemocratic, secretive states with appalling human rights records.

Both the Labor government and the Coalition Opposition agreed to permit uranium sales to Russia despite the fact that not a single facility in Russia has been subjected to an IAEA safeguards inspections since 2001. The uranium supply agreement does not require any inspections to take place in future. The Joint Standing Committee on Treaties argued against ratification of the Howard/Putin uranium agreement until "IAEA inspections are implemented for Russian facilities that will handle Australian Obligated Nuclear Materials". A reasonable recommendation – but it was rejected by the Labor government. There are further concerns: Russia is undemocratic and secretive and human rights abuses are widespread; incidents of theft/smuggling from Russian nuclear sites are common; and Russia has not fulfilled its disarmament obligations under the NPT.

The Government ought to set a timeframe for nuclear weapons states to meet their disarmament obligations and to make further uranium supply conditional on meeting those obligations. Those obligations have not been met 40 years after the NPT entered into force. A 2008 survey of 1200 Australians found 2:1 opposition to uranium exports to nuclear weapons states (ACF, 2008).

Australia should use its influence to bring the Comprehensive Nuclear Test Ban Treaty (CTBT) in to effect – including withdrawal of uranium sales from countries such as China and the US that have failed to ratify the CTBT. Australia should also require verifiable closure of all nuclear test sites.

South Korea is another major customer of Australian uranium with less than impeccable credentials. In 2004, South Korea disclosed information about a range of activities which violated its NPT

commitments – uranium enrichment from 1979-81, the separation of small quantities of plutonium in 1982, uranium enrichment experiments in 2000, and the production of depleted uranium munitions from 1983-1987. Australia has supplied South Korea with uranium since 1986. It is not known – and may never be known – whether Australian-obligated nuclear materials were used in any of the illicit research.

## 10. REPROCESSING AND PLUTONIUM SEPARATION

*"Reprocessing provides the strongest link between commercial nuclear power and proliferation."*  
-- US Congress, Office of Technology Assessment, *Nuclear proliferation and safeguards*. June 1977: p.12.

*"A ban on reprocessing – that really goes to an article of faith by antinuclear campaigners who consider that reprocessing is a substantial proliferation risk."*  
-- John Carlson, ASNO, JSCT hearing, 1 September 2008

Japan, a major customer of Australian uranium, has developed a nuclear 'threshold' or 'breakout' capability – it could produce nuclear weapons within months of a decision to do so, relying heavily on facilities, materials and expertise from its civil nuclear program. An obvious source of fissile material for a weapons program in Japan would be its stockpile of plutonium – including Australian-obligated plutonium. In April 2002, the then leader of Japan's Liberal Party, Ichiro Ozawa, said Japan should consider building nuclear weapons to counter China and suggested a source of fissile material: "It would be so easy for us to produce nuclear warheads; we have plutonium at nuclear power plants in Japan, enough to make several thousand such warheads."

Japan's plutonium program increases regional tensions and proliferation risks. Diplomatic cables in 1993 and 1994 from US Ambassadors in Tokyo describe Japan's accumulation of plutonium as "massive" and questioned the rationale for the stockpiling of so much plutonium since it appeared to be economically unjustified. A March 1993 diplomatic cable from US Ambassador Armacost in Tokyo to Secretary of State Warren Christopher, obtained under the US Freedom of Information Act, posed these questions: "Can Japan expect that if it embarks on a massive plutonium recycling program that Korea and other nations would not press ahead with reprocessing programs? Would not the perception of Japan's being awash in plutonium and possessing leading edge rocket technology create anxiety in the region?"

Yet Australia continues to provide open-ended ('programmatic') approval for Japan to separate Australian-obligated plutonium. The Government could and should prohibit the stockpiling of Australian-obligated plutonium. At the very least, the Government should revert to the previous Australian policy of requiring approval for plutonium separation / reprocessing on a case-by-case basis.

It is frequently claimed that the "stringent" conditions placed on AONM encourage a strengthening of non-proliferation measures generally. However, by permitting the stockpiling of plutonium the Australian government is not 'raising the bar' but setting a poor example and encouraging other uranium exporters to adopt or persist with equally irresponsible policies. (The Australian government does not have the authority to prohibit stockpiling, but it does have the authority to permit transfers and reprocessing of AONM and could therefore put an end to the stockpiling of Australian-obligated plutonium.)

Reactor-grade plutonium can be used in weapons albeit the case that it is not ideal and potentially poses problems in relation to weapon reliability and yield. On this topic see:

\* Dr Alan Robert's contribution to Briefing Paper #19 at <[www.energyscience.org.au](http://www.energyscience.org.au)>.

\* Friends of the Earth briefing paper <[www.foe.org.au/anti-nuclear/issues/nfc/power-weapons/rgpu](http://www.foe.org.au/anti-nuclear/issues/nfc/power-weapons/rgpu)>

## 11. AUSTRALIA'S URANIUM EXPORTS ARE SHROUDED IN SECRECY

Some example of indefensible secrecy include the refusal of successive Australian governments to publicly release:

1. Country-by-country information on the separation and stockpiling of Australian-obligated plutonium.
2. 'Administrative Arrangements' which contain vital information about the safeguards arrangements required by Australia.
3. Information on nuclear accounting discrepancies (Material Unaccounted For) including the volumes of nuclear materials, the countries involved, and the reasons given to explain accounting discrepancies.
4. The quantities of AONM held in each country are confidential. ASNO (2001-02) states: "The actual quantities of AONM held in each country, and accounted for by that country pursuant to the relevant agreement with Australia, are considered by ASNO's counterparts to be confidential information."

## 12. THE AUSTRALIAN SAFEGUARDS AND NON-PROLIFERATION OFFICE

ASNO has established a track record of making demonstrably false claims and otherwise behaving unprofessionally.

In 2008, ASNO misled the JSCT with claims that safeguards will "ensure" that Australian uranium is not used for weapons production in Russia even though there have been no safeguards inspections in Russia since 2001 (a fact which ASNO conspicuously failed to provide to the Committee).

ASNO's falsely claims that nuclear power does not present a weapons proliferation risk; that Australia sells uranium only to countries with "impeccable" non-proliferation credentials; and that all AONM is "fully accounted for".

The Government should establish an independent public inquiry into ASNO's unprofessional behaviour as per the recommendation of the EnergyScience Coalition (2007):

*"The authors of this paper believe there is a compelling case for major reform of ASNO as a matter of urgency. An alternative course of action would be for the Australian government to establish an independent public inquiry. Such an inquiry should have a broad mandate to review all aspects of ASNO's structure and function, should be adequately resourced, and should have powers similar to those of a Royal Commission to access witnesses, documents and other evidence.*

*"Such an inquiry should be carried out independently of ASNO. It should also be carried out independently of the Department of Foreign Affairs and Trade (DFAT), given that the current relationship between ASNO and DFAT is arguably one of the areas in need of review. DFAT has declined a request to review a paper detailing numerous inaccurate statements made by ASNO (letter to NGOs, 28 May 2007, available on request).*

*"Such an inquiry should address the competence and performance of ASNO; its scientific and technical expertise; whether its current management, organisation, structure and relationships best serve its mandate; any conflicts of interest; the implications of ASNO's structural connection to DFAT (whether it has sufficient independence or operates as a 'captured*

bureaucracy'); and options for reform including consideration of organisational models in other countries.

"ASNO's previous responses to criticism have included angry and dismissive attacks on its critics, assertions that an entire document can be dismissed on the basis of questionable challenges to just one or two points (see for example ASNO, 'Reactor Grade Plutonium', <[www.asno.dfat.gov.au](http://www.asno.dfat.gov.au)>), and a conspicuous failure to address the substance of a large majority of the criticisms. We sincerely hope that the multiple serious concerns raised in this paper will prompt serious consideration by government and parliamentarians, and responses which are substantive and constructive."

The Australian Uranium Association (2008) has also called for an inquiry into the role and resourcing of ASNO, albeit for different reasons than those outlined above.

For more information on ASNO see: <[www.foe.org.au/anti-nuclear/issues/oz/u/safeguards/asno](http://www.foe.org.au/anti-nuclear/issues/oz/u/safeguards/asno)>.

### 13. THE REALPOLITIK OF AUSTRALIAN SAFEGUARDS POLICY



It is sometimes claimed that Australia's safeguards requirements are the equal of or better than those applied by any other uranium-exporting country. However the IAEA is responsible for safeguards regardless of the origin of uranium supplies.

As we have seen there are many, serious flaws with Australia's safeguards policies:

- \* Australia can claim little or no credit for the provisions of bilateral agreements given that key provisions – most importantly, concerning reprocessing and plutonium stockpiling – have never once been invoked.
- \* In some cases Australia allows AONM to be processed in non-safeguards-eligible facilities.
- \* Australia allows uranium sales to nuclear weapons states which show little inclination to abide by their NPT disarmament obligations; states with a history of weapons-related research based on their civil nuclear programs; states blocking progress on the Comprehensive Test Ban Treaty and the

proposed Fissile Material Cut-Off Treaty; and to undemocratic, repressive, secretive states with appalling human rights records.

\* Uranium exports are shrouded in secrecy at many levels.

\* ASNO is in great need of radical reform, or abolition and replacement with a credible safeguards agency.

Australia could use its status as the world's largest holder of uranium reserves to leverage non-proliferation and disarmament outcomes. Australia could, for example, have promoted the adoption of 'Additional Protocols', strengthened safeguards agreements which provide the IAEA with greater authority to inspect suspected diversion of nuclear materials. Australia could have insisted that all of Australia's uranium customer countries must have an Additional Protocol in place. Indeed Australia does require Additional Protocols of all customer countries – but that policy was only adopted *after* all of Australia's customer countries had already concluded an Additional Protocol with no prompting or persuasion from Australia.

ASNO states: "The non-proliferation regime is also strengthened through Australia's requirement that recipients of Australian obligated nuclear material adhere to the Additional Protocol." But Australia had nothing at all to do with that strengthening of the safeguards system. Instead of using Australia's position to leverage a positive outcome, Australia has indulged in a cynical, retrospective PR exercise in relation to Additional Protocols.

(As at October 2010, 102 countries have concluded an Additional Protocol with the IAEA, but 18 countries with plans to develop nuclear power have not (Alger, 2010).)

Australia's position is also compromised by the practical and political support it provides to the US nuclear weapons program and Australia's reliance on the 'extended nuclear deterrence' of the US weapons umbrella. As IAEA Director-General Mohamed El Baradei (2007) noted: "Why, some ask, should the nuclear-weapon States be trusted, but not others – and who is qualified to make that judgment? Why, others ask, is it okay for some to live under a nuclear threat, but not others, who continue to be protected by a 'nuclear umbrella'?"

## **14. RECOMMENDATIONS TO STRENGTHEN SAFEGUARDS**

1. The International Atomic Energy Agency's (IAEA) safeguards/verification program is seriously and chronically underfunded. The Australian Government should take the lead to ensure that this problem is rectified.

2. Basing the IAEA safeguards system on periodic inspections is inadequate. A minimum requirement ought to be that all nuclear facilities of any proliferation significance have IAEA inspectors permanently stationed on-site. Nuclear facilities typically employ hundreds of people so the additional costs associated with that proposal would not be prohibitive.

3. The promotion of nuclear power should be removed from the IAEA's mandate.

4. Safeguards should apply at all stages of the nuclear fuel cycle. Currently safeguards begin at the uranium enrichment stage.

5. Action needs to be taken to address the stockpiling of ever-growing amounts of plutonium as plutonium separation at reprocessing plants continually exceeds its very limited use as fuel in nuclear reactors. The problem can easily be addressed by stopping or suspending reprocessing. The Australian Government could take a lead by prohibiting the reprocessing of Australian-obligated Nuclear Materials by (or on behalf of) countries which stockpile plutonium. A strong case can be made to

prohibit reprocessing altogether – it serves no useful purpose. A strong case can also be made for international (United Nations) control of all reprocessing and enrichment.

6. All nuclear facilities processing Australian-Obligated Nuclear Materials ought to be subject to IAEA inspections (i.e. the IAEA ought to have the authority to carry out inspections of those facilities). At the moment, it is a general rule that all facilities processing AONM must be subject to IAEA inspections (from the enrichment stage onwards) but exceptions are made for the flimsiest of reasons (e.g. in Russia).

7. Important information about safeguards is kept secret by the Australian government and there is a compelling case for greater transparency. Examples of unwarranted secrecy include the refusal to publicly release: country-by-country information on the separation and stockpiling of Australian-obligated plutonium; Administrative Arrangements, which contain important information about safeguards arrangements; information on nuclear accounting discrepancies; and the quantities of Australian-Obligated Nuclear Materials held in each country.

8. Since the framework for Australia's safeguards policies was established in the 1970s, there has not been a request to enrich Australian-obligated uranium to 20% or beyond (highly-enriched uranium). The Australian Government should prohibit the enrichment of Australian-obligated uranium to 20% or beyond under any circumstances rather than leaving open the possibility of granting consent. Highly-enriched uranium is not required for nuclear power reactors and its use in research reactors (as fuel or irradiation targets) is being phased out.

9. A credible safeguards regime for Australian uranium exports depends on having a credible safeguards agency. Sadly, the Australian Safeguards and Non-proliferation Office has a poor track record. An independent public inquiry is urgently needed.

10. While uranium is exported, the following exclusions should apply:

- \* Exclusion of states possessing nuclear weapons. Alternatively, uranium supply to nuclear weapons states should be made conditional on demonstrated compliance with disarmament obligations under the Nuclear Non-Proliferation Treaty (NPT). A complete separation between civil and military nuclear programs should be a condition of supply (a condition which is not met in some of Australia's current customer countries, e.g. China, Russia).
- \* Exclusion of states that are not compliant with their obligations under the NPT.
- \* Exclusion of states that are not party to the NPT (India, Pakistan, Israel, North Korea).
- \* Exclusion of states that continue to produce fissile material for weapons (India, Pakistan and possible other countries).
- \* Exclusion of states with a recent history of covert nuclear weapons research (e.g. South Korea), whether or not they have been formally found to have breached IAEA safeguards agreements.
- \* Exclusion of states (e.g. China, USA) which have not both signed and ratified the Comprehensive Test Ban Treaty (CTBT).
- \* Exclusion of States which do not have full-scope IAEA safeguards and an Additional Protocol in place, with a consistent record of compliance.
- \* Exclusion of uranium enrichment in facilities not under international control.
- \* Exclusion of states which reprocess spent nuclear fuel to extract plutonium.
- \* Exclusion of states which do not have excellent standards of nuclear regulation and safety.
- \* Exclusion of states which do not comply with the best available storage of radioactive waste.

## 15. REFERENCES

Alger, Justin, 1 October 2010, 'The 'nuclear revival': taking stock, managing concerns', <<http://trustandverify.wordpress.com/2010/10/01/428>>

ACF – Australian Conservation Foundation, November 2008, <[www.acfonline.org.au/articles/news.asp?news\\_id=2060](http://www.acfonline.org.au/articles/news.asp?news_id=2060)>.

Australian Government, 2009, 'Government Response to Report 94 of the Joint Standing Committee on Treaties: Australia-Russia Nuclear Cooperation Agreement', <[www.aph.gov.au/house/committee/jsct/governmentresponses/94th.pdf](http://www.aph.gov.au/house/committee/jsct/governmentresponses/94th.pdf)>

ASNO – Australian Safeguards and Non-proliferation Office, 2001-02, Annual Report, <[www.asno.dfat.gov.au/annual\\_report\\_0102/asno\\_annual\\_report\\_2001\\_2002.pdf](http://www.asno.dfat.gov.au/annual_report_0102/asno_annual_report_2001_2002.pdf)>

ASNO – Australian Safeguards and Non-proliferation Office, 2008, Supplementary Submission # 22.1 to Joint Standing Committee on Treaties, <[www.aph.gov.au/house/committee/jsct/14may2008/subs/sub22\\_1.pdf](http://www.aph.gov.au/house/committee/jsct/14may2008/subs/sub22_1.pdf)>.

ASNO, 2008b, Answer 'DD' in response to Questions on Notice to ASNO, Question 20, Output 1.1.10, October 2008 session of Senate Estimates, questions by Senator Ludlam.

Australian Uranium Association, 2008, Submission #45 to the Joint Standing Committee on Treaties, p.12, <[www.aph.gov.au/house/committee/jsct/nuclearnon\\_proliferation/subs.htm](http://www.aph.gov.au/house/committee/jsct/nuclearnon_proliferation/subs.htm)>

Bulletin of the Atomic Scientists, 14 January 2010, Editorial, <[www.thebulletin.org/content/media-center/announcements/2010/01/14/it-6-minutes-to-midnight](http://www.thebulletin.org/content/media-center/announcements/2010/01/14/it-6-minutes-to-midnight)>

Bunn, Matthew, n.d., 'International Safeguards: Summarizing “Traditional” and “New” Measures', <<http://ocw.mit.edu/courses/nuclear-engineering/22-812j-managing-nuclear-technology-spring-2004/lecture-notes/lec16notes.pdf>>

Carlson, John, 21 December 1998, <[www.aph.gov.au/hansard/joint/commttee/j2022.pdf](http://www.aph.gov.au/hansard/joint/commttee/j2022.pdf)>

Dickey, Christopher, 24 October 2006, 'The Power of the purse', The Bulletin, <<http://bulletin.ninemsn.com.au/article.aspx?id=155088>>

El Baradei, Mohamed, 2007, <[www.wagingpeace.org/articles/2007/05/24\\_ElBaradei\\_Preventing\\_Nuclear\\_Catastrophe.htm](http://www.wagingpeace.org/articles/2007/05/24_ElBaradei_Preventing_Nuclear_Catastrophe.htm)>

El Baradei, Mohamed, 2009, 'Intervention on Budget at IAEA Board of Governors', <[www.iaea.org/NewsCenter/Statements/2009/ebsp2009n006.html](http://www.iaea.org/NewsCenter/Statements/2009/ebsp2009n006.html)>.

EnergyScience Coalition, 2007, Briefing Paper #19, 'Who's Watching the Nuclear Watchdog? A Critique of the Australian Safeguards and Non-Proliferation Office', <[www.energyscience.org.au](http://www.energyscience.org.au)>

International Atomic Energy Agency, 2005, 'Global Public Opinion on Nuclear Issues and the IAEA – Final Report from 18 Countries', <[www.iaea.org/NewsCenter/PressReleases/2005/prn200516.html](http://www.iaea.org/NewsCenter/PressReleases/2005/prn200516.html)>.

International Atomic Energy Agency, February 2008, 20/20 Vision for the Future: Background Report by the Director General for the Commission of Eminent Persons, <[www.iaea.org/NewsCenter/News/PDF/20-20vision\\_220208.pdf](http://www.iaea.org/NewsCenter/News/PDF/20-20vision_220208.pdf)>

Japan Atomic Industrial Forum, “Better Accounting of Plutonium Urged at JNC's Tokai Reprocessing Plant”, Atoms in Japan, May 2003, pp.19-20.

Joint Standing Committee on Treaties, 2008, 'Report 94: Review into Treaties tabled on 14 May 2008', <[www.aph.gov.au/house/committee/jsct/14may2008/report1.htm](http://www.aph.gov.au/house/committee/jsct/14may2008/report1.htm)>

Joint Standing Committee on Treaties, September 2009, Report on Nuclear Non-Proliferation and Disarmament, Report 106,  
<[www.aph.gov.au/house/committee/jsct/nuclearnon\\_proliferation/report.htm](http://www.aph.gov.au/house/committee/jsct/nuclearnon_proliferation/report.htm)>

Union of Concerned Scientists, 2007, 'Nuclear Power in a Warming World',  
<[www.ucsusa.org/nuclear\\_power/nuclear\\_power\\_and\\_global\\_warming/nuclearandclimate.html](http://www.ucsusa.org/nuclear_power/nuclear_power_and_global_warming/nuclearandclimate.html)>

## **16. MORE INFORMATION ON SAFEGUARDS**

Medical Association for Prevention of War <[www.mapw.org.au/nuclear-chain/safeguards](http://www.mapw.org.au/nuclear-chain/safeguards)>

Medical Association for Prevention of War & ACF, "An Illusion of Protection: The Unavoidable Limitations of Safeguards", <[www.acfonline.org.au/articles/news.asp?news\\_id=1012&c=10130](http://www.acfonline.org.au/articles/news.asp?news_id=1012&c=10130)>

Friends of the Earth <[www.foe.org.au/anti-nuclear/issues/oz/u/safeguards](http://www.foe.org.au/anti-nuclear/issues/oz/u/safeguards)>

Non-Proliferation Policy Education Centre, Feb 2008, "Falling Behind: International Scrutiny of the Peaceful Atom", <[www.npolicy.org](http://www.npolicy.org)>. See also the collection of publications on the IAEA safeguards system at: <[www.npolicy.org/taxonomy/term/35](http://www.npolicy.org/taxonomy/term/35)>.

Nuclear Power Joint Fact Finding Dialogue, June 2007, "Final Report, Nuclear Power Joint Fact-Finding", <[www.keystone.org/spp/energy/electricity/nuclear-power-dialogue](http://www.keystone.org/spp/energy/electricity/nuclear-power-dialogue)>

EnergyScience Coalition, 'Who's Watching the Nuclear Watchdog? A Critique of the Australian Safeguards and Non-proliferation Office', 2007, Briefing Paper #19,  
<[www.energyscience.org.au/factsheets.html](http://www.energyscience.org.au/factsheets.html)>.

Australian Safeguards and Non-proliferation Office (ASNO) <[www.asno.dfat.gov.au](http://www.asno.dfat.gov.au)>

IAEA: <[www.iaea.org/OurWork/SV/Safeguards/index.html](http://www.iaea.org/OurWork/SV/Safeguards/index.html)>