

Refereed paper delivered at
Australian Political Studies Association Conference
6 – 9 July 2008
Hilton Hotel, Brisbane, Australia

The Illusion surrounding *The Illusion of Protection*

Richard Leaver, Reader in International Relations,
School of Political and International Studies, Flinders University.

Introduction

In the long and loud public debate about Australian uranium exports, the phrase that graces the title of this paper is the most memorable of all. It was coined in 1976 by Justice Russell Fox and his fellow commissioners on the Ranger Inquiry to express their conclusion about the overall effectiveness of multilateral safeguards system that was growing up around the Nuclear Non-Proliferation Treaty (the NPT, or just ‘the Treaty’).¹ While the Inquiry detected a large number of shortcomings in the NPT and the International Atomic Energy Agency (IAEA) safeguards that verified it, the one that attracted and sustained its attention concerned the absence of any safeguards at all on international movements of uranium. The commissioners therefore recommended that an Australian system of bilateral safeguards should be developed and implemented alongside the export of Australian uranium, thereby back-filling this multilateral flaw. And the Fraser government took up this recommendation in quick order, drafting a Model Safeguards Agreement (MSA) and placing it before prospective customers for Australian uranium.

The major finding of the Ranger Inquiry and the Fraser government’s MSA response to it therefore provide a rather obvious stepping-off point for subsequent debate about the question of the effectiveness of Australian safeguards.² At present, Canberra has twenty bilateral safeguards agreements covering thirty seven countries – most recently, with the People’s Republic of China and the Russian Federation. Large swathes of the Australian story about the co-evolution of uranium sales and bilateral safeguards have therefore been told by those who followed the unfolding of these agreements, although the course of that unfolding process has been intermittent rather than steady.³

However, all existing accounts of that unfolding suffer a common and, in my judgement, fatal flaw. With the single exception of the Australian quest for nuclear weapons, they almost entirely ignore the pre-NPT era – and therefore miss out on the important

¹ See *Ranger Uranium Environmental Inquiry*, First Report, Australian Government Publishing Service, Canberra, 1976, p. 147.

² For the most recent example of this, see Marko Beljac *et.al.*, ‘An Illusion of Protection: The unavoidable limitations of safeguards on nuclear materials and the export of uranium to China’, a report prepared for the Medical Association for the Prevention of War and the Australian Conservation Foundation, October 2006, <http://www.acfonline.org.au/default.asp?section_id=4>.

³ For the best early account of that co-evolution, see Martin Indyk, ‘Safeguarding Nuclear Energy in the Pacific: The Role of Australia’, in Stuart Harris and Keichi Oshima (eds.), *Australia and Japan: Nuclear Energy Issues in the Pacific*, Australia-Japan Economic Relations Research Project, Canberra, 1980, esp. pp. 128-41. More recently, see Richard Broinowski, *Fact or Fission? the truth about Australia’s nuclear ambitions*, Scribe, Melbourne, 2003, chapter 6.

Australian role in helping create the apparent oversight of the multilateral safeguards system that later befitted Justice Fox. This paper therefore re-examines the existing debates about Australian safeguards by recalibrating 'year zero' well inside the pre-NPT era rather than in 1976.

before the NPT: some original sins

For the decade after 1954, Australia was a small but not insignificant supplier of uranium oxide to the joint US/UK Combined Development Agency (CDA), the organization established at the end of World War Two to procure uranium for the two Anglo-Saxon powers. Australian sales in this period totalled just over eight thousand tons, about five per cent of CDA purchases.⁴ As was the general practice, these purchases were conducted on non-market principles that reflected, in the beginning, the absolute scarcity of uranium and the exclusive military ends to which it was committed. By the time Australian uranium came into market, and in part because of it, absolute scarcity was lifting in the face of a new era of uranium discoveries. Non-market purchases nonetheless continued to be justified through the strategic argument that the Communist bloc must be denied access to possible sources of nuclear materials. In this sense, the mix of policies and institutional structures that shaped the international flow of uranium in the non-communist world was an amalgam of the general US policy of economic warfare conducted through COCOM, and the strategic stockpile programme run by Washington's General Accounting Office.⁵

Foreign purchases of uranium were contracted to the CDA at undisclosed but generous prices that exceeded the already handsome price paid to domestic American producers.⁶ Australian prices were particularly high, in part because the local mines of that era contained only low quality ore. The development of the domestic uranium mining industry was further encouraged by tax-free rewards for uranium discovery from the Federal government, while plant development at the Rum Jungle and Radium Hill mines was seeded with American loans. Once, however, the US strategic stockpile came to be regarded as complete, then foreign purchases abruptly ceased. Consequently, in 1964, what had been a small but lucrative Australian export industry suddenly ground to a halt, with production, insofar as it continued at all, being stockpiled by the Federal government.

The rather obvious fact that Australian uranium had assisted in deepening the US arsenal and developing the British one was justified in public by a counterfactual: that if the US and Britain had not developed the bomb quickly, then the west in general, and Australia in particular, would have been exposed to the threat of communist superiority in the balance of conventional forces. More directly, throughout this period, Australian governments hoped to profit from the weapons-related nuclear development of its two great allies in the event of a local 'national emergency'. In that unwelcome contingency, the Menzies government wanted to be able to 'borrow' a bomb from these quarters. Discussions about this were more intense with the British than with the Americans, largely by reason of tradition, but also because

⁴ See Anthony D. Owen, *The Economics of Uranium*, Praeger, New York, 1985, Table 3.1, pp. 40-41.

⁵ For these two policies, see, respectively, Gunnar Adler-Karlsson, *Western Economic Warfare, 1946-1967*, Almquist and Wiksell, Stockholm, 1968, and Alfred E. Eckes, Jr., *The United States and the Global Struggle for Minerals*, University of Texas Press, Austin, 1979.

⁶ For what little is known of the structure of global uranium prices during the early Cold war period, see Marian Radetzki, *Uranium: A Strategic Source of Energy*, Croom Helm, London, 1981, esp. pp. 39-43.

Australia's leverage along this axis seemed to be enhanced by its hosting of Britain's atomic tests.

But by the mid-1960s, when the first drafts of what would eventually become the NPT began to issue forth from the UN's Eighteen Nation Disarmament Committee (ENDC), it was immediately clear that this Australian hope was no longer feasible. The first articles of these earliest drafts sought to prohibit the transfer of nuclear weapons as well as their acquisition. Agreement between the superpowers on these two prohibitions was, in turn, made possible by a new Soviet attitude to the issue that arose from its debacle in civil nuclear relations with the People's Republic of China (PRC). Beginning in 1956, the USSR had entered into a series of nuclear sharing agreements with Beijing that soon saw wholesale transfers of Soviet designs and technology across the whole of the nuclear fuel cycle. Before the end of the decade, however, it was equally clear that Beijing wanted more than just civil nuclear capacity, and the Chinese began pushing vigorously for transfers related to bomb design. The Soviet leadership, already chastened by what it regarded as the dangerously adventurist PRC policies over Taiwan, refused to accede to this pressure. And this refusal, in turn, rapidly became a major cause of the end not only of Sino-Soviet nuclear cooperation, but also of their larger alliance relationship. So deep was the on-going Chinese sense of betrayal about the purposes of its 1956 agreements that when the first generation of Chinese-made nuclear armed missiles was eventually deployed a decade later, they were overwhelmingly directed against Soviet rather than western targets.

As this unhappy example of socialist internationalism took shape, it became progressively more evident that the USSR wanted to prevent any repetition of this experience with other allies. Any future Soviet exports in the nuclear field would therefore have to be 'safeguarded' – that is to say, exports of nuclear technologies and materials would have explicit civil end-use obligations attached to them, and those obligations would have to be verified through international inspections. The multilateral idea that suddenly seized Soviet policy in eight months from mid-1963⁷ was already Washington's *modus operandi* in civil nuclear transfers, having been promulgated under Eisenhower's 1954 Atoms for Peace programme and the consequent establishment of the IAEA three years later. The Agency had, in turn, already articulated its first generation of safeguards practices and procedures in 1961, and was some way down a long road to their refinement and extension. Consequently, the Soviet about-face on international safeguards led to a pronounced policy convergence between the superpowers on the prohibition of nuclear lending that featured as the first article of the 1967 joint Soviet-American draft of the NPT.

To the Australian government of that era, the signs of this convergence were unwelcome news, for if the NPT went on to be successfully negotiated on this basis, then it clearly signalled the death of their own ideas about nuclear borrowing. Even more ominous news came with the Chinese nuclear test of 1964 which established Beijing as the fifth country with nuclear weapons capability. With public fears about China's new nuclear status to the fore, and buttressed by barely suppressed concerns about the course of nuclear developments in Japan and Indonesia, these were heady times in Canberra. The atmosphere

⁷ I agree with Fischer that this dramatic about-face appeared to be prompted by awareness of the imminence of the Chinese nuclear test: see D.A.V. Fischer, *Nuclear Issues: International Control and International Cooperation*, Canberra Studies in World Affairs No. 5, Department of International Relations, ANU, 1981, p. 14. Others, however, tend to emphasize the importance of the 1982 Cuban crisis, or of the 1963 negotiation of the Partial Test Ban Treaty; see, for instance, William C. Potter, 'The Soviet Union and Nuclear Proliferation', *Slavic Review*, 44(3), 1985.

did not dispel quickly: indeed, more or less as the NPT opened for signature in 1968, the Australian government's view of its strategic context became more grave as the beginning of the American withdrawal from Vietnam faded into the British retrenchment from east of Suez positions.⁸ Grim newer realities were therefore swirling around in close proximity to failed older hopes.

In this highly uncertain context, the government laid out a diplomatic posture towards the evolving NPT that was devious and flexible rather than openly hostile. In the Menzies government's first official UN statement about the Treaty, UN ambassador Patrick Shaw carefully laid out a broad array of qualifications while still appearing to support the purposes of an effective treaty. From this starting point, an unbroken straight line of diplomatic rhetoric stretched out across the following three years.⁹ So, in May 1968, when the final draft was circulating through UN corridors, Australia was still giving cardinal importance to China's stated intention not to sign the NPT, and to the lack of watertight provisions under the Treaty for security guarantees in the face of possible threats from this quarter - while simultaneously endorsing the text of the final draft. At the time, this ambiguity gap kept a wide range of different possible local outcomes alive, although with the advantage of hindsight, we now know that the new Gorton government used it to explore the possibilities for independent nuclear acquisition that existed around the edges of the treaty - and, if need be, outside it.

Behind this diplomatic smokescreen of carefully constructed ambiguity, progress towards an independent nuclear capability was beginning to gather pace. Through the early period, this centred on the green light under the NPT for a 'peaceful nuclear explosion' (PNE) - a generous escape clause whose full dimensions would eventually be exploited with maximum effect in India's 1974 'peaceful nuclear test'. But for Canberra, the problem with this exit was that it still begged the perennial question of how a peacefully used explosive device would be obtained.¹⁰ Increasingly, therefore, the Gorton government looked to its own resources. In 1969, after the NPT had opened for signature, the intent to build a nuclear power reactor at Jervis Bay was publicly announced, and a site was quickly prepared while urgent attention was given to the technologies best suited to that purpose. Because it used natural uranium as fuel - and therefore avoided reliance on foreign supplies of enriched uranium that would attract safeguards - the Canadian CANDU reactor became a firm favourite behind Canberra's closed doors.¹¹

The outlines of this aspect of Canberra's diplomatic deviousness, and the manner in which it served the larger independent strategic adventure, is an interface that has been repeatedly researched in recent times. These efforts, and the consequent improvements in the level of public understanding they have brought, have both been considerably advanced by

⁸ The significance of the near-coincidence of these two retractions is emphasised in Carl Bridge (ed.), *Munich to Vietnam: Australia's Relations with Britain and the United States since the 1930s*, Melbourne University Press, Melbourne, 1991.

⁹ For analysis of Shaw's various speeches, see Alice Cawte, *Atomic Australia 1944 - 1990*, University of New South Wales Press, Kensington NSW, 1992, pp. 118 and 122.

¹⁰ This reservation was forcefully rammed home when the US abandoned its PNE programme, Project Plowshare, only a matter of weeks after Canberra endorsed it. For the unexpurgated account of this programme on a global scale, see Trevor Findlay, *Nuclear Dynamite: The Peaceful Nuclear Explosions Fiasco*, Brassey's Australia, Rushcutter's Bay, 1990.

¹¹ The rapid flux of events through this critical period was well captured at the time by Ian Bellany, 'Australia's Nuclear Policy', *India Quarterly*, 25(4), 1969. Amongst others, Bellany offered a correct rendering of the Australian concern about 'secure fuel supplies'.

the passage of the thirty year rule over relevant archival sources. All of these steps have been reasonably intensively studied, although the various perspectives on the subject have yet to yield up an actual debate rather than the makings of one.¹² But in spite of this growing number of studies, one of the mysteries that still remains concerns the final termination of Australia's bomb programme.

the politics of signature

For many, this was achieved in February 1970 when the Gorton government surprised everyone at home and abroad by unexpectedly signing the NPT. Especially for those on the conservative side of domestic politics, this signature is today depicted as the end-point of Australia's contemplation of a nuclear weapon – and, even more significantly, the beginning of Australia's experiences as a 'white knight' of nuclear disarmament.¹³ After all, under international law, it is customary for states that sign a treaty to immediately abide by the provisions they have agreed to.

However, a further level of trickiness lurked behind Canberra's NPT signature. As Walsh has partially pointed out, the binding power that is these days implied by the act of signature simply did not hold in the case of the NPT. The Vienna Convention on the Law of Treaties, the agreement that now establishes this binding power, was negotiated, but would not come into operation until 1980. Consequently, signatories to the NPT were only legally bound by signature after the Treaty entered into force. And the draft treaty, in turn, required that it would only enter into force when forty countries had added their ratifications to the list that started with the three original depository states.¹⁴ States that signed the NPT after this minimum level of adherence had been achieved would, as is now normal, be expected to respect the purposes of the Treaty from that moment on. However, those who signed before that aggregate threshold had been reached could not be asked to observe the provisions of a Treaty which was not yet in operation.

This was a 'chicken and egg' problem of great moment. It allowed countries to sign up early to the NPT and create the appearance of approval – but then to take their time over ratification, while still being exempted from following the provisions of the Treaty. This road to extended exemption was travelled by a large number of advanced industrial countries, including many with the indigenous capacity to progress towards the construction of a bomb if they so desired. But even in the company of these nuclear inscrutables, the Australian signature appeared to be very cleverly crafted. Canberra became the ninety-seventh NPT signatory just a matter of days before the Treaty received its fortieth ratification, the ratification that brought it into operation. Precise timing gave the government a last-minute

¹² For the different perspectives of the last decade, see Jim Walsh, 'The Surprise Down Under: Australia's Nuclear Ambitions', *The Nonproliferation Review*, 4(1), 1997; Wayne Reynolds, *Australia's Bid for the Atomic Bomb*, Melbourne University Press, South Carlton, 2000; Jacques Hymans, 'Isotopes and Identity: Australia and the Nuclear Weapons Option, 1949-1999', *The Nonproliferation Review*, 7(1), 2000, and also *The Psychology of Nuclear Proliferation: Identity, Emotions and Foreign Policy*, Cambridge University Press, Cambridge, 2006; and Christopher Hubbard, 'From Ambivalence to Influence: Australia and the Negotiation of the 1968 Nuclear Non-Proliferation Treaty', *Australian Journal of Politics and History*, 50(4), 2004.

¹³ For instance, Alexander Downer argued early in his term as foreign minister that Australian support for the elimination of nuclear weapons was first established by Gorton's 1970 signature on the NPT: see his 'Security through cooperation: address to the IISS/SDSC Conference on Regional Security', 1st May 1996. See also Andrew Southcott, *Hansard* (H of R), 25 September 1997, p. 8580.

¹⁴ Walsh, 'Surprise Down Under', p. 13.

escape from an acute dilemma: not to sign the Treaty, and thereby attract critical attention from its 'great and powerful friends' that were the NPT's Depository States; or to accede after entry into force, and face immediate capture by the need to observe the full provisions of the Treaty. Canberra's February 1970 signature was therefore an act of no consequence so far as the task of bringing the NPT into operation was concerned. But it did purchase, at the last possible minute, an unlimited chunk of additional time for the government in which it could continue its independent nuclear adventures without drawing excessive attention to itself.

Many Australians might still like to fool themselves about the significance of Gorton's NPT signature, but Washington never was. Many years later, this became publicly evident through a report prepared in mid-1971 by the National Security Council in Washington, where continuing anxieties inside the Nixon administration about Australia's potential as an independent nuclear weapons state were showcased. The proximal cause of American concerns was their fear that Australia might go on to provide 'unsafeguarded refined uranium' to other countries. Although the precise meaning of that phrase was not spelled out, it left no doubt that the NSC did not regard Australian hopes for an enrichment industry outside Agency safeguards as a dead letter.¹⁵ And indeed, late in the day, Australian interest in enrichment had ramped up.¹⁶ However, just as this NSC report was submitted, the new Australian prime minister William McMahon postponed, and later indefinitely deferred, the planned Jervis Bay reactor, the technological centrepiece of Gorton's earlier nuclear hopes.¹⁷ In spite of this, however, McMahon still did not ratify the NPT. The legally binding act of ratification was finally undertaken by the Whitlam government elected at the end of 1972, which packaged up this decisive step inside the omnibus agenda of its first tumultuous months in office.

Australia's uranium diplomacy

There is, however, a second dimension of the Australian enigma that is even less well known than the now relatively well-explored pathway to an independent deterrent. It centres on the interface between NPT safeguards and what might be called 'uranium diplomacy'.

This mystery had two aspects that go back to the start of the CDA era. There was, first, Canberra's insistence that reserves sufficient for three years of future domestic use be set aside and retained in Australian mines;¹⁸ and second, that an end-use obligation be attached to CDA sales committing Australian uranium exports to military uses only.¹⁹ These policies sustained two latent contingencies: a future Australian detour down the military road, but also the possibility of switching Australian uranium sales over to a more vibrant and lucrative civil nuclear industry that might appear on the horizon.

¹⁵ For discussion of this report, see Cameron Stewart, 'File Reveals N-Weapons Fear', *The Weekend Australian*, 30th November - 1st December 1996.

¹⁶ The reasons for this new interest are not altogether clear. It may be that early Canadian ratification of the Treaty (discussed below) cast a safeguards cloud over Canberra's appreciation of the CANDU reactor. On the other hand, this same safeguards cloud would cover any imported enrichment technology.

¹⁷ As Treasurer in the Gorton government, McMahon had stood against the Jervis Bay reactor. For his role in early cabinet discussions as revealed by archival documents, see Bruce Juddery, 'Classic Stoush: The Sub-text to Nuclear Plan', *Canberra Times*, 1st January 2000.

¹⁸ This is detailed in Jonathon E. Helmreich, *Gathering Rare Ores: The Diplomacy of Uranium Acquisition, 1943-1954*, Princeton University Press, Princeton, 1986, pp. 240-41.

¹⁹ Cawte, *Atomic Australia*, p. 51.

Both contingencies were still very much alive in the early 1960s when the CDA began winding back their uranium purchases. As we have seen, Australian government had long held out hope for lucrative civil sales in the future. By the mid-1960s, these hopes received a fillip as civil nuclear power expanded around the world, but the CDA stockpile that hung rather ominously over the head of the nascent civil market initially threatened to drive prices down in a dramatic manner. The idea of switching Australian uranium over to civil uses at a highly acceptable price therefore began to appear extremely problematic; there was, as Neff notes, ‘a severe depression’ in the uranium market outside the US, and a ‘static’ environment inside it.²⁰ It was in this context of this possible ‘fouling’ of the emerging civil market that the Australian government articulated a second dimension of misgivings about the modalities of the proposed NPT. This dimension was economic, and focussed on the discrimination that seemed to confront uranium exports from non-nuclear states in international commercial markets.

At the hub of this matter of possible discrimination was the question of NPT safeguards. As previously mentioned, when successive working drafts of the NPT began to issue forth, it became progressively more evident that IAEA safeguards would be required to verify the civil end-use obligations that the Treaty would demand of non-nuclear signatories. But those evolving drafts also made it plain that similar safeguards would not be imposed on the civil nuclear industry in established nuclear weapon states. Consequently, without ever taking its eyes off the main strategic game, the Australian government simultaneously zeroed in upon this differential treatment, implying that the burden of safeguards would seriously disadvantage uranium exporters in non-nuclear weapon states. As Richardson noted at the time, this objection loomed larger on the eve of the Treaty’s conclusion.²¹

Australian governments were not alone in mounting this argument about the potential for discrimination against non-nuclear uranium suppliers. All former CDA suppliers, including the more important South Africans and Canadians, made much the same point,²² and as Washington set about collecting political support for the NPT, the issue of discrimination against raw materials suppliers began to balk large within the circle of the former white dominions. However, within the ENDC process, this theme tended to get lost as much bigger divisions about the praxis of safeguards emerged. Ultimately, safeguards would go on to prove the most divisive of the many NPT issues addressed in Geneva, and the one where the most time would be spent. And ultimately, too, the primary axis of division was between the US and its major non-nuclear allies rather than in western dealings with the USSR. A short diversion to look into the dimensions of this philosophical gap is therefore highly pertinent.

Safeguards – understood in the modern sense as referring to both end-use obligations and the international inspections that verify those obligations – were not totally unknown. As previously mentioned, they were initially a consequence of Eisenhower’s 1954 Atoms for Peace programme which, in 1957, spawned the International Atomic Energy Agency.

²⁰ Thomas L. Neff, *The International Uranium Market*, Ballinger, Cambridge, 1984, p. 44. Neff notes that the Australian depression was not so great because of the relatively low level of production and the relatively high level of government stockpiling.

²¹ James L. Richardson, ‘Australia and the Non-Proliferation Treaty’, *Canberra Studies in World Affairs*, No.3, Strategic and Defence Studies Centre, ANU, 1968, p. 17.

²² South African worries about the economic harm that might arise out of inspections are recorded in Zdenek Cervenka and Barbara Rogers, *The Nuclear Axis: Secret collaboration between West Germany and South Africa*, Julian Friedmann, London, 1978, p. 215.

Safeguarding was at this time just one of a number of possible roles for the Agency, which might alternately function as a ‘bank’ of nuclear materials or, perhaps, as a clearing house to aid international technology transfers. At the beginning of IAEA time, the US held most of the cards related to advanced nuclear technologies, and it could safeguard their civil use when technology was transferred across boundaries through bilateral agreements with recipient states. But within less than a decade, it had become clear that this initial American technological advantage was slipping away. A new tier of nuclear suppliers was emerging – and not just from recent nuclear weapon states, but also from the more advanced non-nuclear weapon states with advanced civil capabilities. Bilateral safeguards imposed by technology suppliers would no longer keep the nuclear weapons genie in the bottle.

By the early 1960s, the IAEA therefore began to develop protocols and procedures for inspections, initially in relation to the small research reactors that the Agency had been instrumental in disseminating. Then, commencing with Japan, the US started to transfer some of its bilateral agreements over to the Agency for more politically neutral management, and the Agency in turn started to work up a system of practices for safeguarding larger power reactors. Four years later, this push culminated in the comprehensive revision of its original 1961 safeguards system, a revision that was symbolised by the production of a new Agency document INFCIRC/66, named after the Information Circular that publicised the new procedures. This was, in turn, revisited within two years to take account of the requirements for safeguarding fuel fabrication and reprocessing plants, with INFCIRC/66 Rev. 2 marking that occasion. Consequently, initial uncertainties about the exact role of the IAEA in the brave new world of civil nuclear trade gradually began to dispel as the design and implementation of safeguards moved up its working agenda.

Despite the process of constant evolution that ran through this early history of Agency safeguards, they all adhered to a certain logic that would have provided some contentment to the Australian governments that were worried about economic discrimination. Safeguards applied only to individual nuclear facilities that had been established on the basis of imported nuclear technologies and/or source materials. More importantly still, IAEA safeguards had always been absolutely explicit about their limited scope: they did not apply to materials in mining or ore processing activities. If NPT safeguards simply reproduced these characteristics, then there would be no reasonable basis for Australian concerns about discrimination. Indeed, the early 1965 drafts of the NPT worked up by the two superpowers suggested, if anything, that safeguarding standards might be lowered rather than raised. As Arnold Kramish noted at the time, the early proposals were even more permissive: the US draft sought only to have NPT state parties ‘co-operate in facilitating’ the application of Agency safeguards, while the Soviet draft only obligated signatories to ‘refrain from offering support, encouragement or inducement to States seeking to own, manufacture or exercise control over nuclear weapons’.²³ Had things continued in this vein, then Canberra and its fellow uranium exporters would have been quite satisfied.

On the other hand, there would still have been concerns that the relatively benign early path for Agency safeguards would not hold. Part of the basis for these concerns was historical, since the earliest UN effort to control the spread of nuclear weapons technology – the American-sponsored Baruch Plan of 1946 – started with the international control of (rather than the inspection of) the totality of the nuclear fuel cycle, starting with uranium

²³ Arnold Kramish, ‘The Watched and the Unwatched: Inspection in the Non-Proliferation Treaty’, *Adelphi Papers*, 36, 1967, p. 2.

mines.²⁴ And indeed, as the ENDC negotiations progressed, this soon proved to be more than just a bad memory. Within two years, the different but equally permissive early safeguards proposals of the superpowers had been abandoned in favour of a loose consensus that Treaty safeguards would apply to *the totality* of the nuclear fuel cycle in the national space of NPT signatories. The facility-specific character of the INFCIRC/66 framework appeared to be losing ground to a presumption of comprehensiveness that might yet re-capture uranium mines inside the NPT's unfinished safeguards net.

The reasons for the movement away from the early permissive proposals on safeguards would have been more worrying still to Canberra. It was largely the result of pressure from the European non-nuclear states with advanced civil nuclear capacities. These states arrived at the NPT negotiations as members of the European Economic Community – and as members, therefore, of the Euratom system, one of the original functional organs of European integration. Anticipating that nuclear power would become the backstop energy of the future, the Euratom system sought to accelerate its development by underwriting free trade in nuclear materials and technologies inside the community. This free trade was secured in the literal sense by Euratom's own safeguards, where inspections verified the declared uses for transactions of materials and technologies. Furthermore, the Euratom system of safeguards was comprehensive and non-discriminatory. In the name of comprehensiveness, it verified the declared end-use of all nuclear materials including uranium, much of which was imported into the community. And in the name of non-discrimination, it treated all community members alike – no mean feat after the French nuclear test of 1959 established it as a nuclear weapons state.

Euratom arrangements therefore conformed from the beginning to architectural principles that were considerably different to the IAEA system that was moving to the centre of NPT negotiations. The Euratom safeguards system was also much larger than the multilateral IAEA system – approximately four times larger during the period of NPT negotiations.²⁵ And its complexity was without parallel; it verified the end-uses of French enrichment plants, for instance, including those devoted to military ends. In this respect, Euratom had much to teach the Agency, which began looking to it for guidance as it contemplated the inclusion of bulk processing plants within its safeguards system.

More important still, undoubtedly, the Europeans were increasingly aware that they had their hands on a good deal of proprietary nuclear technology. By the mid-1960s, plans were on their drawing boards for two consortia that would address the task of civil uranium enrichment, previously an American monopoly in the non-communist world. Within a decade, these plans would yield up two multinational complexes: the massive Eurodif facility at Tricastin in France, but with shareholdings spread wide within the Community;²⁶ and the

²⁴ See Bernhard G. Bechhoeffer, 'Historical Evolution of International Safeguards', in Mason Willrich (ed.), *International Safeguards and Nuclear Industry*, Johns Hopkins University Press, Baltimore, 1973.

²⁵ Nearly forty per cent of research and power reactors outside the territory of the two superpowers were covered by Euratom safeguards at this time: see Lawrence Scheinman, 'IAEA: Atomic Condominium', in Robert W. Cox and Harold K. Jacobsen (eds.), *The Anatomy of Influence: Decision Making in International Organization*, Yale University Press, New Haven, 1974, p. 471, fn. 20. One might add that the NPT, of course, did not extend IAEA safeguards to civil facilities in 'recognised' nuclear weapons states, which would have accounted for the lion's share of the remainder.

²⁶ And, indeed, beyond it. In the time of the Shah, Iran was courted to take a ten per cent shareholding in Eurodif, which gave Teheran the entitlement to ten per cent of plant output. After the Iranian

URENCO cluster of smaller facilities based ultimately in The Netherlands, West Germany and Britain. URENCO was particularly notable as the first company to develop industrial plant, either civil or military, around gas centrifuge technology, which opened a door to massive cost savings on the quantity of electricity consumed during enrichment.²⁷ Not surprisingly, therefore, European authorities had good reasons to worry about the potential for commercial spying under the cloak of multilateral inspections.

Finally, the Europeans were increasingly emboldened to articulate a different view about the methods of NPT safeguards as a consequence of the failed 1964 proposal for a Multilateral Nuclear Force (MLF). The idea of community-wide control over NATO nuclear forces was, paradoxically, a logically coherent response to the post-Sputnik erosion of American relative nuclear invulnerability, which was inducing allies to ask probing questions about the credibility of Washington's nuclear umbrella. Many allied fingers on the NATO nuclear button, which is what the Multilateral Force proposed to achieve, provided one way of staunching the spread of nationally controlled nuclear arsenals (along French lines). But when the USSR refused to accede to the idea that a German finger could ever enjoy this role, and when the US flipped over behind the Soviet position so as to keep the USSR engaged with non-proliferation, the non-nuclear Europeans were even more inclined to push hard for safeguards that were attuned to their ambitious civil purposes. Increasingly, they found support from the Japanese government where there were also misgivings about the methods of Agency safeguards, and eventually from Britain, the third NPT depository state.

All these issues ramped up in Geneva in inverse proportion to the scaling back of the MLF debate. The real problem, according to the new European and Japanese revisionists, was that the overall direction of evolution of Agency safeguards was fundamentally unsatisfactory as the basis for a modern multilateral undertaking. As one of Japan's safeguards negotiators, Ryukichi Imai, expressed the misgivings, Agency practice rested on 'a global mind-reading exercise' and a game of 'cops and robbers'.²⁸ What his colourful language sought to highlight was the facility-specific nature of safeguards under the evolving Agency system, and the now-outdated presumption of US patronage on which that system had been built. Against this, the revisions proposed by the leading non-nuclear weapon states centred on a new safeguards methodology that its West German designers called 'the systems-analysis concept'. Primarily, this meant establishing a number of discrete 'Material Balance Areas' that collectively encompassed the totality of the nuclear fuel cycle within any given sovereign space, and keeping records of the precise flows of nuclear materials between them. A consistent national picture would then emerge against which the probabilities of diversion could be estimated.²⁹ The days of facility-specific safeguards were, by this reasoning, well and truly over.

settling the debate: the Australian role

This expansive safeguards debate came to a temporary resting point in Vienna around the seemingly inoffensive language of Article Three of the Treaty, which established that there would be safeguards for non-nuclear weapon states only, and that the IAEA would

revolution, these arrangements were not honoured. The consequences included the outbreak of Iranian-sponsored terrorism in France in the mid-1980s. But that is another story.

²⁷ Even today, centrifuge technology is only beginning to make an appearance in the plants of the US Enrichment Corporation.

²⁸ Ryukichi Imai, 'Nuclear Safeguards', *Adelphi Papers*, 86, March 1972, pp. 11 and 19.

²⁹ Imai, 'Nuclear Safeguards', esp. pp. 32-34 on 'A Technical Discussion of Modern Safeguards'.

execute them. This Article was, however, far from the last word on the subject. There was nothing in these words that described in any detail how NPT safeguards would be practically enacted. By mentioning the IAEA, however, all matters of detail and fine print were effectively handballed over to it. Consequently, the Agency was required to put in motion a second negotiating process that would add practical flesh to this bare skeleton of Treaty obligations.

The IAEA set to this fleshing out process in December 1968 when it established an array of technical meetings with narrow focal points. It was envisaged that the findings from these meetings would be fed into the Safeguards Committee, the standing sub-committee of the Agency's Board of Governors that was tasked with permanent oversight of safeguards issues. The two forums overlapped in time, with the ephemeral but numerous technical meetings stretched out over the following twenty one months, while the Safeguards Committee only came together in June 1970. By this time, of course, the NPT had already entered into force – but without ratifications, as we have seen, from many of the countries still involved in the intra-Agency process. Indeed, it would take a considerable period of further time before recommendations from the Safeguards Committee proved capable of adoption by the Board. The ultimate end-point was marked by the Agency's endorsement of INFCIRC/153 in 1972, establishing the new and improved standard that would guide its expanded work agenda under the NPT.

Perhaps because it fits so neatly with the subsequent urban myth about Australia's 'white knight' role in repairing the NPT, Australian input into the NPT safeguards system has been overlooked in existing debates. The oversight seems logical since Australia was not a member of the Treaty at the time these modalities were spelled out. It seems entirely reasonable to believe that a country which had not committed to the Treaty ought not be allowed a voice in shaping its safeguards – and Australia, as we have seen, did not ratify until 1973. But logic and reason were simply not relevant on this point. The IAEA process of deciding the modalities of NPT safeguards was a matter for Agency rather than NPT members, and Australia was a full member of the IAEA – a Board member, indeed, bearing responsibilities for regional representation. Australia was, in this respect, rather like many of the other countries hunkered down inside the extended Agency negotiating process – a signer rather than a ratifier of the NPT, but nonetheless a full member of the IAEA, and therefore possessed of unrestricted rights to participate in Agency debates to define NPT safeguards. The existence of this space, indeed, helps explain the gap noted earlier between NPT signatures and ratifications; many countries wanted to see the Agency's small print on NPT safeguards before making their final calculations about their standing under the Treaty. Indeed, the IAEA went one step better, allowing the undecided members of the Agency open access to the procedures that would decide the content of NPT safeguards.

As you would expect given the concerns about economic discrimination already articulated by Canberra, the critical issue from its perspective concerned the scope of NPT safeguards – in particular, the defence of the established Agency process of exempting basic uranium operations from inspections. And as you would also anticipate, there is no local commentary on Australia's diplomacy in the IAEA context. Since, furthermore, it was hardly the most pressing issue in the Agency's larger agenda of safeguards debate, international sources about the Australian role have also been relatively quiet.

But the relative quiet is nonetheless not total. A decade after the dust had settled on the NPT, a somewhat rambling but comprehensive study of the atomic age by Bertrand

Goldschmidt, the veteran compatriot of Pierre Curie who represented France at the IAEA throughout this period, noted that the CDA's former white dominions jointly approached the US to put the case for the exclusion of uranium from the net of NPT safeguards.³⁰ And two years before that, Mohamed Shaker, whose three-volume study still enjoys status as the King James version of NPT negotiations, rated this last gasp of the CDA suppliers as 'a great success' for Australia and South Africa.³¹

The intervention was not made inside the Agency or Treaty negotiations so much as in private representations to Washington late in the day in the evolution of a consensual position on the NPT. It is most likely that the point of entry into Washington for these representations was presented by the bilateral agreements that each of the petitioners had signed with the United States under Atoms for Peace. All had initialled such agreements during the somewhat frenetic six-month period that unfolded after the negotiation of the IAEA statute in mid-1955, when even a nod towards safeguards was not yet common. Later, as previously mentioned, Washington had begun to transfer these agreements over to the Agency where it could obtain easy assent, and update others to accommodate the upward-moving bar of Agency safeguards practices. The South Africans, most notably, had been through this mill a year before the NPT opened for signature. More importantly, perhaps, there was relevant pre-history to the 1968 representations. The former White Dominions had all been involved in three months of select consultations with Washington during early 1955 when the statute of the IAEA was being drafted.³² It would therefore have seemed appropriate for them to be heard out when the Agency stood on the verge of a massive expansion of its work agenda.

Political considerations related to maximising the legitimacy of the NPT would also have been highly pertinent. All three petitioners were significant near-nuclear countries for whom the technological step up to a military capability was relatively small. Canada, indeed, already had a vigorous export industry in natural uranium fuelled reactors, while South Africa was working at an experimental level on a new and vastly improved technology for uranium enrichment. And Australia's concerns with the NPT would have been well known in Washington, the subject of quiet discussions behind the scenes of larger events. For instance, the Chairman of the US Atomic Energy Commission, Glenn Seaborg, had come to Australia with LBJ during his famous pre-electoral visit of 1966, and others from the AEC would come again soon thereafter.³³

The Johnson administration would most likely have been willing to move a considerable distance on the scope of NPT safeguards if it thought this would satisfy odd-ball claims about economic discrimination and align the three petitioners behind the Treaty: this would have been regarded as a small price to pay. Although we cannot know their precise reasoning, it seems that the Americans did indeed honour such a commitment to the former white dominions, who would have been happy to observe some years later, at the end of the

³⁰ Bertrand Goldschmidt, *The Atomic Complex*, tr. B.M. Adkins, American Nuclear Society, La Grange Park, 1982, p. 389.

³¹ Mohamed I. Shaker, *The Nuclear Non-Proliferation Treaty, Origin and Implementation, 1959 – 1979*, Volume II, Oceana Publications, London, 1980, p. 720.

³² Lawrence Scheinman, *The International Atomic Energy Agency and World Nuclear Order*, Resources for the Future, Washington, 1987, pp. 68-9.

³³ See Glenn T. Seaborg with Benjamin S. Loeb, *Stemming the Tide: Arms Control in the Johnson Years*, DC Heath and Company, Lexington, 1987, p. 376.

Agency's safeguards detailing, that INFCIRC/153 safeguards would 'not apply ... to material in mining or ore processing activities'.³⁴

Conclusion: irony and angst

Whatever the Americans thought about this price in 1968, it would have seemed even smaller with the passage of time, for a great irony eventually swept across the unfinished safeguards business of that year. The push for more comprehensively scoped safeguards that the former White Dominions feared from European and Japanese quarters simply did not eventuate. In practice, if not quite in theory, the resistance of the new revisionists to the exclusion sought by the former White Dominions was minimal – and largely because the probabilistic mathematics of their 'systems-analysis concept' arrived at the same end-point by different methods!

The practical manifestation of revisionist calculus played out like this. NPT safeguards were firmly committed to detecting the diversion of 'significant quantities' of special or source materials, where the phrase 'significant quantity' referred to the amount of any given nuclear material needed to produce a single nuclear weapon. An inverse sliding scale was therefore established between the frequency of inspections and the quality of the nuclear materials requiring inspection. Consequently, once a uranium exporter had verified to the Agency that it did not possess either an enrichment facility or a reactor fuelled with natural uranium, then the possibility of diversion to military purposes was zero and, so long as the *ceteris paribus* clause held good, the interval between required Agency inspections blew out to infinity. So the fear about routinized economic discrimination against uranium exporters in non-nuclear states proved groundless, and all the diplomacy aimed at sequestering uranium from NPT safeguards became unnecessary.

That, however, could not have been clear to the Americans or anyone else in 1968 or immediately afterwards, since none of the former White Dominions fully satisfied the *ceteris paribus* clause. Of the three, only the Canadians would go on to follow Washington's hoped-for path of least resistance. In spite of starting out from the unusual position of being the leading maker and marketer of the proliferation-prone natural uranium fuelled CANDU reactor, Ottawa signed the NPT three weeks after it was launched, and added their ratification six months later. South African governments, by contrast, did not sign the NPT at that time or indeed for nearly another quarter century. In that intervening period, they perfected their indigenous gas nozzle enrichment technology as the prelude to making sufficient amounts of high enriched uranium for half a dozen atomic bombs. Over the half-decade after 1968, Australia moved between the outliers at both ends of the Canadian – South African spectrum. By wilfully exploiting the gap between signature and ratification, Canberra was initially more diplomatically devious than the South Africans; but soon after ratifying the NPT, and in the context of approving uranium exports, it flipped over to a diplomatic position that was, if anything, more pure than the Canadians (in the sense that it was never complicated by the issue of reactor exports).

The irony did not, however, create the kind of story where all's well that ends well. There were legacies. As later Australian governments moved into their 'white knight' phase – where, recall, raising the standard of international safeguards on uranium provided the stepping off point – then the dark contributions of earlier governments on this score were hard

³⁴ Article 33, INFCIRC/153.

to admit without discrediting current efforts. This was especially so given that mass support for the NPT was always questionable – a legacy, in part, of the bad publicity that governments gave the Treaty between 1965 and 1973. The art of managing these domestic tensions therefore became part of Australian diplomatic practice – and remains so to this day.