

Nuclear diplomacy as niche diplomacy: South Africa's post-apartheid relations with the International Atomic Energy Agency

Jo-Ansie van Wyk*

University of Pretoria, South Africa

*Email: vwykjak@unisa.ac.za

Since the termination of its nuclear weapons programme, commenced in 1989 and verified by the International Atomic Energy Agency's (IAEA) in 1993, successive South African governments have consistently advocated the country's commitment to nuclear non-proliferation. South Africa has secured a niche role through norm construction and state identity for itself through its nuclear diplomacy with the IAEA. The article explores aspects of South Africa's nuclear diplomacy with the IAEA as an example of niche diplomacy. Therefore, it traces South Africa's diplomatic relations with the IAEA, starting with the IAEA's verification process and the implementation of a Safeguards Agreement (1989–1994) through the conversion of South Africa's research nuclear reactor (1991–2005); South Africa's position on greater representation for developing countries on the IAEA's Board of Governors; its ambition to be elected to the position of IAEA Director General (2008–2009); and its refusal to support the establishment of a nuclear fuel bank in Russia under the IAEA's auspices (2009–2010).

Keywords: South Africa; nuclear diplomacy; niche diplomacy; International Atomic Energy Agency (IAEA); Abdul Minty; SAFARI-1; nuclear

Introduction

Since its inception in 1957, the International Atomic Energy Agency (IAEA) is the primary multilateral institution for preventing nuclear proliferation, overseeing the peaceful use of nuclear energy and securing the safety of nuclear material and facilities. As a founder-member of the IAEA, South Africa has subscribed to these principles. However, once the National Party government's nuclear weapons programme was able to produce weapons-grade highly enriched uranium (i.e. the programme 'went critical') in the 1970s, relations between South Africa and the IAEA changed from partnership to confrontation, and South Africa was suspended from the IAEA. It was only in the 1990s, when Pretoria volunteered to dispose of its nuclear arsenal, that South Africa regained its position in the IAEA. However, the return of the 'prodigal nuclear son' has at times been strained by South Africa's stance on particular issues and by IAEA demands on South Africa to achieve specific objectives.

The purpose here is to analyse an under-researched area of South Africa's nuclear diplomacy, that is, its nuclear diplomacy with the IAEA since the country terminated its nuclear weapons programme. This contribution contends that South Africa has, since 1990, secured a niche role through norm construction and state identity for

itself through its nuclear diplomacy with the IAEA. Aspects of South Africa's nuclear diplomacy with the IAEA as an example of niche diplomacy are explored. Therefore, it traces South Africa's diplomatic relations with the IAEA, starting with the verification process and the implementation of a Safeguards Agreement (1989–1994) through the conversion of South Africa's research nuclear reactor (1991–2005); South Africa's position on greater representation for developing countries on the IAEA's Board of Governors (hereafter the Board); its ambition to be elected to the position of IAEA Director General (2008–2009); and its refusal to support the establishment of a nuclear fuel bank in Russia under the IAEA's auspices (2009–2010).

Nuclear diplomacy

The diplomatic utility of a state's nuclear capabilities is that a state derives power, status, prestige and influence from these capabilities.¹ As a diplomatic type, nuclear diplomacy focuses on nuclear arms control, disarmament, the peaceful uses of nuclear energy and nuclear non-proliferation. Two types of proliferation are distinguished. Firstly, vertical proliferation refers to the increase in nuclear stockpiles in existing nuclear weapons states (NWS), defined by the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) as a state that has manufactured and exploded a nuclear weapon or nuclear explosive device prior to 1 January 1967, thus including China, France, the UK the United States and the Soviet Union (Russia).² Secondly, horizontal proliferation refers to the acquisition of nuclear stockpiles by new states, or *de facto* NWS, including India, Pakistan and Israel. Nuclear weapons have vertically and horizontally proliferated to a total of more than 22 000 warheads in NWS and new NWS, compared with 20 000 in NWS in 1995.³

For the purpose of this study, nuclear diplomacy is defined as the interaction among and between states, international organisations, individuals and cross-border non-state organisations on nuclear-related issues, actors and interests (be it material or non-material), to achieve various objectives. These objectives, in this definition, will be aligned with an actor's construction of its self/national interests, the particular identity an actor wants to portray of itself, and the nuclear-related norms an actor initiates, innovates, maintains and complies with (or chooses not to comply with). This definition involves a variety of actors and is not limited to states as the traditional and only actor in the nuclear field. Increasingly, non-state actors such as private corporations participate in scientific research and development, and trade in nuclear material, goods, equipment and services. Moreover, concerns have also been raised about the illicit trade in nuclear material, goods, equipment and services. In 1995, for example, the IAEA established the IAEA Illicit Traffic Database to gather information on incidents of illicit trafficking and 'other unauthorized activities involving nuclear and radioactive materials'.⁴ From January 1993 to December 2011, a total of 2164 incidents related to illicit nuclear trafficking were confirmed. Currently, 113 states, including South Africa, participate in the Illicit Traffic Database.⁵

Examples of nuclear diplomacy are wide-ranging, and illustrate the existence of a particular type of diplomacy to determine and apply internationally agreed safeguards and principles of verification of states' nuclear facilities and intentions. This form of diplomacy has resulted in, for example, the establishment of new global nuclear norms, nuclear export regimes and agreements on nuclear

terrorism. It also entails the safety and security of nuclear material, scientists and installations, and the enforcement of norms relating to the development and application of nuclear science and technology for peaceful purposes. A more significant implication of nuclear diplomacy is that it is an instrument of a state's power, authority and influence. States with a civilian and/or military nuclear capability continue to yield significant power, authority and influence.

A number of observations about the practice of nuclear diplomacy can be made. Firstly, it is, as indicated, a diplomatic niche. Secondly, it is a 'Janus-faced' diplomatic practice as actors, on the one hand, attempt to prevent the spread and use of nuclear weapons and, on the other hand, attempt to acquire nuclear-related (non-weapon) capabilities. Thirdly, the lack of diplomatic instruments and initiatives to accommodate non-state nuclear actors must be rectified, as the existing export and trade regimes are not sufficient to address pertinent questions in relation to nuclear non-proliferation. Finally, whereas the 'nuclear taboo' persists, that is, moral sanctions against the use of nuclear weapons, the civilian use of nuclear energy has increased substantially with scientific developments in, for example, medicine and physics.

Niche diplomacy

First coined by Australia's former foreign minister, Gareth Evans, niche diplomacy focuses on a state's ability to identify and fill niche spaces through diplomatic entrepreneurship.⁶ Typically, states practising niche diplomacy focus on a specifically selected issue, organisation or activity. Niche diplomacy is particularly practised by a middle power state, that is, a state that is not capable of achieving certain outcomes on its own but can do so through small groups or multilateral institutions.⁷ Therefore, the impetus for the various types of niche diplomacy is located in the tenets of middle power diplomatic behaviour, which has a strong normative foundation emphasising 'entrepreneurial flair and technical competence'.⁸ Other features of niche diplomacy include the focus on consensus and coalition building, cooperation on an issue-specific basis and adopting the role of bridge-builder, mediator, facilitator or catalyst. The latter involves planning, convening and hosting meetings, prioritising for future meetings on a particular issue, and drawing up declarations and manifestoes.⁹

Countries engaged in niche diplomacy employ a number of diplomatic practices that provide both material and non-material rewards, such as trade opportunities, status and prestige. The diplomatic practices include:

- *Confrontation* — attempting to diverge the terms of the existing debate away from realism, often with some form of ideological confrontation with NWS such as the United States, UK, China, Russia and France.
- *Parallelism* — attempting to cultivate a form of 'realism lite' or enlightenment through parallel action alongside a superpower and its coalition partners.
- *Partnership* — engaging in active partnership with the dominant power on a realistic footing.¹⁰

For South Africa, the material and non-material rewards associated with its niche diplomacy in nuclear matters were considerable, and raised Pretoria's profile in the post-apartheid period. With the dismantling of its nuclear weapons programme, South Africa accrued unprecedented moral authority and legitimacy as a former

de facto nuclear weapons state.¹¹ Among other honours, South Africa subsequently served in leadership positions in various IAEA committees, hosted and attended several IAEA conferences and workshops, and passed several IAEA inspections of its nuclear facilities. The apparent contradiction between the normative basis of South Africa's actions, and the material and non-material rewards accrued owing to its niche diplomacy may raise eyebrows. But these are not necessarily mutually exclusive. Both serve the country's national interests and maintain its nuclear-related identity, especially within the context of the IAEA. For a fuller understanding of Pretoria's normative basis of its nuclear diplomacy, a discussion of norms related to niche diplomacy is helpful.

Norms

Norms prescribe and regulate state behaviour. Moreover, norms often constitute a state's identity and interests.¹² A state's consistent compliance with internationally accepted norms contributes to its predictability, trustworthiness, credibility, status and prestige. Voluntary observance of norms serves a state's long-term interests, as states derive benefits from the stability and predictability of the international order.¹³

For constructivists, changes in a state's behaviour can be explained in terms of the diffusion of norms, and the socialisation and the institutionalisation of norms, which constitute the life-cycle of norms. Therefore, constructivists are concerned

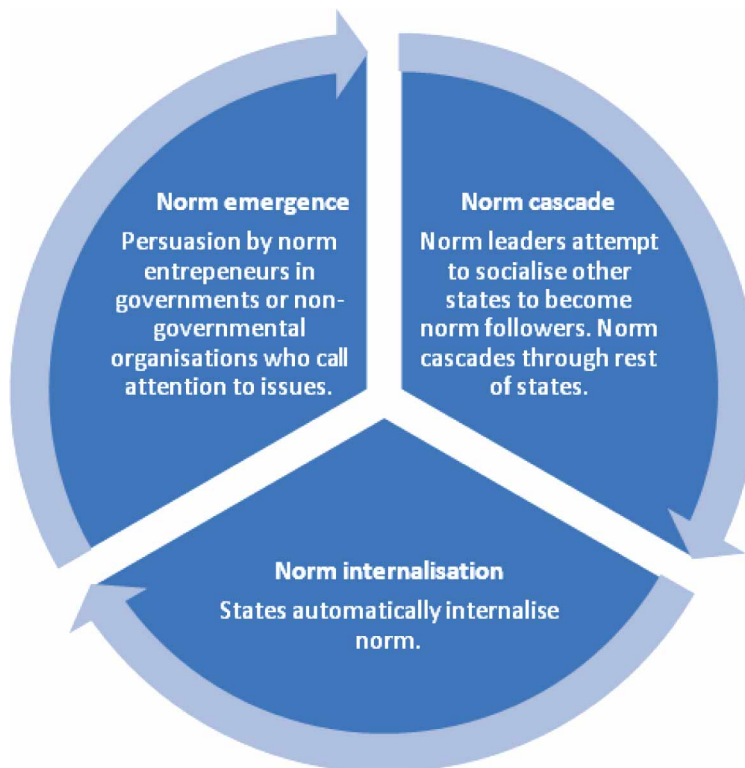


Figure 1. Three stages of the life-cycle of norms.¹⁵

with the political process whereby actors are socialised into norm construction, enactment and compliance, as outlined in Figure 1.¹⁴

In its construction of its new nuclear-related identity, South Africa presents a textbook example of the life-cycle of norms. International actors' persuasion — some would say coercion — of South Africa to abandon its nuclear weapons programme resulted in the cascade of the norms related to nuclear non-proliferation, nuclear disarmament and the peaceful uses of nuclear energy into South African policymaking. Subsequently, South Africa's socialisation of these norms resulted in the country's internalisation of them, as is evident in its relations with the IAEA, where in turn South Africa has often acted either as a norm entrepreneur or as a norm complier. Against this backdrop of niche diplomacy and of norm development, an overview of South Africa's nuclear diplomacy follows.

IAEA's verification process in South Africa

In 1991, South Africa concluded two major international nuclear-related agreements, namely the ratification of the NPT (10 July 1991) and the conclusion of a Comprehensive Safeguards Agreement (hereafter the Safeguards Agreement) with the IAEA (16 September 1991). The latter agreement was preceded by the approval of the dismantling of South Africa's nuclear weapons programme by President F W de Klerk in July 1990 and the removal of all highly enriched uranium from the country's nuclear weapons by 6 September 1991.¹⁶

The implementation of the Safeguards Agreement and ad hoc inspections by a team of IAEA officials of South Africa's nuclear facilities commenced in November 1991, subsequent to the IAEA's receipt of South Africa's initial report (submitted on 31 October 1991), as well as the report produced by the Atomic Energy Corporation of South Africa (AEC), the predecessor of the Nuclear Energy Corporation of South Africa (Necsa). That report was entitled 'Report on the completeness of the inventory of South Africa's nuclear installations and nuclear material as of 30 September 1991'. Notwithstanding these two reports, the IAEA maintained that the initial assistance provided by the South African government was 'not considered to be sufficient' for verification.¹⁷ The IAEA reported that the uranium-235 [U-235] balances shown by South African authorities revealed 'apparent discrepancies'.¹⁸ Subsequently, four additional visits to South Africa took place to examine these discrepancies. Based on historical records provided by the AEC, the IAEA team concluded that, at the time, South Africa's U-235 balance of the highly enriched uranium (HEU), low-enriched uranium (LEU) and depleted uranium produced by the pilot enrichment plant was 'consistent with the uranium feed' and that the amounts of HEU were 'consistent with the amounts declared in the initial report [by the South African government]'.¹⁹ The apparent discrepancy in the U-235 balance of the semi-commercial enrichment plant was not resolved at the time.²⁰ The IAEA seemed to remain suspicious when it declared that it would continue to 'utilise' the 'standing invitation' by the South African government to 'satisfy for itself on a continuing basis that such facilities are now dedicated to commercial non-nuclear usage'.²¹

Between November 1991 and September 1993, the IAEA carried out a further 22 inspection missions and 150 inspections of South African nuclear facilities to implement the Safeguards Agreement and verify South Africa's initial report. Unlike in the previous period, the IAEA confirmed that, by 1993, it had experienced a

'highly cooperative attitude' from the South African government.²² Despite this, IAEA officials maintained that the South African verification process was 'complex' and 'further complicated' by de Klerk's announcement to Parliament on 24 March 1993.²³ After years of denial by successive National Party governments, de Klerk admitted that South Africa had a nuclear weapons programme and had produced at least six 'nuclear devices'. As noted earlier, the nuclear weapons programme was terminated in 1989 and in 1993 the IAEA verified the termination of the programme as well as the dismantling of these six nuclear devices. However, De Klerk's announcement meant that the IAEA was required to extend its assignment and include nuclear weapons experts in its teams. A further complication was the destruction of classified documents (during so-called Operation Masada) relating to the South African nuclear weapons programme and sensitive weapons components.²⁴ South African authorities kept no records of the dismantling of the demonstration device, nor on 'any of the pre-production experimental devices or on the destruction of their components'.²⁵ In response to this, the IAEA team recommended the 'complete destruction' of all remaining 'components, photographs and drawings' that could reveal any information about the nuclear material core and components. The team also found inconsistencies in the HEU originally supplied to the state-owned Armaments Development and Production Corporation of South Africa (ARMSCOR) that had been returned to the AEC. Because of this finding, the uranium metallurgy process area at ARMSCOR was 'dismantled and decontaminated'.²⁶

Towards the end of 1993, the IAEA team concluded that it found 'substantial evidence' of the destruction of non-nuclear material components and found 'no indication' that 'substantial amounts of depleted or natural uranium used in the nuclear weapons programme [were] unaccounted for', that is, IAEA inspectors verified that South Africa's nuclear weapon programme had been terminated.²⁷ However, the IAEA continued with its assessment of how the production of LEU had been accounted for.²⁸ The IAEA also concluded that no information about the existence of 'any undeclared facilities' could be determined. The agency concluded subsequent to their visit to the Vastrap test site in the Kalahari Desert on 11 August 1993 that the measures taken by the AEC 'rendered useless the test shafts'. By September 1993, the IAEA concluded that the status of the Safeguards Agreement between South Africa and the IAEA was 'satisfactory'.²⁹ In particular, the IAEA concluded that South Africa's nuclear weapons programme was terminated, that all South Africa's HEU had been accounted for and that no evidence of any sensitive components of the nuclear weapons programme existed as these components had been rendered useless or converted to commercial non-nuclear applications.³⁰ The IAEA commended the South African government for its 'transparency and openness' during the verification process, as well as its provision of 'access and data beyond those required by its NPT safeguards agreement'.³¹

South Africa's bilateral agreements with the IAEA

Apart from the Safeguards Agreement with the IAEA, South Africa has, as Table 1 indicates, concluded several other bilateral agreements with the IAEA. Most of these agreements were concluded subsequent to the termination of South Africa's nuclear weapons programme.

Table 1. South Africa's agreements with the IAEA.

Agreement	Status	Date
NPT related agreement	Entry into force	16 September 1991
African Regional Cooperative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA)	Entry into force	18 May 1992
Improved procedures for designation of safeguards inspectors	Accepted	19 July 1995
First Country Programme Framework (CPF)	Implemented	1999–2004
Second Extension Agreement	Entry into force	4 April 2000
Additional Protocol	Entry into force	13 September 2002
Second CPF	Implemented	2006–2010
Supplementary agreement on provision of technical assistance by the IAEA	Entry into force	Not available
Agreement on privileges and immunities	Entry into force	Non-party

Sources: GCIS (Government Communication and Information System), 'SA, IAEA sign cooperation agreement', *BuaNews*, 5 December 2006, <http://www.buanews.gov.za/news/06/06120516151007>; IAEA, *South Africa*, 2009, <http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2009/countryprofiles/SouthAfrica/SouthAfrica2003.htm>

Of the bilateral agreements outlined in Table 1, the Additional Protocol is one of the most important agreements. The protocol is designed for states that have already signed a safeguards agreement and aims to strengthen the IAEA's capability to detect 'undeclared nuclear material and activities', and to provide 'credible assurances of and confidence in the peaceful application of nuclear energy'.³² Signed by South Africa on 13 September 2002, the Additional Protocol requires South Africa to supply comprehensive information to the IAEA and grant inspectors greater access to South Africa's nuclear sites, facilities and activities.

South Africa's diplomatic relations with the IAEA have for the period under discussion also been techno-political in nature. In 2006, South Africa concluded a second Country Programme Framework (CPF) agreement with the IAEA. The second CPF followed South Africa's first CPF (1999–2004), thus making South Africa the only African country to have concluded a second CPF with the IAEA. The second CPF outlines South Africa's future needs pertaining to nuclear technological cooperation and development. The main objective of the CPF is for the IAEA to establish a system of 'supervision and controls' in order to ensure that none of the agency's assistance programmes or the materials that the IAEA distributes are used for military purposes.³³ Moreover, the CPF is a 'mutually agreed strategy for matching nuclear technology to priorities identified by South Africa for its sustainable development'.³⁴ In 2010, the review of the third CPF between South Africa and the IAEA commenced.³⁵

Multilateralism and South Africa's nuclear diplomacy

Since the establishment of the IAEA, South Africa has reiterated the technical (rather than political) role of the agency. However, as the Cold War intensified, the IAEA took on a more political role and once apartheid South Africa's nuclear intentions and activities became known, the relations between South Africa and the agency took on a more political dimension. Later, after 1994, South Africa restated its position, for example in 2005 when its delegation stated that the IAEA remains

the ‘internationally recognised competent authority responsible for verifying and assuring compliance with the safeguards agreements’ on nuclear non-proliferation.³⁶ A similar view was expressed by the South African Minister of Energy, Buyelwa Sonjica, at an IAEA General Conference (GC) when she stated that South Africa is ‘fully committed’ to the IAEA’s objectives.³⁷

Apart from South Africa’s bilateral agreements with the IAEA, it has, as examples of its nuclear diplomacy with the IAEA, hosted several IAEA conferences and seminars. In June 2002, for example, South Africa co-hosted with the IAEA an intergovernmental seminar for African states, which was attended by 80 government representatives from at least 33 African countries, to encourage African countries to make a commitment to nuclear non-proliferation.³⁸ In December 2009, South Africa’s National Nuclear Regulator hosted the four-day-long IAEA International Conference on Effective Nuclear Regulatory Systems. Conversely, the IAEA provided South Africa with technical assistance in the latter’s preparations for hosting the 2010 Football World Cup.³⁹

Within the context of nuclear diplomacy, South Africa continued to emphasise the importance of multilateral diplomacy to achieve global nuclear non-proliferation. The importance South Africa ascribed to multilateralism was reiterated by Deputy Minister of Foreign Affairs Aziz Pahad when he maintained that, for South Africa, multilateralism ‘should be and could be the only cornerstone of global security’.⁴⁰

Membership and leadership of the IAEA Board of Governors

South Africa has also directed its nuclear diplomacy efforts at the governance of the IAEA. Appointed by the IAEA Board of Governors, with the approval of the GC, the director general is the chief administrative officer of the IAEA. Membership of the board is based on two discriminatory requirements. It includes not only a geographical requirement, but also high levels of technical competency. For South Africa, these discriminatory requirements have been unacceptable since it resumed its seat on the board in 1995.

Article VI of the IAEA Statute

In terms of Article VI of the IAEA statute, the board is the IAEA’s principal decision-making body. Of its 35 members, 13 members are ‘designated’: 10 are to come from the ‘most advanced in the technology of atomic energy including the production of source materials’, and the other three are to be the most advanced members from each of the three geographical areas not represented among the first 10.⁴¹ The remaining 22 board members are elected from eight geographical areas, comprising North America, Latin America, Western Europe, Eastern Europe, Africa, Middle East and South Asia, South East Asia and the Pacific and the Far East. Since the establishment of the IAEA, the number and proportion of African and Middle Eastern members of the IAEA has increased significantly. However, the IAEA Statute designated Africa and the Middle East only one elective seat on the board.

South Africa’s representation on the board dates back to 1957, when South Africa was elected to serve on the first board. South African diplomat Donald Sole represented the country, which as a founder member of the IAEA and the most advanced nuclear country in Africa, held the designated seat for Africa until its suspension from the board in 1977.⁴² South Africa resumed its seat on the board in 1995.

Historically, South Africa advocated the expansion of the board's membership, as it deemed Article VI of the statute too discriminatory. In the early years of the agency, South Africa's proposal to expand Africa's representation on the board was adopted and implemented: in 1961 the board and the GC approved an amendment to the agency's statute adding two more elective seats to the African region. The second amendment of the IAEA Statute entered into force on 1 June 1973, resulting in an increase in board membership to 34, with developing states having a small majority.⁴³ Developing countries used this majority to their advantage in September 1976 when the Group of 77 (G-77) requested that the board review South Africa's designation as a board member from Africa. Egypt's challenge to South Africa's designation paid off when, in June 1977, the Board decided by a vote of 19 to 13, with one abstention, to uphold the nomination of Egypt as the member state from Africa deemed the 'most advanced in nuclear technology including the production of source materials', as per the requirement in the IAEA Statute.⁴⁴ The 1977 decision introduced a new phase in South Africa's diplomatic relations with the IAEA, as the agency's members joined the international community in its condemnation of South Africa's domestic policies and suspicions of a South African nuclear weapons programme. One of the earliest actions against South Africa was the rejection of the South African delegation's credentials for the session of the GC in September 1979.

Following the demise of apartheid and as a result of the country's dismantling its nuclear weapons programme, South Africa was invited to attend the GC in 1994 and to 'resume participation in all activities of the Agency'.⁴⁵ Moreover, the GC requested that the board review South Africa's designation as a member of the board in compliance with the IAEA Statute.⁴⁶ Once the IAEA concluded its verification process in the country, South Africa, with Egypt's concurrence, regained its seat on the board. On 25 September 1995, South Africa returned to the board as the representative of the African region. This was an important development, as the IAEA's verification and the country's renewed membership on the board added weight to its nuclear diplomacy and paved the way for, among other successes, South Africa's ratification and the entry into force of the African Nuclear Weapons Free Zone Treaty (the Pelindaba Treaty), discussed in full elsewhere.⁴⁷

Once back as a board member, South Africa again sought to improve the representation of developing countries on the board, calling for a 'stronger voice for developing countries' in line with South Africa's stated foreign policy, as well as its self-proclaimed identity as a bridge between developed and developing countries.⁴⁸ South Africa's stated foreign policy included, *inter alia*:

- a self-ascribed role as an African leader;
- an orientation of non-alignment;
- a specific diplomatic style and role as a bridge builder between the North and the South;
- multilateralism as the preferred diplomatic practice as well as the promotion of its national interests; and
- a self-ascribed role as agenda setter and norm entrepreneur.⁴⁹

It is against this background that South Africa has repeatedly expressed its position on the representation of the board members of the IAEA. As early as 1998, South Africa stated that it 'regretted deeply' the little progress that had been made

on the expansion of the membership of the board, which could have ‘benefited Africa’.⁵⁰ In addition to this, South Africa’s representative at the IAEA, Ambassador Abdul Minty, stated that a failure to achieve greater African and developing country representation ‘would delay the agency’s democratization’.⁵¹

Leadership of the board of governors

With his election as IAEA Director General on 4 June 1997, Egyptian Mohamed ElBaradei became the agency’s first director general from a developing country. When ElBaradei’s 12-year tenure ended in 2009, deep divisions between the board’s advanced nuclear states and the developing and non-aligned members that form the majority of the board’s members became increasingly evident. With ElBaradei’s departure, board members from advanced nuclear states intensified their search for a candidate who would ‘scale back the IAEA’s ambitions’, preferring a ‘strong consensus candidate bridging divisions between industrialised and developing nations’.⁵²

ElBaradei’s departure presented South Africa with an opportunity to nominate a South African candidate to lead a major multilateral organisation. In September 2008, Ayanda Ntsaluba, the Director General of the South African Department of Foreign Affairs⁵³ announced the nomination of Ambassador Minty for the director general position.⁵⁴ Minty’s candidature was endorsed by the African Union Summit in Sharm El Sheik, Egypt. Subsequently, South Africa submitted Minty’s nomination on 27 November 2008 to the chairperson of the IAEA Board. In a statement on the submission, the Department of Foreign Affairs made reference to South Africa’s identity as a founder member of the IAEA and the most advanced country in the nuclear field on the African continent, and to its role as a promoter of the peaceful uses of nuclear energy. South Africa also made clear its preference for a multilateral approach, reiterating that it firmly believes such an approach is ‘the only sustainable road’ to address global issues.⁵⁵ The main contenders for the post included experienced candidates from Spain, Belgium, Slovenia and Japan. Realising the strength of Minty’s competition, Ntsaluba stated that the South African government would do what was ‘necessary to support Ambassador Minty’s candidature’.⁵⁶

Speaking on the election of the director general on 5 March 2009, Minty outlined his commitment and intentions, should he be elected, to focus on the following issues:

- the need to maintain the agency’s ‘impartiality and integrity’;
- the role of the IAEA as the ‘leading international organisation’ in nuclear affairs to advance the contribution of nuclear energy to human development and peace;
- nuclear disarmament and nuclear non-proliferation;
- strengthening the safeguards system;
- improving the human, financial and technical resources, and operation of the IAEA;
- the political and technical role of the IAEA, stating that the agency ‘by its very nature has a political role’; and
- ‘Inclusive and consultative leadership’ and decision-making based on consensus.⁵⁷

Minty made few references to developing countries in his first statement on the elections, but in his second statement on 27 March 2009 he returned to the issue of developing countries' right to nuclear energy, reiterating a position that has often resulted in diplomatic confrontation between South Africa and the NWS on the board.⁵⁸

On 9 June 2009, the board conducted an informal non-binding poll of the member countries on the five candidates, in order to determine their prospects for success.⁵⁹ Japanese candidate Yukiya Amano received the most votes, with Minty receiving the second most votes. Amano beat Minty in the March 2009 run-off, but did not receive the required two-thirds majority during a secret vote.⁶⁰ After the final and secret vote on 2 July 2009, Minty admitted defeat, noting that the election process was long and hard, and declared South Africa's support for Amano's tenure as IAEA Director General.⁶¹

The process of electing the director general is an extremely political process requiring intense diplomatic efforts. The election of past director generals has produced a spate of diplomatic wrangles, with Hans Blix and Mohamed ElBaradei both elected as 'compromise' candidates.⁶² In the end, South Africa's identity and unique experience pertaining to nuclear issues, Minty's personal background and credentials as a disarmament activist, and South Africa's niche role as a bridge between developed and developing countries were not enough to secure election to the role of director general. According to one commentator, South Africa's candidate was 'intensely opposed by most advanced nuclear members'.⁶³ Western countries with nuclear capabilities instead supported the Japanese candidate over the South African activist Minty, whereas developing countries preferred a 'moderate G-77 candidate'.

For South Africa, the consequences of Minty's election failure were several. Firstly, it indicated that South Africa did not necessarily enjoy the standing the country perceived itself to have. Secondly, South Africa lost some status and prestige in the process. Thirdly, despite South Africa and other developing countries' efforts to secure greater representation in the IAEA, the NWS continue to exert tremendous influence. With many more diplomatic and other resources at their disposal, the NWS can achieve greater diplomatic success in areas such as this. Significantly, Minty represents a generation of liberation-era diplomats, who for decades drummed up international support for sanctions against apartheid. In fact, Minty was instrumental in advocating nuclear non-proliferation and nuclear disarmament in South Africa, which formed part of the international anti-apartheid struggle. Yet, even with his extensive networks of contacts, a demonstrated commitment to nuclear non-proliferation, and personal influence and standing, Minty's election failed. This signalled that South Africa, despite all its nuclear non-proliferation and disarmament commitments, continued to be viewed with some suspicion.

South Africa's nuclear sovereignty and the IAEA's nuclear fuel reserve

South Africa has repeatedly maintained that the right of states to the peaceful application of nuclear energy is sacrosanct, thus upholding all states' nuclear sovereignty. This position has often resulted in diplomatic confrontations between South Africa and other IAEA board members. On the other hand, South Africa's support of the inalienable rights of all states to develop nuclear energy for peaceful purposes has resulted in diplomatic partnerships with India and Brazil and the

Non-Aligned Movement.⁶⁴ South Africa's position on the inalienable rights of states to develop nuclear energy and on states' nuclear sovereignty has been most clearly illustrated in its opposition of the nuclear fuel reserve established under the auspices of the IAEA.

The origins of this nuclear fuel reserve can be traced back to 2006. Addressing a summit of the Eurasian Economic Community on 25 January 2006 in St Petersburg, Russian President Vladimir Putin proposed the creation of a Global Nuclear Power Infrastructure, which would establish a network of service providers to provide full fuel-cycle services, including uranium enrichment, fuel fabrication and reprocessing to states lacking such capabilities. Putin proposed that these facilities should be placed under IAEA safeguards and would provide states with fuel cycle services on a non-discriminatory basis. According to Putin, his proposed initiative aimed to limit the proliferation of sensitive technologies while providing nuclear fuel supply assurances to states that refrain from acquiring full fuel-cycle capabilities.⁶⁵ Russia's 2006 proposal also included the establishment of several International Nuclear Fuel Centres globally, and an offer to host the first one. Kazakhstan joined the Russian initiative and, on 26 October 2006, the construction of a joint Russian–Kazakh enrichment centre at the Angarsk Electrolysis Chemical Plant in eastern Siberia was announced with plans to enrich uranium from Kazakhstan.⁶⁶

In June 2009, Director General Mohamed ElBaradei proposed the establishment of an LEU reserve under the IAEA's auspices. In addition to ElBaradei's proposal, Russia proposed the idea of an assurance of supply mechanism. In presenting the idea to the IAEA members, ElBaradei reassured members that both the IAEA LEU bank and the Russian proposal were designed to 'provide assurance of supply over and above countries' existing rights'.⁶⁷ The director general's proposal entailed a physical LEU bank at the disposal of the IAEA as a 'last-resort reserve for countries with nuclear power programmes which face a supply disruption for non-commercial reasons', accessible to all states.⁶⁸ The rationale for ElBaradei's proposal was to move towards multinational, rather than national, control of the nuclear fuel cycle.

South Africa did not support the Russian initiative on the basis that it would prevent South Africa and developing countries from pursuing uranium enrichment, as South Africa had already announced its intention to enrich uranium.⁶⁹ Moreover, South Africa indicated that it could not support any restrictions on countries that had decided to use nuclear energy for peaceful purposes, consistent with a recurring theme in South Africa's diplomatic relations: the objective to address the issue of global inequalities. For South Africa, the imposition of 'additional restrictive measures' on some states, while allowing others to have access to those capabilities, would serve to 'aggravate existing inequalities' in the NPT.⁷⁰ Another recurring theme in South Africa's nuclear diplomacy has been its support of 'the unambiguous principle' in the NPT, which states that nothing in the NPT 'shall be interpreted as affecting the inalienable right of all parties to develop research, production and use of nuclear energy for peaceful purposes without discrimination'.⁷¹

ElBaradei's proposal to commence with the planning of a multilateral civilian nuclear fuel supply was blocked by the IAEA's Board on 18 June 2009.⁷² However, later in 2009, the IAEA approved the establishment of the first international nuclear fuel repository. Twenty-eight IAEA member states voted in favour of the establishment of the facility, whereas six members abstained. In abstaining from the vote, South Africa joined Tunisia, Venezuela, Ecuador, Brazil and Argentina. Pakistan announced that it would not participate in the vote. In what can be regarded as a

reaction to the IAEA decision to establish the nuclear fuel reserve, South Africa's Energy Minister, Dipuo Peters, reiterated South Africa's intention to secure its own fuel supply. He further noted that Necsa, in cooperation with some international fuel cycle actors, was already conducting feasibility studies, and that laboratories and facilities were under construction for the re-establishment of fuel cycle operations in South Africa.⁷³ The decision by the South African government on nuclear fuel announced by Minister Peters signals one of the major departures from IAEA policies as well as parallelism as a diplomatic practice, with South Africa initiating nuclear fuel facilities parallel to the IAEA's nuclear fuel reserve.

By December 2010, the repository opened a uranium enrichment facility at the International Enrichment Centre at Angarsk in Siberia (Russia), following an IAEA–Russian agreement to reduce nuclear proliferation and uranium processing by providing LEU to any IAEA member.⁷⁴ The International Enrichment Centre will attempt to ensure an uninterrupted supply of LEU for nuclear power generation. Apart from funding the establishment of the 120 ton reserve, Russia also funded the maintenance, storage, safety, security and safeguarding of the centre.

SAFARI-1 conversion and isotope production

In the wake of the New York and Washington terrorist attacks of 11 September 2001, international concerns about the threat of nuclear terrorism increased. Through its Nuclear Security Plan 2006–2009, the IAEA and its members cooperated to improve nuclear security worldwide and counter illicit nuclear trafficking. One of the efforts has been to shift the use of HEU to LEU in commercial applications through the conversion of nuclear reactors.⁷⁵

Initiated in 1960 as a 20 MW tank-in-pool-type light water reactor, the South African Fundamental Atomic Research Installation (SAFARI-1) research nuclear reactor was inaugurated by Prime Minister Hendrik Verwoerd in 1965 and, by 1968, produced 20 MW of power. As South Africa's international isolation grew, it also affected the operation of SAFARI-1. In 1976, an international embargo was instituted against fuel supply to SAFARI-1 specifically. However, as was later discovered, this did not deter the South African government from using SAFARI-1 to commence with uranium enrichment for its nuclear weapons programme.

Once the IAEA concluded the verification process of the dismantling of South Africa's nuclear weapons programme in 1993, the diplomatic focus between South Africa and the IAEA shifted to, among other issues, the conversion of SAFARI-1 from HEU to LEU, as some IAEA members remained cautious of South Africa's nuclear intentions. From 1993, SAFARI-1's operations shifted from military purposes to commercial applications, especially producing medical isotopes, using HEU from South Africa's inventory verified by the IAEA.⁷⁶ However, the IAEA then demanded the conversion of the research nuclear reactor to LEU, an issue South Africa was hesitant to address as the SAFARI-1's HEU-based operations provided South Africa with considerable scientific status and prestige, and valuable income from its isotope production.

Subsequent to years of diplomatic efforts by the IAEA, the South African government, through the Necsa, authorised and financed the conversion of SAFARI-1 in July 2005.⁷⁷ Established in 2000, Necsa is the national contact point between the South African government and the IAEA. Necsa is also, in terms of the Nuclear Energy Act (Act No. 46 of 1999), responsible for the management of South Africa's

Safeguards Agreement with the IAEA and the country's nuclear material to prevent nuclear proliferation. In addition to this, Necsa is the owner-operator of SAFARI-1.

The original conversion process was to be completed in three to four years, consisting of two main phases, namely the establishment of a local LEU manufacturing capability and the conversion of the SAFARI-1 core from HEU to LEU fuel.⁷⁸ By 2008, Necsa reported that 'good progress' had been made with the conversion of SAFARI-1 through a cooperation agreement with AREVA-CERCA, a French state-owned nuclear power utility, which provided Necsa with LEU fuel plates.⁷⁹ On 25 June 2009, SAFARI-1 used LEU for the first time since it had enriched weapons grade HEU on 18 March 1965. Announcing the successful conversion, Necsa stated that the conversion was 'in line with international norms to reduce proliferation risks' and that it would enable South Africa to promote South African products as 'non-proliferation compliant' and to 'request preferential treatment in key markets such as the United States, and to expand our production in international joint ventures'.⁸⁰ This statement correlates with the observation that states convert their nuclear reactors based on economic, political, military and technical considerations.⁸¹ From 2009 to 2010, for example, a Necsa subsidiary, NTP Radioisotopes (Pty) Limited (NTP), earned South Africa considerable foreign exchange, exceeding its sales target for the period by 21%.⁸² Moreover, the Necsa statement in 2009 illustrates cooperation and partnership as South African diplomatic strategies, especially as relates to South Africa's relations with the IAEA.

However, more important than the considerations mentioned above are the diplomatic 'returns' on the conversion, in line with Henrikson's observation of states' motives for employing niche diplomacy.⁸³ For South Africa, the successful conversion was beneficial in non-material terms. Not only did South Africa receive international recognition from the IAEA, but further status and prestige was also lent by the scientific expertise and moral authority associated with the conversion. By April 2010, at US President Barack Obama's Nuclear Security Summit in Washington, DC, which was attended by 47 countries, South Africa announced that it had 'quite ambitiously' adopted a national policy of HEU-free production of medical isotopes — and developed the technology to achieve it.⁸⁴

In September 2010, Necsa announced that NTP Radioisotopes had become the first and only company in the world producing the medical isotope Molybdenum-99 (Mo-99) on a commercial scale using LEU-based technology.⁸⁵ Reporting on South Africa's activities to the IAEA, Ambassador Minty announced that, since July 2010, South Africa had been the world's largest supplier of Mo-99 based on LEU; this view was shared by the IAEA.⁸⁶ South Africa's status was improved owing to global shortages of Mo-99 from 2007, owing to planned and unplanned shut-downs of Mo-99 producing reactors in Canada and The Netherlands. In 2010, South Africa, Canada, Belgium, France and The Netherlands produced 95% of the medical isotope Mo-99. Other Mo-99 producing countries included Australia, Argentina, China, Malaysia, Brazil, Russia, Poland, France, India, Kazakhstan and Uzbekistan.⁸⁷

Through the conversion, South Africa also acted as a norm entrepreneur. By transforming from a country that once had an HEU-based nuclear weapons programme to a country that produces medical and other isotopes from LEU, South Africa has illustrated its commitment to nuclear non-proliferation and the

peaceful uses of nuclear energy. With this, South Africa has arguably consolidated its identity as a major nuclear power and moral authority in the developing world.

Assessing South Africa's nuclear diplomacy with the IAEA

An implication of South Africa's niche diplomacy in the nuclear arena is that it has some advantages over other countries. These advantages can be locational, traditional or consensual, and South Africa has consistently held each within the IAEA.⁸⁸ South Africa has locational advantages in that it is the only African state to have acquired nuclear weapons; its traditional advantage arises from the fact that the country has a long history of nuclear capabilities; and it is consensual (South Africa's non-proliferation commitment is reflective of the country's post-apartheid commitments, as outlined in foreign policy statements since 1994).

In its assessment of South Africa's international relations policy from 1994, the South African government in 2010 identified the country's foreign policy priorities and objectives as follows:

- the consolidation of the African Agenda;
- the strengthening of South–South cooperation;
- the strengthening of North–South cooperation;
- participation in the global system of governance; and
- the strengthening of political and economic relations.⁸⁹

With regard to the consolidation of the African Agenda and strengthening South–South cooperation, South Africa has cooperated and established partnerships with African and other developing countries on issues such as the reform of the IAEA through, for example, the expansion of developing countries' representation on the IAEA's Board of Governors (hence Minty's nomination for the position of director general of the IAEA) and promotion of the right of developing countries to develop nuclear energy for peaceful purposes. South Africa also adopted this position on the establishment of the International Enrichment Centre in Russia, as it maintained that the nuclear fuel reserve would prevent some countries from obtaining enriched uranium for developmental purposes. Moreover, South Africa exports medical isotopes to several developing countries and therefore assists these countries' achievement of, *inter alia*, the Millennium Development Goals, a stated objective of the IAEA.

On the issue of strengthening North–South cooperation, South Africa has used its position as a member of the IAEA Board to cooperate and form partnerships with its historic diplomatic partners of the North. Addressing the National Assembly on 18 May 1995, South Africa's Minister of Foreign Affairs Alfred Nzo highlighted some of South Africa's earliest foreign policy dilemmas, namely balancing its relations between the developing and industrialised worlds.⁹⁰ Moreover, South Africa has also advocated that IAEA members from developed countries should assist members from developing countries to comply with the IAEA Statute and the decisions taken by the IAEA, such as the implementation of safeguards. However, it was South Africa's conversion of its SAFARI-1 research nuclear reactor to use LEU that served as a major illustration of North–South cooperation, as well as cooperation and partnerships with the IAEA.

South Africa's intention to participate in the global system of nuclear governance has been clearly visible in its membership of the IAEA Board once it resumed its seat in 1995. More importantly, South Africa's commitment to participating in the global system of nuclear governance is also evident in its repeated diplomatic actions and statements pertaining to nuclear disarmament, non-proliferation and arms control in support of international peace and security. On this issue, South Africa's former Minister of Foreign Affairs Nkosazana Dlamini-Zuma observed that South Africa's ANC-led government at an 'early stage' had 'adopted a policy whereby South Africa should be an active participant in the various non-proliferation regimes and suppliers groups; adopt positions publicly supporting the non-proliferation of weapons of mass destruction with the goal of promoting international peace and security; and use its position as a member of the suppliers' regimes and of the Africa Group and Non-Aligned Movement to promote the importance of non-proliferation and to ensure that these controls do not become the means whereby developing countries are denied access to advanced technologies required for their development'.⁹¹

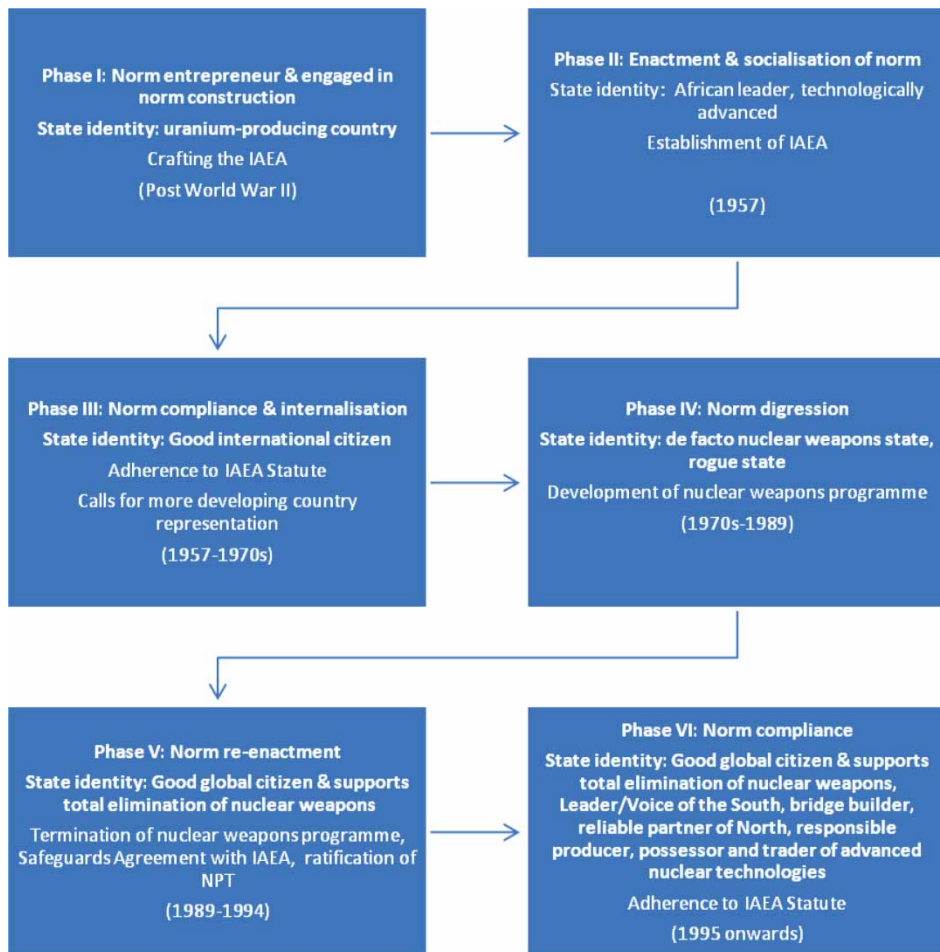


Figure 2. South Africa's norm construction and state identity vis-à-vis the IAEA.⁹²

Figure 2 summarises South Africa's norm construction and reconstruction *vis-à-vis* its nuclear diplomacy from the mid 1940s. From 1989, South Africa engaged in norm re-enactment by ratifying the NPT and allowing the IAEA to verify the dismantling of its nuclear weapons programme. South Africa, for example, has reconstructed its state identity from that of a nuclear rogue (or *de facto* nuclear weapons state) to that of a good global citizen. Here, it displayed a state identity of a good global citizen. Moreover, it has assumed an identity as a leader on behalf of developing countries on the IAEA Board.

Once the IAEA completed the verification of the termination of South Africa's nuclear weapons programme in 1993, South Africa engaged in norm compliance through, *inter alia*, restructuring its nuclear regulatory environment and adhering to the IAEA Statute. More significant was South Africa's construction of a norm-abiding identity as a responsible producer, possessor and trader of advanced nuclear technology. Since it resumed its position on the IAEA Board of Governors in 1995, South Africa has flexed its muscles as a norm entrepreneur in the context of the IAEA. This is evident in its stance on, for example, the use of LEU and the representation of developing countries on the IAEA Board.

Conclusion

Four main themes dominate post-apartheid South Africa's nuclear diplomacy with the IAEA. These are South Africa's commitment to nuclear non-proliferation, its call for the complete elimination of nuclear weapons, its support for the inalienable rights of all states to develop nuclear energy for peaceful purposes, and its call for more representation of developing countries in the IAEA. South Africa's diplomatic relations with the IAEA and its members display several aspects of the country's nuclear diplomacy since 1989. In constructivist terms, it has not only constructed a new state identity and roles for itself, but it has also advanced its national interests in its diplomatic relations with the IAEA.

Apart from the gains in its material interests through, for example, the conversion of SAFARI-1 and the increase in its isotope production, South Africa has also gained in a non-material sense through the status and prestige it acquired owing to its often quoted 'unique identity' and its successful conversion of SAFARI-1. Finally, South Africa has since 1993 consistently promoted nuclear non-proliferation, the existence of the IAEA, and the peaceful use of nuclear development to improve human security.

Notes on contributor

Jo-Ansie van Wyk is a doctoral student at the University of Pretoria. This article is based on a doctoral thesis under the supervision of Professor Anton du Plessis. She has completed consultancies for the World Bank, UNESCO, the Institute for Security Studies and the South African Department of Foreign Affairs. She has been a consultant for Consultancy Africa Intelligence since 2008. In June 2010, she was appointed by the Minister of Trade and Industry to serve on the South African Council for Space Affairs.

Notes

1. Jones RW, 'Atomic diplomacy in developing countries', *Journal of International Affairs*, 80.1, 1980, pp. 89–117.
2. UN (United Nations), *The Treaty on the Non-proliferation of Nuclear Weapons (NPT)*, 1968, <http://www.un.org/en/conf/npt/2005/npttreaty.html>, accessed 20 January 2011.
3. Kile SH, V Fedchenko, B Gopalaswamy & HM Kristensen, 'World nuclear forces', in SIPRI (Stockholm International Peace Research Institute), *SIPRI Yearbook 2010. Armaments, disarmaments and international security*, 2010, <http://www.sipri.org/yearbook/2010/08>, accessed 18 January 2010; Albright D, WM Arkin, F Berkhout, RF Norris & W Walker, 'Inventories of fissile materials and nuclear weapons', in SIPRI, *SIPRI Yearbook 1993. Armaments, Disarmaments and International Security*. Oxford: Oxford University Press, 1995, p. 327; Chakma B, *Strategic Dynamics and Nuclear Weapons Proliferation in South Asia. A Historical Analysis*. Bern: Peter Lang, 2004, p. 228.
4. IAEA (International Atomic Energy Agency), *Illicit Trafficking Database (ITDB)*, 2012, <http://www-ns.iaea.org/security/itdb.asp>, accessed 20 January 2010.
5. *Ibid.*
6. Cooper AF, 'Niche diplomacy: A conceptual overview', in Cooper AF (ed.), *Niche Diplomacy. Middle Powers after the Cold War*. London: Macmillan, 1997, p. 5.
7. *Ibid.*, p. 8.
8. *Ibid.*, pp. 6, 9.
9. *Ibid.*
10. Henrikson AK, 'Niche diplomacy in the world public arena: The global "corners" of Canada and Norway', in Melissen J (ed.), *The New Public Diplomacy. Soft Power in International Relations*. New York: Palgrave Macmillan, 2005, p. 74.
11. *Ibid.*, pp. 70–1.
12. Armstrong D, T Farrell & H Lambert, *International Law and International Relations*. Cambridge: Cambridge University Press, 2007, p. 101.
13. Kegley, CW & GA Raymond, *The Global Future. A Brief Introduction to World Politics*, 3rd edn. Boston, MA: Wadsworth, 2010, p. 262.
14. Armstrong D, T Farrell & H Lambert, Armstrong D, T Farrell & H Lambert, *International Law and International Relations*. Cambridge: Cambridge University Press, 2007, pp. 97, 104–5.
15. Finnemore M & K Sikkink, 'International norm dynamics and political change', *International Organization*, 52.4, 1998, pp. 887–918.
16. IAEA, 'The Denuclearization of Africa. The Agency's Verification Activities in South Africa'. Thirty-seventh regular session of the IAEA General Conference, 9 September 1993, p. 7, http://www.iaea.org/About/Policy/GC/GC37/GC37Documents/English/gc37-1075_en.pdf, accessed 7 July 2011.
17. AEC (Atomic Energy Corporation of South Africa), 'Report on the Completeness of the Inventory of South Africa's Nuclear Installations and Nuclear Material', 1991, in IAEA, Thirty-sixth regular session [of the General Conference], 'South Africa's Nuclear Capabilities', 4 September 1992, p. 2, <http://www.iaea.org>, accessed 7 July 2011.
18. *Ibid.*
19. *Ibid.*
20. *Ibid.*, p. 3.
21. *Ibid.*, p. 28.
22. IAEA, 'The Denuclearization of Africa. The Agency's Verification Activities in South Africa'. Thirty-seventh regular session of the IAEA General Conference, 9 September 1993, p. 27.
23. von Baeckmann A, G Dillon & D Perricos, 'Nuclear verification in South Africa', *IAEA Bulletin*, 1, 1995, p. 42.
24. IAEA, 'The Denuclearization of Africa. The Agency's Verification Activities in South Africa'. Thirty-seventh regular session of the IAEA General Conference, 9 September 1993, p. 7.
25. *Ibid.*, p. 8.
26. *Ibid.*, pp. 8–9, 10.
27. *Ibid.*, p. 157.

28. IAEA, *The Annual Report for 1993*. Vienna: IAEA, 1994, p. 2; IAEA, 'South Africa's Position in the IAEA and the Board of Governors'. Thirty-eighth regular session of the IAEA General Conference, September 1994, <http://www.iaea.org>, accessed 7 July 2011.
29. IAEA, 'The Denuclearization of Africa. The Agency's Verification Activities in South Africa'. Thirty-seventh regular session of the IAEA General Conference, 9 September 1993, pp. 2, 9.
30. *Ibid.*, p. 11.
31. von Baeckmann A, G Dillon & D Perricos, 'Nuclear verification in South Africa', *IAEA Bulletin*, 1, 1995, p. 48.
32. Embassy of the Republic of South Africa in Vienna, *Multilateral*, 2011, <http://www.dirco.gov.za/vienna/multilateralvienna.html>, accessed 7 July 2011.
33. Department of Science and Technology, 'SA, IAEA Sign Cooperation Agreement', Statement, 5 December 2006, <http://www.dst.gov.za/media-room/press-release/sa-iaea-sign-cooperation-agreement>, accessed 27 September 2010.
34. *Independent Online*, 'SA renews nuclear pledge', 5 December 2006, <http://www.iol.co.za/news/politics/sa-renews-nuclear-pledge>, accessed 5 November 2009.
35. Necsa (Nuclear Energy Corporation of South Africa), *Annual Report 2010*. Pretoria: Necsa, 2010, p. 25.
36. See the 'Statement by the Republic of South Africa on the Issues of Safeguards, Non-Proliferation and Nuclear-Weapon-Free Zones (Main Committee II)', New York, 20 May 2005, <http://www.dfa.gov.za/docs/speeches/2005/mint0822d.htm>, accessed 24 January 2011.
37. See 'Speech Delivered by the Head of the South African Delegation, Ms Buyelwa Sonjica, Minister of Minerals and Energy, to the 50th Regular Session of the International Atomic Energy Agency (IAEA) General Conference', Vienna, 18 September 2006, <http://www.info.gov.za/speeches/2006/06091911151001.htm>, accessed 28 September 2010; and 'Statement by the Leader of the South African delegation, Buyelwa Sonjica, Minister of Minister of Minerals and Energy, to the 51st Session of the International Atomic Energy Agency (IAEA) General Conference', Vienna, 17 September 2007, <http://www.info.gov.za/speeches/2007/07091716451002.htm>, accessed 28 September 2010.
38. GCIS, 'Govt to host non-proliferation of nuclear weapons seminar', *Bua News*, 20 June 2002.
39. See 'Statement by the Head of the South African Delegation, Ms Dipuo Peters, Minister of Energy, to the 53rd Regular Session of the International Atomic Energy Agency (IAEA) General Conference', Vienna, 14 September 2009, <http://www.info.gov/speech>, accessed 16 May 2011.
40. Pahad A, 'Opening Address for the Symposium: A Celebration of Ten Years of Democracy: A Decade in Development in International Law', Pretoria, 8 July 2004, <http://www.dfa.gov.za/docs/speeches/2004/paha0708.htm>, accessed 24 January 2011.
41. IAEA, 'Statute of the IAEA', 1957, http://www.iaea.org/About/statute_text.html, accessed 10 August 2010.
42. GCIS, 'SA, Argentina to sign agreement on nuclear technology', *Bua News*, 2 December 2008, <http://www.buanews.gov.za/news/08/08120210151004>, accessed 5 November 2009.
43. Fischer D, *History of the International Atomic Energy Agency. The First Forty Years*. Vienna: IAEA, 1997, p. 90.
44. IAEA, 'Statute of the IAEA', 1957, http://www.iaea.org/About/statute_text.html, accessed 10 August 2010.
45. IAEA, 'South Africa's Position in the IAEA and the Board of Governors', *op. cit.*
46. *Ibid.*, p. 2.
47. See Pretorius J, 'Africa-India nuclear cooperation: pragmatism, principle, post-colonialism and the Pelindaba Treaty', *South African Journal of International Affairs*, 18.3, December 2011, pp. 319-339.
48. GCIS, 'SA pushes for more African countries in IAEA', *Bua News*, 22 September 2010, <http://www.buanews.gov.za/news/10/100922114251002>, accessed 16 May 2011.
49. DFA (Department of Foreign Affairs), 'South African Foreign Policy'. Discussion Document, 1996, <http://www.info.gov.za/otherdocs/1996/foraf1.htm#5.3>, accessed 28 September 2010.
50. *Ibid.*

51. GCIS, 'SA pushes for more African countries in IAEA', *Bua News*, 22 September 2010, <http://www.buanews.gov.za/news/10/100922114251002>, accessed 16 May 2011.
52. Hibbs M & A Persbo, 'The ElBaradei legacy', *Bulletin of the Atomic Scientists*, 65.5, 2009, p. 22; Reuters, 'Candidates set to woo votes in murky IAEA election', 14 May 2010, <http://af.reuters.com>, accessed 16 May 2011.
53. Subsequently this department has been renamed the Department of International Relations and Cooperation, or DIRCO.
54. See 'Media Briefing by Foreign Affairs Director -General Ayanda Ntsaluba on the Candidature of Ambassador Minty for the post of Director-General of the IAEA', Pretoria, 12 September 2008, <http://www.dfa.gov.za/docs/speeches/2008/ntsa0912.html>, accessed 24 January 2011.
55. DFA, 'South Africa Submits Nomination of Ambassador Abdul Minty to the International Atomic Energy Agency (IAEA)', Statement, Pretoria, 27 November, 2008.
56. See 'Media Briefing by Foreign Affairs Director -General Ayanda Ntsaluba on the Candidature of Ambassador Minty for the post of Director-General of the IAEA', Pretoria, 12 September 2008, <http://www.dfa.gov.za/docs/speeches/2008/ntsa0912.html>, accessed 24 January 2011.
57. See 'Statement by Ambassador Abdul Samad Minty, South Africa's Governor on the Atomic Energy Agency (IAEA) Board of Governors at the Atomic Energy Agency (IAEA) Board of Governors Meeting', Vienna, 1 August 2008, <http://www.info.gov.za/speeches/2008/08080116451002.htm>, accessed 28 September 2010.
58. See 'Media Briefing by Ambassador Abdul Minty on his Candidature for the Post of Director-General of the IAEA', Pretoria, 12 September 2008, <http://www.dfa.gov.za/docs/speeches/2008/ntsa0912.html>, accessed 24 January 2011.
59. NTI (Nuclear Threat Initiative), 'Japanese IAEA Candidate Wins Majority in Nonbinding Poll', 9 June 2009, <http://gsn.nti.org>, accessed 10 June 2009.
60. IAEA, 'Process Resumes for Selecting IAEA Director General', 9 June 2009, <http://www.iaea.org/NewsCenter/News/strawpoll.html>, accessed 10 June 2009.
61. See 'Statement by Ambassador Abdul S Minty to the Second Preparatory Committee for the 2010 NPT Review Conference', Geneva, 29 April 2008, <http://www.dfa.gov.za/docs/speeches/2008/mint0429.html>, accessed 24 January 2011.
62. McGoldrick F, 'Who will succeed ElBaradei?', *Bulletin of the Atomic Scientists*, 21 April 2009, p. 2, <http://www.thebulletin.org/print/web-edition/features/who-will-succeed-elbaradei>, accessed 24 January 2011.
63. Reuters, 'Candidates set to woo votes in murky IAEA election', <http://af.reuters.com/>, accessed 16 May 2011. Hibbs M & A Persbo, 'The ElBaradei legacy', *Bulletin of the Atomic Scientists*, 65.5, 2009, p. 22.
64. See 'Notes following briefing by Deputy Minister of Foreign Affairs, Mr Aziz Pahad', Pretoria, 21 September 2006, <http://www.info.gov.za/speeches/2006/06092610451002.htm>, accessed 28 September 2010; and 'Notes Following International Relations, Peace and Security (IRPS) Cluster Media Briefing by Deputy Minister Aziz Pahad', Pretoria, 29 August 2008, <http://www.info.gov.za/speeches/2008/08090111151001.htm>, accessed 28 September 2010.
65. UN, *The United Nations Disarmament Yearbook*, 31, 2006, <http://www.un.org/disarmament/HomePage/ODAPublications/Yearbook/2006/HTML/DY2006.htm>, accessed 24 January 2011.
66. *Ibid.*
67. ElBaradei M, 'Introductory Statement to the Board of Governors', Vienna, 15 June 2009, <http://www.iaea.org/NewsCenter/Statements/2009/ebsp2009n005.html>, accessed 4 August 2009.
68. *Ibid.*
69. *News24*, 'SA won't back nuke ban — Minty', 22 March 2006, [http://www.news24.com/](http://www.news24.com;); Department of Minerals and Energy, 'Nuclear Energy Policy for the Republic of South Africa', 2008, <http://www.dme.gov.za>, accessed 16 May 2011.
70. GCIS, 'SA criticises "unwarranted restrictions" on peaceful use of nuclear technology', *Bua News*, 19 September 2006, <http://www.buanews.gov.za/news/06/06091911151005>, accessed 5 November 2009.

71. *Ibid.*
72. NTI, 'IAEA Board Splits on Nuclear Fuel Bank Proposal', 19 June 2009, <http://gsn.nti.org>, accessed 22 June 2009.
73. See 'Statement by the Head of the South African delegation, Ms Dipuo Peters, Minister of Energy, to the 53rd Regular Session of the International Atomic Energy Agency (IAEA) General Conference'.
74. NTI, 'First International Atomic Fuel Bank Opens in Russia', 2 December 2010, <http://gsn.nti.org>, accessed 6 December 2010.
75. IAEA, *Illicit Nuclear Trafficking: Collective Experience and the Way Forward*. Vienna: IAEA, 2008; IAEA, *Nuclear Technology Review 2010*. Vienna: IAEA, 2010, p. 8.
76. Vlok JWH, 'Reactor Operations at SAFARI-1', 2006, p. 2, http://www.igorr.com/home/liblocal/docs/Proceeding/Meeting%208/ouo_06.pdf, accessed 11 May 2011.
77. De Waal S & N Galeni, 'Necsa Report to Minerals and Energy Portfolio Committee', 4 November 2005, <http://www.pmg.org.za>, accessed 7 July 2011.
78. Necsa, *Annual Report 2010*. Pretoria: NECSA, 2010, p. 11.
79. Necsa, *Annual Report 2008*. Pretoria: NECSA, 2008, p. 16.
80. Necsa, 'Nuclear Reactor Uses Only Low Enriched Uranium (LEU) for the First Time', Media release, Pelindaba, 29 June 2009, <http://www.Necsa.co.za/Portals/1/.../322e00a9-02e8-4522-8e29-947ef896d6e5.doc>, accessed 20 April 2011.
81. Colby C, 'The Conversion of South Africa's Medical Isotope Production from HEU to LEU: Policy Implications for Global Conversion', 2011, <http://www.heuphaseout.org/wp-content/uploads/2011/04/Colby.pdf>, accessed 7 July 2011.
82. Reuters, 'SA firm aims for 60% rise in isotope sales', 1 March 2010, <http://www.engineeringnews.co.za/article/sa-firm-aims-for-60-rise-in-isotope-sales-2010-03-01>, accessed 3 March 2010.
83. Henrikson AK, 'Niche diplomacy in the world public arena: The global "corners" of Canada and Norway', in Melissen J (ed.), *The New Public Diplomacy. Soft Power in International Relations*. New York: Palgrave Macmillan, 2005, pp. 70–1.
84. Pomper MA & WC Potter, 'Medical isotope production: The US must follow South Africa's lead', *Bulletin of the Atomic Scientists*, 17 December 2010, <http://www.thebulletin.org/web-edition/features/medical-isotope-production-the-us-must-follow-south-africas-lead>, accessed 24 January 2011.
85. Necsa, *Annual Report 2010*. Pretoria: Necsa, 2010, p. 5.
86. Minty A, 'Statement by the Head of the South African Delegation to the 54th Regular Session of the IAEA General Conference', 21 September 2010, <http://www.iaea.org/about/policy>, accessed 15 June 2011; IAEA, 'Production and Supply of Molybdenum-99' 2010, p. 8, http://www.iaea.org/About/Policy/GC/GC54/GC54InfDocuments/English/gc54inf-3-att7_en.pdf, accessed 7 July 2011.
87. IAEA, *Nuclear Technology Review 2010*, p. 155.
88. Henrikson AK, 'Niche diplomacy in the world public arena: The global "corners" of Canada and Norway', in Melissen J (ed.), *The New Public Diplomacy. Soft Power in International Relations*. New York: Palgrave Macmillan, 2005, pp. 71–2.
89. DIRCO (Department of International Relations and Cooperation), 'South Africa's Foreign Policy: Meeting the Challenges of the Future. Draft Discussion Document'. Pretoria: DIRCO, October 2010, pp. 38–42.
90. Nzo A, 'Statement by the Foreign Minister of the Republic of South Africa at the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)', 1995, in Markram T, *A Decade of Disarmament, Transformation and Progress. An Assessment of the Development and Implementation of Policy on Disarmament, Non-proliferation and Arms Control in South Africa 1994–2004*. Pretoria: Safer Africa, 2004, pp. 114–5.
91. Dlamini-Zuma referred to a statement by her predecessor, Alfred Nzo: Nzo A, 'Statement by the Foreign Minister of the Republic of South Africa at the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 1995, in Markram T, *A Decade of Disarmament, Transformation and Progress. An Assessment of the Development and Implementation of Policy on Disarmament, Non-proliferation and Arms Control in South Africa 1994–2004*. Pretoria: Safer Africa, 2004, pp. 114–5, p. 42.

92. Adapted from DFA, 'South African Foreign Policy'. Discussion Document, 1996, <http://www.info.gov.za/otherdocs/1996/foraf1.htm#5.3>, accessed 28 September 2010; DIRCO (Department of International Relations and Cooperation), 'South Africa's Foreign Policy: Meeting the Challenges of the Future. Draft Discussion Document'. Pretoria: DIRCO, October 2010, pp. 38–42; Finnemore M & K Sikkink, 'International norm dynamics and political change', *International Organization*, 52.4, 1998, pp. 887–918.