Reviewing South Africa's Non-Proliferation Policy and Strategic Trade Controls

By Melanie Reddiar

Abstract

The prohibition of Weapons of Mass Destruction (WMDs) in South Africa is governed through the implementation of an integrated and robust non-proliferation and arms control policy, legislative and regulatory framework, which has been revised and improved over time to address global developments; scientific and technological developments; and advancement of the threat landscape in terms of illicit trafficking of restricted goods and technologies as well as terrorism. Nonetheless, deficiencies in the regulatory framework and legislation became apparent over the years, especially after the infiltration of the South African industry by the A.Q. Khan nuclear smuggling network. Although some of these deficiencies have been addressed, others are more challenging and require further work to be concluded in order to improve regulatory processes and strengthen the non-proliferation system, and to ensure that the proliferation strategies of non-state actors can be combatted. It is also aimed at South Africa maintaining its image as a reliable and responsible supplier, recipient and end user of strategic goods and technologies, while contributing meaningfully to global efforts of disarmament and non-proliferation of WMDs as a responsible member of the international community, as an advocate for global disarmament, and as a leader in efforts to prevent the proliferation of WMDs, in general.

Introduction

Developments in science and technology have been advancing at a significant rate in the recent past, raising concerns about the increase in access to dual-use goods and technologies by proliferators. Such concerns are valid in the context that the technological base and capabilities of illegitimate non-state actors and countries of concern have advanced considerably over the years to produce and supply sensitive dual-use technologies. The

advancement of Weapons of Mass Destruction (WMD) programmes has decreased the confidence of the international community on the efficacy of the international treaties, conventions and multilateral export control regimes tasked with the implementation of such obligations. Although these mechanisms are effective, it has not been able to stem proliferation significantly enough to minimise or prevent proliferators access to advanced technologies in the nuclear, chemical, biological and missile technology sectors. There has been success in the disarmament and non-proliferation of chemical weapons with relatively few states remaining outside the Chemical Weapons Convention (CWC). However, the biological mechanisms are currently insufficient, as there is no verification mechanism or internationally agreed list of biological goods and technologies under the Biological and Toxin Weapons Convention (BTWC). Improving such instruments requires, inter alia, enhanced multilateral cooperation, further communication between international organisations and national regulatory structures, as well as between states.

South Africa's non-proliferation mechanisms have advanced significantly from a state that had developed a limited nuclear deterrent capability to now being nuclear weapons free, which has enabled it to be an advocate for global nuclear disarmament and a leader in efforts to prevent the proliferation of WMDs. As a responsible member of the international community, South Africa plays a critical role global role by promoting disarmament and non-proliferation, while also prohibiting all WMDs, especially preventing the re-emergence of a nuclear weapons programme. It implements an integrated and robust non-proliferation and arms control policy, and legislative and regulatory frameworks. The primary goal of this policy, adopted in August 1994, is to reinforce and promote South Africa as a responsible producer, possessor, and trader of advanced goods and technologies in the nuclear, biological, chemical, missile, and conventional fields (Department of Foreign Affairs, 1995: 7). These goods and technologies are crucial for South Africa's economic growth and advancement as a country with advanced nuclear capabilities.[1] South Africa thus also promotes disarmament, non-proliferation, and arms control to contribute to increasing socio-economic development and strive towards international peace and security. This approach is continually being evaluated and is evolving and advancing through cooperation and collaboration amongst relevant stakeholders. There are constant enhancements and improvements in the legislative framework and regulatory mechanisms to ensure that South Africa continues to contribute significantly to global disarmament and non-proliferation efforts and to prevent the proliferation of WMDs, in general. This paper provides an overview of the current system of control and makes some recommendations for the enhancement thereof.

Non-Proliferation Policy and Control System

A former South African Minister of Foreign Affairs, Alfred Nzo, was a key player in the development of South Africa's disarmament and non-proliferation and policy positions. On 31 August 1994, the South African Cabinet approved, in principle, a proposal from Nzo that South Africa continues

"The advancement of Weapons of Mass Destruction (WMD) programmes has decreased the confidence of the international community on the efficacy of the international treaties, conventions and multilateral export control regimes tasked with the implementation of such obligations."

implementing a policy of non-proliferation and arms control and actively participate in the various non-proliferation regimes and suppliers groups; that South Africa adopt positions supporting the non-proliferation of WMDs with the goal of promoting international peace and security; that South Africa utilises its position as a member of the suppliers regimes and of the Africa Group/Non-Aligned Movement (NAM)[2] to promote the importance of non-proliferation, whilst ensuring that these controls will not prevent the developing countries from obtaining access to the advanced technologies which they require for their development; that South Africa continues in its objective to become a member of all of the non-proliferation regimes and suppliers groups; and that the best interests of South Africa in regard to the use of technology in the nuclear, chemical, biological and missile spheres for civil and peaceful purposes, be effectively protected at all times (Department of Foreign Affairs, 1995). In implementing this policy, South Africa actively participates in meetings of the various non-proliferation treaties, conventions and regimes, promoting disarmament and non-proliferation and ensuring that the best interests of developing countries, and more specifically, the African countries, are promoted at all times.

In addition, to ensure that South Africa remains a responsible producer, possessor, and trader of advanced goods and technologies in the nuclear, biological, chemical, missile, and conventional arms fields, it has a regulatory control system in place. This system is guided by South Africa's obligations under the various non-proliferation treaties, conventions and multilateral export control regimes, which includes, inter alia, the Nuclear Suppliers Group (NSG), the Missile Technology Control Regime (MTCR), the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention or CWC), the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (Biological and Toxin Weapons Convention or BTWC), the Treaty on the Prohibition of Nuclear Weapons (TPNW), the Comprehensive Nuclear Test Ban Treaty (CTBT), and the Wassenaar Arrangement (WA). The control lists established under some of these instruments, such as the guidelines of the NSG, the technical annex of the MTCR, the WA list and the Schedules of Chemicals of the CWC are utilised in the implementation of a strategic trade control regulatory mechanism. Participation in these instruments assists South Africa in fulfilling its policy objectives. South Africa has the ability to supply certain dual-use items covered by these instruments, which are goods and technologies that have the capability to be used in the development or production of WMDs, but also have commercial applications. (Nuclear Suppliers Group, 2023: 1-2; Nuclear Threat Initiative, 2023: 1). It should be noted that the BTWC does not have a prescribed list of biological goods and technologies that should be subject to strategic trade controls. South Africa has therefore developed a national list that is used to regulate relevant industry and exports.

An effective control system consists of five main elements. The first element is full compliance with international non-proliferation obligations. South Africa adopts a multi-disciplinary control system, with the aim to sign, ratify or accede to all disarmament and non-proliferation treaties, regimes and conventions relating to WMDs. The second element entails the establishment and maintenance of a comprehensive policy framework that addresses all dimensions of the country's disarmament and non-proliferation objectives. The third element is a legislative framework that includes the international obligations and policy principles, which facilitates the responsible trade in strategic goods and services. The fourth element is regulatory mechanisms to suit the legislative framework, including compliance mechanisms, strategic trade control mechanisms, customs and border control mechanisms, and law enforcement mechanisms. The fifth element entails the inclusion of all relevant stakeholders in a consultation process when designing such non-proliferation control mechanisms so as to form the basis for future collaboration, partnerships and co-ordination. South Africa has all these elements in place, and they are being implemented and are continually reviewed.

Being an active participant in the various treaties, conventions and multilateral export control regimes and adopting positions supporting the non-

> “…to ensure that South Africa remains a responsible producer, possessor, and trader of advanced goods and technologies in the nuclear, biological, chemical, missile, and conventional arms fields, it has a regulatory control system in place.”

proliferation of WMDs, with the goal of promoting international peace and security, reinforces South Africa's primary goal to promote the state as a responsible producer, possessor and trader of advanced goods and technologies in the nuclear, biological, chemical and missile fields (Department of Foreign Affairs, 1995; Markram, 2004).

In order to domesticate the international treaties, conventions and regimes, the control authorities have to create a governance mechanism that adequately regulates strategic goods and technologies that could contribute to the proliferation of WMDs in South Africa. According to the World Customs Organisation's Strategic Trade Control Enforcement (STCE) Implementation Guide, 'strategic goods' refers to WMDs, which includes nuclear, chemical, biological and radiological weapons and their delivery systems (ballistic missiles, cruise missiles and unmanned aerial vehicles), as well as conventional weapons and related items involved in the development, production or use of such weapons and their delivery systems. Goods may also be identified as strategic by their inclusion on national control lists or by being destined for WMD end use, or for use by a WMD-related end user (World Customs Organisation, 2023).

Due to historical reasons, which are described below, the current South African system entails the use of various departments to control the different areas. This arrangement results in some overlaps between the various areas. The entity playing a role in the total non-proliferation and arms control structure is the South African Council for the Non-Proliferation of Weapons of Mass Destruction (the Council), which controls Part 2 (dual-use items) of the NSG, the MTCR, CWC, and the BTWC. The Council has also reviewed the Australia Group list of goods and technologies and added additional goods to the list of chemical goods and biological goods controlled to enhance domestic controls. The Department of Electricity and Energy (DEE; formerly, the Department of Mineral Resources and Energy) is responsible for regulation of the NSG Part 1 (nuclear fuel, certain nuclear and related material and related equipment), but non-proliferation decisions are made in consultation with the Council in terms of Section 33(2)(e), Section 34(2)(a), and Section 35(2) of the Nuclear Energy Act, 1999 (No. 46 of 1999). The National Conventional Arms Control Committee (NCACC) is responsible for all Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies[3] (WA) military lists as well as WA dual-use list controls in terms of the National Conventional Arms Control Act, 2008 (No. 73 of 2008). The current overlaps result in certain permits being required from both the Council and the NCACC systems, or the Council and DEE.

There have been many questions over the years about the fragmentation of the system and division of the non-proliferation and arms control responsibilities amongst the different departments, especially regarding the non-proliferation controls being housed under the Ministry of Trade, Industry and Competition, and not the Ministry of International Relations and Cooperation, or the Ministry of Science and Technology, or the Ministry of Defence. In 1995, a submission was made to Cabinet to consider the rationalisation of responsibilities between the non-proliferation, nuclear and arms control local players. It was then decided that the Department of Foreign Affairs (now the Department of International Relations and Cooperation) would be responsible for international negotiations and communication on all treaties and agreements, with advice from

the other ministries and departments, and to demarcate the controls of conventional arms and WMDs amongst the Departments of Trade, Industry and Competition; Mineral Resources and Energy (now the Department of Electricity and Energy); and Defence and Military Veterans[4] (Reddiar, 2021). The Council therefore continued with the implementation of the treaties, conventions and regimes, as assigned. The NCACC was responsible for conventional arms control issues. The NSG Part 1 controls of nuclear items and safeguards continued to be the responsibility of the Minister of Minerals and Energy Affairs (now the Minister of Electricity and Energy).

Non-Proliferation and Arms Control Legislation

Interestingly, the Non-Proliferation and Arms Control Policy was only formally adopted in 1994, after the promulgation of the Non-Proliferation of Weapons of Mass Destruction Act, 1993 (No. 87 of 1993, Non-Proliferation Act), which was done subsequent to the dismantling of South Africa's nuclear weapons programme in 1991 (Department of Foreign Affairs, 1995; Grobler, 1996). South Africa therefore controls strategic goods, which have the potential to be used in the manufacture of a WMD, but also has commercial applications, through a strategic trade control mechanism, which is implemented by the Council in terms of the Non-Proliferation Act. The Council ensures that all appropriate non-proliferation controls are implemented, thereby assisting South Africa to promote the peaceful application of advanced goods and technologies in the nuclear, biological, chemical and missile fields. Furthermore, in terms of the Nuclear Energy Act, the Minister of Electricity and Energy (formerly, the Minister of Mineral Resources and Energy) regulates the acquisition and possession of nuclear fuel, certain nuclear and related material and related equipment, as well as the import and export and other activities related to fuel, material, and equipment. The regulation of conventional arms, as listed in the WA, remain the responsibility of the NCACC in terms of the National Conventional Arms Control Act (No. 41 of 2002), as amended by Act No. 73 of 2008.

In 2004, subsequent to the United Nations Security Council (UNSC) adopting Resolution 1540 (2004) under Chapter VII of the United Nations (UN) Charter, the Council decided to initiate a comprehensive review of all non-proliferation policies, guidelines, legislation, control mechanisms, processes and procedures, infrastructure and human resources to bring South African controls in line with national interests and international obligations and best-practice. The Non-Proliferation Review Committee was tasked with the review, which ended in 2012 with a revised Non-Proliferation Act (or Non-Proliferation Amendment Bill). This was an intensive benchmarking process that attempted to identify areas of improvement and address the deficiencies and threats as a result of the evolving international threat landscape, for example, the AQ Khan network, which utilised South African companies to manufacture a nuclear gas-feed and withdrawal system for a centrifuge-enrichment plant to be supplied to Libya (Corera, 2016: 117; Boureston and Lacey, 2007). Although the amendments have not yet been adopted, there is an acknowledgement of the importance of continuously evaluating the control mechanisms in response to new challenges, such, as inter alia, new and emerging technologies; disruptive technologies; more countries being in possession or control of strategic goods that could result in illicit trade; and proliferators continuously developing new mechanisms to circumvent current non-proliferation controls, to ensure that the country is in keeping with international developments. Such international developments include, for example, the periodic updates of export control lists as agreed to by participating governments of the various multilateral export control regimes and domestication of all international obligations that the country subscribes to. This is done in the secondary legislation. The amendment process is still under discussion, but has not progressed much due to the legal advice received that the Minister of Trade, Industry and Competition should consult with the Minister of Mineral Resources and Energy on such amendments. The consultations were initiated; however, this process has been delayed. The NCACC promulgated a dedicated Arms Control Policy in 2008. A review of the non-proliferation and arms control policy of 1994 was therefore initiated by the Council in 2023, to amend the policy to address non-proliferation of WMDs specifically. Once concluded, this will lead to the amendment to the Act being finalised.

Secondary Legislation

The Non-Proliferation Act, in terms of Section 13, provides for the promulgation of secondary legislation in which the Minister of Trade,

Industry and Competition may declare goods that may contribute to the design, development, production, deployment, maintenance or use of WMDs, to be controlled goods. This provision in the Non-Proliferation Act therefore allows for the strategic goods identified during international discussions, as having the potential to be used in the development or production of a WMD, to be controlled in terms of domestic legislation. Furthermore, Section 24 of the Non-Proliferation Act provides for the promulgation of regulations to address various regulatory aspects enabling the efficient and effective implementation of the international non-proliferation obligations as deemed necessary by the Council, in consultation with the relevant stakeholders and according to international best practice, through advice to the Minister.

The secondary legislation has been amended on numerous occasions to maintain alignment of the South African control system, with national interests, international obligations and best practice. However, developments in the country, which included the contraventions of the non-proliferation legislation by non-state actors, were also initiating factors. Besides South African companies being involved in the A.Q. Khan network, there were additional incidents which included the supply of triggered spark gaps by Asher Karni of Top Cape Technologies to Humayun Khan (no relation to A.Q. Khan), a Pakistani businessman and Chief Executive Officer of Pakland PME Corporation, for use in the Pakistani nuclear programme (Chiahemen, 2004; Fabricius, 2004; Gearity, 2005; Laslocky, 2005; Schapiro, 2005; South African Broadcasting Corporation, 2004). A.Q. Khan was a Pakistani engineer, who was considered the father of Pakistan's nuclear weapons programme. He was also a supplier of advanced nuclear technology to the programmes of Iran, Libya and North Korea (Dahlkamp et al., 2006; MacCalman, 2016: 104). Khan obtained access to blueprints for uranium enrichment and centrifuge design technologies from the European Uranium Enrichment Centrifuge Corporation (URENCO) while working in The Netherlands. As a result of his desire to assist his country to develop nuclear weapons capabilities after rival India had successfully tested a nuclear weapon in 1974, Khan illicitly trafficked the uranium enrichment designs and related technologies to Pakistan to develop Pakistan's nuclear weapons capabilities. After the success of the Pakistani programme in the 1980s, Khan decided that every country, especially Muslim countries that could afford a nuclear bomb, should have its own, and so he started his clandestine, transnational import and export supply network for countries that had the desire to develop nuclear weapons, in 1987 (Albright and Hinderstein, 2005: 112; Fitzpatrick, 2007: 65; Von Wielligh and Von Wielligh-Steyn, 2015: 343).

The network of countries with which Khan concluded supply agreements and those countries which were involved in his illicit network included, inter alia, France, India, Iran, Iraq, Israel, Italy, Malaysia, Singapore, South Africa, South Korea, Switzerland, Taiwan, Turkey, United Arab Emirates, and the United Kingdom. South African companies Tradefin Engineering and Krisch Engineering were involved in the manufacture of components and providing flow-forming and balancing equipment, vacuum pumps and non-corrosive pipes and valves for export to Libya (Tertrais, 2008; Von Wielligh and Von Wielligh-Steyn, 2015: 343). The managing directors of Tradefin Engineering and Krisch Engineering, Gerhard Wisser, a German mechanical engineer, and Daniel Geiges, a Swiss mechanical engineer, respectively, initially pleaded not guilty and they insisted that the plant was a water purification system. However, they were successfully prosecuted and convicted under South African legislation, i.e., the Non-Proliferation Act and the Nuclear Energy Act. The charges were supplemented by contraventions of the Riotous Assemblies Act, 1956 (No. 17 of 1956). Johan Meyer, a South African engineer, who was involved in the manufacture of the components turned state witness shortly after being arrested. He assisted the investigations and prosecutions by providing documentation related to the involvement of the companies.

According to lead prosecutor Macadam (2022), the wording of relevant statutes in the South African non-proliferation legislation placed limitations and created challenges for the prosecutors, which hindered the extent of the charges that could have been laid on the convicted. Firstly, technology is neither defined in the Nuclear Energy Act, nor is it an offence to import, export, design or possess such technology. The regulations under the Non-Proliferation Act however did provide a definition

> "All the non-proliferation legislation should be reviewed to ensure that the provisions meet the requirements of the South African Constitution."

of technology, with elaboration on applicability, i.e. exclusions were mentioned. In addition, the Nuclear Energy Act specifically refers to "especially designed or prepared"; however no provision was made for 'intention' of use thereof in a nuclear weapons programme. Due to the ambiguity, further expert knowledge was required to prove the "especially designed or prepared" nature of the goods confiscated, and to decide on definitions not specifically included in the legislation. It should be noted that according to South African law, words in legislation have their ordinary meaning unless it is specifically defined by the law maker. Also, if the legislation is not sufficiently clear in itself, the courts could rule that the legislation is "vague or embarrassing". The Non-Proliferation Act does not include provisions for lesser violations or administrative fines, and the Catch All legislation has to be reworded according to international best practice. All the non-proliferation legislation should be reviewed to ensure that the provisions meet the requirements of the South African Constitution. The prosecutors in the case however resolved the challenges by phrasing the indictment according to the goods seized and managed to proceed with the prosecution (Macadam, 2005; Macadam, 2022). However, it would be preferable that the legislation be less ambiguous to enable seamless prosecutions of such cases in future.

In 2022, a Regulation issuing Codes of Conduct was promulgated. It is anticipated that this regulation, adopted in terms of Section 7(1) of the Non-Proliferation Act, would assist in the prosecution of those contravening the non-proliferation legislation, especially in cases of lesser offences, which were previously identified as negligence, and where intent could not be proven.

The Non-Proliferation Secretariat is reviewing all secondary legislation due to updates in international lists for the missile and nuclear controls. The chemical and biological regulations have also been reviewed and amendments have been suggested to enhance implementation.

The current list of secondary legislation is as follows:

1. Government Notice No. R.16 of 03 February 2010 refers to Registration and indicates that any person that is in control of any activity with regard to controlled goods or who have controlled goods in their possession or custody or under their control, shall be required to register with the Council.
2. **Catch-All**: Government Notice No. R.75 of 29 January 2004 enables the Council to declare goods that are mentioned in the controlled lists but do not comply fully with the specifications mentioned in either the Regulations or Notices, to be controlled. The Council can declare any item of equipment, technology, materials, chemicals, biological agents or toxins, production facilities or components that do not appear on the lists of goods declared, to be controlled goods as mentioned above, but which fall outside the range of specifications stipulated in the said list, or lists of goods to be controlled in terms of section 13(1) of the Non-Proliferation Act. This measure can be applied by the Council if it is determined that the item is, or may be, intended in its entirety or in part, for use in the development, production, handling, operation, maintenance, storage or dissemination of chemical or biological warfare agents, or of nuclear weapons, or of systems capable of delivering such agents or weapons. In this instance, the Council can prohibit the import, export, re-export or transit of such an item, unless a permit is issued by the Council.
3. **Code of Conduct**: Government Notice No. R.1919 of 25 March 2022 was promulgated as the Codes of Conduct for persons involved in controlled non-proliferation activities to state the principles of non-proliferation and describe procedures and methods to be followed during the execution of certain activities related to non-proliferation. All legal persons registering with the Council therefore have to sign the

Code of Conduct upon registration. As the Non-Proliferation Act does not contain provisions for the imposition of penalties for minor offences, this Government Notice improves the controls.

4. **Biological**: The Presidential Proclamation in Government Notice No. R.16 of 26 February 2002 made the Biological Weapons and Toxins Convention (BTWC) part of South African legislation. In addition, Government Notice No. 4978 of 14 June 2024 was promulgated declaring a list of biological goods, technology and related equipment as controlled goods, along with the control measures applicable to such controlled goods, technology and related equipment. The promulgation of a national list of biological goods and technologies, in the absence of an international list by the BTWC, has enabled South Africa to include controls on biological goods and technologies into the strategic trade control mechanisms implemented.
5. **Chemical**: Government Notice No. R. 754 of 02 May 1997 made the Chemical Weapons Convention (CWC) part of the South African legislation. The Regulation regarding the Application of Provisions of the CWC (Chemical Weapons Regulations) was promulgated under Government Notice No. R.17 of 03 February 2010. Government Notice No. R.4975 of 14 June 2024 contains the various lists of chemicals, which are declared as controlled goods along with the control measures applicable to such goods. The list of chemical goods as listed in the CWC is included in national legislation but is strengthened through supplementation of the lists by additional chemicals, including riot control agents, anti-plant agents and other toxic chemicals, which could be used as precursors to chemical weapons, or be used directly in a harmful manner.
6. **Missiles**: MTCR equipment, technology and related items are declared as controlled goods along with the control measures applicable to such controlled goods in Government Notice No. R. 4976 of 14 June 2024.
7. **Nuclear**: Government Notice No. R. 4977 of 14 June 2024 lists the nuclear-related dual-use equipment, materials and software, and related technology of the NSG Part 2, which are declared as controlled goods, along with the control measures applicable to such controlled goods. Furthermore, certain nuclear-related dual-use equipment, materials and software, and related technology for the isotope separation of other elements that could be used for uranium isotope separation, are declared as controlled under Government Notice No. R. 4979 of 14 June 2024.

South African Council for the Non-Proliferation of Weapons of Mass Destruction

Section 4 of the Non-Proliferation Act provides for the establishment of the Council, to be appointed by the Minister of Trade, Industry and Competition. The Act indicates that the Council should consist of persons from DIRCO; the Department of Trade, Industry and Competition; the Department of Defence and Military Veterans; the chemical, biological, nuclear and aerospace sectors of industry; and the Nuclear Energy Corporation of South Africa (NECSA). The Act also provides for the appointment of additional members, as the Minister deems necessary, who have applicable knowledge and experience with regards to non-proliferation matters. The Minister therefore requests the Minister of Mineral Resources and Energy, and the State Security Agency, to designate persons to be appointed as members of the Council. The Chairperson and Vice-Chairperson of the Council are appointed based on "applicable knowledge and experience with regard to matters connected with the objects of the Council" (Non-Proliferation Act, 1993).

The Council is supported technically and administratively by the Non-Proliferation Secretariat, which is a Chief Directorate within the Trade Branch of the Department of Trade, Industry and Competition. The Council is also supported by a dynamic inter-governmental stakeholder engagement mechanism comprising various working groups and committees.

In brief, these are:

– The Non-Proliferation Control Committee, an inter-governmental committee comprised of various governmental stakeholders that convene on a bi-weekly basis to consider applications from industry for permits to transfer strategic goods and technologies and make recommendations to the Council on whether

to approve or deny such transfers. Applications are evaluated based on non-proliferation risk factors taking into consideration, *inter alia*, the item to be transferred, end use, end user, destination and related non-proliferation factors. Members of this Committee are from relevant governmental stakeholders and are able to assess applications based on non-proliferation risk;

- The Chemical Weapons Working Committee (CWWC), which is comprised of experts from government and industry and advises the Council on matters related to the implementation of the CWC;
- The Biological Weapons Working Committee (BWWC), which is comprised of experts from government and industry and advises the Council on matters related to the implementation of the BTWC;
- The Nuclear and Missile Dual Use Committee (NMDUC), which is comprised of experts from government and industry and advises the Council on matters related to the implementation of the NSG, the MTCR and the TPNW;
- The Comprehensive Nuclear-Test-Ban Treaty Coordinating Committee (CTBT CC), which is comprised of experts from government and industry and advises the Council on matters related to the implementation of the CTBT;
- The Non-Proliferation Review Committee (NPRC), which is comprised of experts from within the Council structures with vast expertise on non-proliferation and Council matters. They are tasked with the review of the Non-Proliferation Policy and Act;
- The Non-Proliferation Secretariat / South African Revenue Service Coordinating Committee (NPS/SARS CC), which has oversight of the implementation of the Memorandum of Understanding between the South African Revenue Service (SARS) and the Department of Trade, Industry and Competition, on behalf of the Council, for the enforcement of the non-proliferation legislation at South African ports of entry and exit. The Committee is comprised of officials from the Non-Proliferation Secretariat and SARS.
- The Programme Management Committee for the Service Level Agreement (SLA) between the Department of Trade, Industry and Competition, on behalf of the Council, and Protechnik Laboratories, is mandated with the oversight of the implementation of the SLA. Protechnik Laboratories provides specialised chemical laboratory services to the Council in terms of the Single Small Scale Facility, which is the only facility in South Africa allowed to store Schedule 1 chemicals for defensive purposes, in terms of the CWC.
- The Programme Management Committee for the Service Level Agreement (SLA) between the Department of Trade, Industry and Competition, on behalf of the Council, and the Council for Geoscience (CGS) is mandated to oversee the implementation of the SLA. The CGS provides specialised services to the Council in terms of the maintenance and operation of stations forming part of the International Monitoring System of the CTBT.

These Committees convene regular meetings and report to the Council in the form of reports or minutes and provide advice as necessary. Delegations participating in meetings or negotiations of international treaties, conventions and regimes receive guidance and support from these committees through review and preparation of proposals and position papers. Issues requiring consideration from varying perspectives are usually referred between committees for discussion to ensure thorough analysis and effective advice to the Council. The current structure enables effective communication, cooperation and collaboration between stakeholders enabling informed decisions to be made on non-proliferation matters.

The organisational structure of the Council is illustrated in Figure 1.

Coordination between Regulatory Authorities

While the current system of 'non-proliferation' and 'arms control' is segregated for historical reasons, there is co-ordination and a continuous attempt to synergise controls between the regulatory institutions through stakeholder liaison and regular engagements.

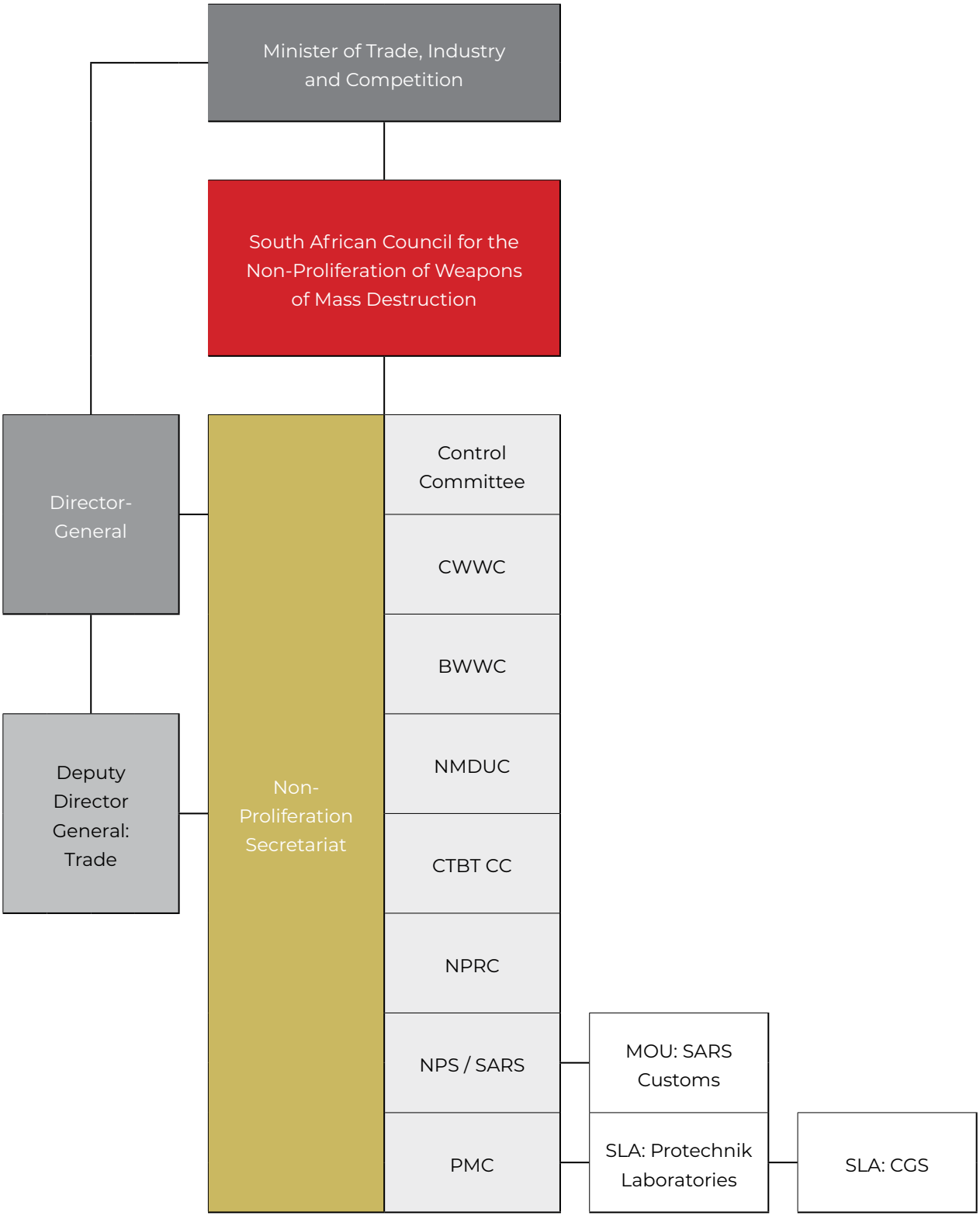

Figure 1: Organogram of the South African Council for the Non-Proliferation of Weapons of Mass Destruction (Reddiar, 2023)[5]

The DEE has the Nuclear Energy Policy of 2008, which "presents a policy framework regarding prospecting, mining, milling and use of nuclear materials as well as the development and utilisation of nuclear energy for peaceful purposes" by South Africa. This includes the nuclear fuel cycle focusing on all applications of nuclear technology for energy generation, but excludes non-energy related applications of nuclear technology. The primary legislation that guides the regulation of non-proliferation matters at the DEE is the Nuclear Energy Act, 1999 (No. 46 of 1999), which requires that the Minister of Electricity and Energy consult with the Council on all non-proliferation matters.

The Chief Directorate: Nuclear Non-Proliferation and Radiation Security liaises closely with the Non-Proliferation Secretariat and refers certain non-proliferation related matters to the Council for consideration as part of the consultation process. This includes applications received from industry for authorisations to acquire or possess, or for certain activities relating to nuclear material, restricted material and nuclear-related equipment and material, and for the export of source, special nuclear or restricted material, or nuclear-related equipment and material. These are presented by the DEE to the Council for consideration and recommendation prior to issuance to the nuclear industry. Such consultation enhances the proliferation risk assessment process due to the multi-stakeholder consideration of the authorisations through the Council structures.

The National Conventional Arms Control Committee (NCACC) has the Policy for the Control of Trade in Conventional Arms for the Defence-related Industry,[6] which was published in 2004. The NCACC controls are implemented in terms of the National Conventional Arms Control Amendment Act, 2008 (No. 73 of 2008).

The Council invites the NCACC structures to Control Committee meetings where applications for permits for transfers of strategic goods are considered. This ensures that the applications are considered from both a non-proliferation and arms control perspective and also ensures that the NCACC is aware of the applications in the Council system, so that there is a co-ordinated approach to applications. Similarly, the Non-Proliferation Secretariat participates in the Scrutiny Committee of the NCACC and reviews applications in the NCACC system to enhance co-ordination. Such coordination and cooperation also assists the Non-Proliferation Secretariat with compliance activities and identifying companies that may be in possession of strategic goods without the necessary authorisations.

Capacity Building Initiatives and African Relations

It is important to recall one of the fundamental objectives of the Non-Proliferation and Arms Control Policy of 1994, which stipulates that South Africa, at all times, must protect the interests of developing countries in such forums. South Africa is the only African country that is a member of the MTCR, or a participating government in the NSG. South African positions at related meetings considers all changes to the guidelines and technical annexes of the regimes, as well as adoption of decisions in multilateral meetings related to the non-proliferation of WMDs, against the perspective of not hindering the development of the South African industry or access to such goods and technologies by other developing countries.

Furthermore, in an effort to promote the non-proliferation and arms control policy imperative that South Africa utilises its position as a member of the suppliers regimes and of the Africa Group/ Non-Aligned Movement (NAM) to promote the importance of non-proliferation, the Council has partnered with various national and international stakeholders to work towards increasing non-proliferation capacity in the country and on the African continent. The Council, therefore, together with national and international partners, presents courses for various national and international stakeholders. These include training of customs and border control authorities on the identification of strategic goods; development of the analytical chemistry skills of African countries through the Organisation for the Prohibition of Chemical Weapons (OPCW); development of assistance and protection skills for first responders in Africa to be able to address toxic chemical spills and other related incidents through the OPCW; training to the experts nominated by various countries on the United Nations Secretary-General's Mechanism through the UN Office for Disarmament Affairs (UNODA); and presentation of workshops or

participating in events as experts on various topics convened by international organisations such as the OPCW, BTWC Implementation Support Unit, Technical Secretariat to the Preparatory Commission of the CTBT, amongst others. Such efforts aim to contribute to international activities to develop the skills and competencies of developing countries, especially in Africa.

Conclusion

South Africa has committed itself to a framework that is reflective of disarmament, non-proliferation and peaceful uses of advanced strategic goods. South Africa's continued participation in discussions and negotiations at various expert meetings, working groups and conferences of the multilateral export control regimes, treaties and conventions reiterate the country's commitment to disarmament and non-proliferation. Furthermore, the need to engage actively and promote the best interests of the South African industry, especially with the rapid advancements in science and technology for civil and peaceful purposes, as well as protecting the interests of developing countries, remain one of the driving factors for delegations during international negotiations. These are factors that display South Africa's determination to promote disarmament internationally and remain nuclear weapons free. In this regard, it would be important for certain legislation to be updated without delay to domesticate international obligations and also adopt international best practice in certain areas.

In the case of A.Q. Khan, who was using South Africa as part of his transnational network, the South African authorities were able to investigate and prosecute the guilty parties within the prescripts of South African legislation, with intelligence received from international counterparts. Prosecutors were also able to overcome deficiencies in the legislation through interpretation and the use of complementary legislative prescripts, such as the Riotous Assemblies Act for the penalisation / punishment of the offenders. However, certain pertinent issues still need to be interrogated and deliberated on to further improve efficacy, such as the inclusion of certain additional prescripts, assessing whether the penal provisions in the primary legislation that was contravened is sufficient for the prosecution of such cases in future; whether it would be necessary to elaborate on such provisions to ensure that prosecution is not hindered; and whether there is a necessity to include provisions for lesser offences.

It should also be noted that some of the components and systems manufactured in South Africa did not follow the typical design of gas centrifuge enrichment plants. Certain of the components had different specifications due to some commercial goods being used, and the configuration of some items differed from conventional items that are normally used in such systems (Macadam, 2005). Therefore, proliferators may decide to illicitly procure or sell components and technology that differs slightly from international and national controls, in an effort to mislead regulators and enforcers of non-proliferation controls. Furthermore, prosecutorial actions could have been taken against freight forwarders, financial institutions and other actors that took part in the illicit trafficking operations (Spector, et al., 2006). It is therefore imperative that such issues be addressed.

Although South Africa's disarmament, non-proliferation and arms control regulatory and legislative framework has evolved over the years to keep up with international best practice, changes in the international control lists, updates in regulatory processes due to contraventions, as well as certain compliance violations, it is imperative that it be improved further to address lessons learned from contraventions. It is noted that the current review processes are aimed at ensuring that South Africa is not party to the development of WMDs at the national level, as well as for South Africa to maintain its reputation as a responsible member of the international community, as an advocate for disarmament, and as a leader in efforts to prevent the proliferation of WMDs, in general. However, changes need to be invoked before there are further attempts like the A.Q. Khan network, circumventing controls. In this way, South Africa can continue to play an active role in advocating for the dismantling of existing WMD programmes, and in preventing the emergence of new nuclear weapons programmes by both state or non-state actors, with strengthened national control systems. If, and when, a world without nuclear weapons is reached, South Africa's approach, and its evolving control systems, may also contribute to preventing the re-emergence of such weapons.

Endnotes

The author wishes to acknowledge funding from the University of Johannesburg and Open University for the article processing fees.

[1] The Nuclear Suppliers Group (NSG) is a group of 48 nuclear supplier countries that seek to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of guidelines for nuclear exports (Part 1) and nuclear-related exports (Part 2). South Africa has the ability to supply items covered by the annexes to Parts 1 and 2 of the NSG Guidelines. These items could either be items that are material and equipment, as well as technology especially designed or prepared for nuclear use; or nuclear related dual-use items and technologies, i.e., items that can make a major contribution to a nuclear fuel cycle or nuclear explosive activity, but which have non-nuclear uses as well, for example in industry (Nuclear Suppliers Group, 2023: 1-2; Nuclear Threat Initiative, 2023: 1).

[2] As one of the goals of re-joining the international community at the end of apartheid, subsequent to the inauguration of the new Government in 1994, South Africa joined the Non-Aligned Movement (NAM), which is an international organisation consisting of about 120 countries that is dedicated to representing the interests of developing countries. It was formed at the Bandung Conference in 1955 and called for developing countries to "join together in support of national self-determination against all forms of colonialism and imperialism" and abstain from aligning with the two superpowers at that time, the USA and the Soviet Union (Encyclopaedia Britannica, 2024).

[3] The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies is a multilateral export control regime that was established to promote transparency and greater responsibility in the transfer of conventional arms and dual-use goods and technologies. In addition, it aims to contribute to regional and international security and stability, prevent the acquisition of these items by terrorists, and prevent destabilising accumulations of such goods and technologies (Wassenaar Secretariat, 2023).

[4] Current names of the departments are referenced, and not the names in 1995.

[5] Briefing on Non-Proliferation Controls in South Africa, dated 01 August 2023, prepared for the Minister of Trade, Industry and Competition (unpublished).

[6] It should be noted that this policy replaced the arms control component of the 1994 Non-Proliferation and Arms Control Policy.

References

Albright, D. and Hinderstein, C. (2005). Unravelling the A.Q. Khan and future proliferation networks. *The Washington Quarterly*, 28(2): 111-128.

Boureston, J. and Lacey, J. (2007). Shoring Up a Crucial Bridge: South Africa's Pressing Nuclear Choices. *Arms Control Today,* 37.

Chiahemen, J. (2004, January 13). US probes SA nuclear connections. *The Star*.

Corera, G. (2006). *Shopping for Bombs: Nuclear Proliferation, Global Insecurity and the Rise and Fall of the A.Q. Khan Network*. New York: Oxford University Press.

Department of Foreign Affairs. (2005). *South Africa's Policy on the Non-proliferation of Weapons of Mass Destruction the Role of the Department of Foreign Affairs.* Cape Town: South African Communication Service. p. 1-48.

Encyclopaedia Britannica. (2024). Non-Aligned Movement. Available from: https://www.britannica.com/topic/Non-Aligned-Movement.

Fabricius, P. (2004, February 15). Bara used as a dupe in nuclear bombs scandal. *The Sunday Independent.*

Fitzpatrick, M. (2007). Nuclear Black Markets: Pakistan, A.Q. Khan and the rise of proliferation networks, A net assessment. London: International Institute for Strategic Studies.

Gearity, S. (2005). South African Imprisoned for Illegal Nuclear-Related Exports. Available from: https://www.learnexportcompliance.com/south-african-imprisoned-for-illegal-nuclear-related-exports/.

Grobler, G.J. (1996). The South African Experience: The Birth and Death of South Africa's Nuclear Weapons Programme. *Medicine, Conflict and Survival*, 12(3): 228-239.

Laslocky, M. (2005, May). Nuclear Underground, Frontline/ World Investigation. Available from: https://www.pbs.org/frontlineworld/stories/nuclear/

Macadam, R.C. (2005, September 22). Presentation to the NSG Discussion on Stable Isotope Separation on 22 September 2005. National Prosecuting Authority of South Africa.

Macadam, R.C. (2022, October 10). Author Interview.

MacCalman, M. (2016). A.Q. Khan Nuclear Smuggling Network. *Journal of Strategic Security*, 9(1): 104-118. Available from: https://scholarcommons.usf.edu.jss.vol9/iss1/9

Markram, T. (2004). *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.* Arcadia, Pretoria: SaferAfrica.

Non-Proliferation of Weapons of Mass Destruction Act, 1993. (No. 87 of 1993). Available from: https://www.gov.za/documents/non-proliferation-weapons-mass-destruction-act-2-jul-1993-0000.

Non-Proliferation Secretariat. (2020/2021). The 27th Annual Report of the South African Council for the Non-Proliferation of Weapons of Mass Destruction. Available from: http://www.thedtic.gov.za/wp-content/uploads/AR-NON-PROLIFERATION.pdf.

Nuclear Energy Act, 1999 (No. 46 of 1999). Available from: https://www.gov.za/documents/nuclear-energy-act.

Nuclear Suppliers Group. (2023). Guidelines. Available from: https://www.nuclearsuppliersgroup.org/en/guidelines.

Nuclear Threat Initiative. (2023). Nuclear Suppliers Group. Available from: https://nti.org/education-center/treaties-and-regimes/nuclear-suppliers-group-nsg/.

Reddiar, M. (2021). Preventing the Re-emergence of a Nuclear Weapons Programme in South Africa: The Evolution of South Africa's Policy, Legislative and Regulatory Framework, and Infrastructure. Research paper prepared for the University of the Witwatersrand's Radiation and Health Physics Unit and the Verification Research, Training and Information Center (VERTIC).

Reddiar, M. (2023, August 1). Overview of Non-Proliferation of Weapons of Mass Destruction Controls in South Africa. Briefing document to the Minister of Trade, Industry and Competition.

Schapiro, M. (2005). On the Middleman: Asher Karni was "a genius" in South Africa's military electronics trade. Now he's in jail in Brooklyn, accused of orchestrating a nuclear black market deal. Available from: https://www.thefreelibrary.com/_/print/PrintArticle.aspx?id=132270531.

South African Broadcasting Corporation. (2004). US holds SA-based Israeli over nuclear triggers. *SABC News,* 21 January 2004. Available from: http://www.sabcnews.com/Article/PrintWholeStory/0,2160,72425,00.html

South African Council for the Non-Proliferation of Weapons of Mass Destruction. (2024). Regulations and Notices. Available from: http://non-proliferation.thedtic.gov.za/legislative-framework/regulations-and-notices/.

Spector, L.S., Salama, S. and Goren, N. (2006). Special Report: The A.Q. Khan Network: Crime… and Punishment? *WMD Insights, Issues and Viewpoints in the International Media*, 3: 2-9.

Tertrais, B. (2008). Kahn's Nuclear Exports: Was There a State Strategy? In *Pakistan's Nuclear Future: Worries Beyond War* (13–58). Edited by H.D. Sokolski. Strategic Studies Institute, US Army War College. Available from: http://www.jstor.org/stable/resrep12046.5.

Von Wielligh, N. and Von Wielligh-Steyn, L. (2015). *The Bomb: South Africa's Nuclear Weapons Programme.* Pretoria: Litera Publications.

Wassenaar Secretariat. (2023). The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies. Available from: https://www.wassenaar.org/.

World Customs Organisation. (2023). Strategic Trade Control Enforcement (STCE) Implementation Guide. Available from: https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/tools-and-instruments/stce-implementation-guide/stce-implementation-guide-2023-en.pdf?db=web.