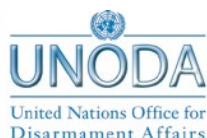


# FRESH IDEAS FOR THE FUTURE

## Symposium on the NPT

Nuclear Disarmament, Non-proliferation, and Energy





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**Nuclear Disarmament, Non-proliferation, and Energy**



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**Full papers can be accessed via <http://belfercenter.com/nptsymposium>**

# Introduction

**The abstracts in this booklet summarise the research presented at an academic symposium convened on the sidelines of the 2015 NPT Review Conference. As we write this, journalists and seasoned experts in the nuclear policy field have been speculating about the particularly difficult challenges facing the Review Conference this year. To address those challenges, we would urge all concerned to consider the ideas and analyses presented at this symposium. Experts would be hard-pressed to find a better collection of fresh ideas and approaches for assessing and strengthening the NPT.**

The idea of presenting academic research at the 2015 NPT Review Conference originated with in the Dutch Ministry of Foreign Affairs. The Netherlands government soon secured the UN's Office of Disarmament Affairs as host. Harvard's Belfer Center for Science and International Affairs and the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies at Monterey agreed to serve as academic co-sponsors.

The symposium aims to accomplish two goals. The first is to present and discuss cutting-edge scholarly research on issues with which delegates to the NPT Review Conference must grapple. The intent here is to facilitate sound decision-making at the Review Conference by offering creative but practical conceptual innovations, critical analysis, and empirical evidence drawn from academic research. The second major purpose is to expose early-career academic researchers to the review process, where they may have an opportunity to share their research findings and interact with practitioners. Learning how to engage with policy makers and the broader public is a crucial feature of academic training. The symposium offers the participants the chance to witness the NPT review process in action, and to contribute to that process.

The panelists and poster presenters participating in the symposium were selected through a highly competitive application process. The response we received to our invitation to submit proposals for participation in the symposium was surprising both for its size and its quality. We received more than three times the number of proposals than could possibly be accommodated in a one-day symposium. Many projects that were not selected were from top research institutions on

critically important topics. The projects that were selected represent some of the most significant NPT-related research underway anywhere in the world.

To select the projects contained in this booklet, we focused first and foremost on quality: Does the project address a significant problem facing the non-proliferation regime or a challenge to the future of the NPT? Does the researcher appear to have a defensible answer to the question he or she is asking? Does the project promise to present new information that will advance the current state of knowledge about the problem or issue it addresses? We favoured projects presenting empirically-grounded research with direct relevance to policy makers. We also explicitly invited researchers from all regions of the world, disciplines, and academic fields, and endeavoured to represent the diversity of the proposed projects we received in our selections.

The panels and posters cover a wide variety of topics encompassing research on fundamental challenges confronting the NPT and the broader non-proliferation regime. The largest number of submissions focused on arms control and disarmament. Poster and panel presentation in this area draw out historical lessons from the NPT negotiations and review process, examine the current politics and multilateral groupings among NPT signatories, discuss the normative and political sources of the NPT's stability and success, and consider future verification challenges.

A second set of presentations considers the future of nuclear energy; in particular, how states, within the NPT framework, may broaden their cooperation over emergency response



measures, ethical issues associated with waste disposal, fuel-cycle choices facing new nuclear-energy states, and measures to strengthen security for nuclear materials and facilities.

Non-proliferation challenges confronting NPT members constitute a third area of focus. Researchers in this area present their findings on coercive non-proliferation strategies within alliances, cooperative regional measures for safeguarding nuclear materials and facilities, the history of international negotiations over export controls, South Africa's experience outside and inside the NPT, the effect of the Iranian nuclear issue on the non-proliferation regime, and Russia's evolving role in the non-proliferation regime, particularly in the aftermath of the crisis in Ukraine.

A final cluster focuses on nuclear and WMD-Free Zones. Research presented at the symposium examines experiences from the Latin American and African zones and considers the trade-off of order and justice in efforts to establish a WMD-Free Zone in the Middle East.

Between the four sponsoring institutions, a number of people worked to make this symposium possible. Special thanks are due to the government of the Netherlands for financial support and to Theo Peters, Kees Nederlof, Maarten Broekhof, Marieke Vreeken and Adriaan Beenen for their guidance and collaboration. Angela Kane and John Ennis graciously offered UNODA's good offices. Gaukhar Mukhatzhanova at the James Martin Center for Nonproliferation Studies helped to select symposium participants. At the Belfer Center, Gary Samore was an early advocate of organising the symposium and Joshua Anderson provided essential coordination. Thanks also are due to Soo-Hyun Kim and others at UNODA and the Dutch Mission in New York for their assistance.

The privilege of soliciting and selecting these research projects reinforces for us that hope for the future of disarmament, peaceful cooperation on sharing nuclear technology, and non-proliferation lies in the deep pool of talent represented by the scholars participating in this academic symposium.



**Martin B. Malin** is the Executive Director of the Project on Managing the Atom at the Belfer Center for Science and International Affairs at Harvard University's Kennedy School of Government. His research focuses on arms control and non-proliferation in the Middle East, U.S. non-proliferation and counter-proliferation strategies, and the security consequences of the growth and spread of nuclear energy. Prior to coming to the Kennedy School, Malin taught courses on international relations, American foreign policy, and Middle East politics at Columbia University, Barnard College, and Rutgers University. He also served as Director of the Program on Science and Global Security at the American Academy of Arts and Sciences. He holds a B.A. in Middle East Studies from the University of California at Santa Cruz, a Masters of International of Affairs from Columbia University's School of International and Public Affairs (where he served as editor-in-chief of the *Journal of International Affairs*), and has a PhD in political science from Columbia University.

**William Potter** is Sam Nunn and Richard Lugar Professor of Nonproliferation Studies and Founding Director of the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies at Monterey. He is the author or editor of over 20 books, the most recent of which are two volumes on *Forecasting Nuclear Proliferation in the 21<sup>st</sup> Century* (Stanford University Press, 2010), *The Global Politics of Combating Nuclear Terrorism* (2010), and *Nuclear Politics and the Non-Aligned Movement* (2012). Dr. Potter has served on numerous committees of the U.S. National Academy of Sciences and for five years was a member of the UN Secretary-General's Advisory Board on Disarmament Matters. He has been an advisor to the delegation of Kyrgyzstan at every NPT Review Conference and Preparatory Committee meeting since 1995.





# Section 1

**Disarmament:  
Past, Present, and Future**

# Realism, Idealism, and American Public Opinion on Nuclear Disarmament

*Mark Bell*



Mark Bell is a PhD Candidate in Political Science at the Massachusetts Institute of Technology, and a Research Fellow at the Belfer Center for Science and International Affairs at Harvard University. He holds a Master's in Public Policy from the Harvard Kennedy School, and a BA from Oxford University.

**How strong is US public support for multilateral nuclear disarmament? Scholars have traditionally focused on the strategic obstacles to disarmament and have generally paid little attention to potential public opposition to nuclear disarmament.**

In particular, existing scholarship has not examined the determinants or sensitivity of public support for disarmament. We provide the first experimental study of American public support for multilateral nuclear disarmament. Using survey experiments and recently developed text analysis techniques embedded in a national survey, we examine the level and sensitivity of American public support for disarmament, as well as explore the ideas underpinning American public opinion on these issues.

We find that idealist principles play a strong role in sustaining robust public support for nuclear disarmament across a range of scenarios, but that support remains highly sensitive to many of the strategic obstacles to disarmament that realists have identified, including concerns regarding verification, nuclear-armed rogue states, and the ease of reconstituting nuclear weapons following disarmament. The support of independent voters for multilateral disarmament is particularly sensitive to these concerns. Our results shed light on the domestic political challenges associated with multilateral disarmament, and thus have important implications for those seeking nuclear disarmament. Our results also shed light on broader debates within international relations scholarship about the extent to which American public opinion reflects realist or idealist principles.

# Defining the Nuclear Disarmament Norm: How Much is Enough?

*Lyndon Burford*



Lyndon Burford is a PhD Candidate in International Relations at the University of Auckland, and the NGO advisor on the New Zealand delegation to the 2015 NPT Review Conference. The views expressed here are entirely his own and do not reflect New Zealand Government policy.

**Non-Proliferation Treaty (NPT) nuclear weapons discourse is routinely framed in terms of a grand bargain that balances the nuclear disarmament and non-proliferation norms. Yet research and policy to date have focused overwhelmingly on non-proliferation; nuclear disarmament norm dynamics remain poorly researched and understood.**

For example, international relations (IR) scholars have largely ignored the concept of a nuclear disarmament norm and have made no attempt to define it. Similarly, while NPT Article VI is the only Treaty provision that creates a binding, multilateral nuclear disarmament obligation, in the English-language legal literature, only a handful of scholars have rigorously sought to define the Article VI obligation. Moreover, this US-dominated literature either ignores the relevant legal interpretive rules or uses them as a political lever to arrive at predetermined conclusions, such as that the NPT does not create an obligation to achieve complete nuclear disarmament.

This paper adopts an interdisciplinary approach to define the nuclear disarmament norm and to address its political impli-

cations. This approach blends the insights of norms-based IR scholarship with international legal methodology – specifically, the treaty interpretation rules in the 1969 Vienna Convention on the Law of Treaties (VCLT). Contrary to the existing literature, this paper demonstrates that the unanimously-agreed understanding among NPT parties is that Article VI creates a legally-binding obligation to achieve the elimination of nuclear weapons. This approach thus provides a nuanced understanding of the political and legal dynamics surrounding Article VI that contributes substantively to NPT scholarship and diplomacy.

From a legal perspective, the authoritative rules for treaty interpretation are codified in VCLT Articles 31 and 32. These rules have consistently been recognised as constituting customary international law; they therefore apply to all treaties, including those that predate the VCLT, and to all states, including non-VCLT parties. The core VCLT interpretive principles mandate good faith consideration of the ordinary meaning of treaty provisions given the treaty's context, and in light of its 'object and purpose'—the over-arching objective that motivates adherence to the treaty. Interpretation thus requires consideration of, among other things, a treaty's text and preamble; unilateral and multilateral instruments related to the treaty's completion and the subsequent practice of, and agreements

between, treaty parties. The VCLT takes a ‘teleological’ approach to interpretation, in which a treaty’s true meaning exists at the time of interpretation, not at the time of the treaty’s completion. This reflects an acknowledgement in legal practice of the dynamic nature of international norms. It also highlights the interpretive significance of unanimous subsequent agreements between treaty parties.

From an IR perspective, treaty law is a type of international norm. Treaties explicitly establish commonly agreed standards and expectations, creating binding criteria against which to measure legitimate behaviour for treaty members. Given the central role of NPT norms in defining legitimate nuclear weapons-related behaviour, interpretation of those norms has important political consequences. For example, there is a widespread understanding among non-nuclear-weapon states that the NPT codifies an inextricable link between the nuclear disarmament and non-proliferation norms. Perceived levels of nuclear-weapon state compliance with disarmament obligations can therefore affect the willingness of many non-nuclear-weapon states to adopt additional, essential non-proliferation measures. The question thus arises, how much nuclear disarmament is required to secure political will among non-nuclear-weapon states to advance non-proliferation? Answering that question requires a clear understanding of the nuclear disarmament norm.

This paper argues that the NPT’s object and purpose is to facilitate the elimination of nuclear weapons, in order to prevent catastrophic human suffering through nuclear conflict. This conclusion, reflected in the first two paragraphs of the NPT preamble, derives also from a close examination of the UN-based multilateral processes leading to the completion of the NPT; from numerous, unanimous subsequent agreements between NPT parties and from the pattern of near-universal NPT compliance among non-nuclear-weapon states.

Regarding Article VI specifically, a thorough VCLT-based interpretation points to two key conclusions. First, numerous unanimous subsequent agreements between NPT parties clarify that Article VI makes nuclear disarmament an independent, priority obligation, over and above general and complete disarmament. For example, the consensus agreements from the 1985, 1995 and 2000 Review Conferences consistently highlight the urgency and priority to be given to nuclear disarmament and outline specific measures to achieve it. The consensus 2010

Final Document goes further: the phrase ‘general and complete disarmament’ does not appear anywhere in the Document. The Document refers indirectly to general disarmament, by citing the 1995 Decision on Principles and Objectives. But as noted, that Decision also prioritises nuclear disarmament over general and complete disarmament.

The second substantive conclusion is that full realisation of the Article VI obligation requires the permanent, verifiable achievement of nuclear disarmament, defined as an endpoint of zero nuclear weapons. In the Final Documents from both the 2000 and 2010 Review Conferences, NPT members unanimously, explicitly state that Article VI creates an obligation to achieve the elimination of nuclear weapons. This accords with the unanimous finding of the International Court of Justice (ICJ) in its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, which has interpretive value here for two reasons. First, all ICJ advisory opinions have broad legal interpretive value, coming from the world’s most authoritative international court. Secondly, in both the 2000 and 2010 Final Documents, NPT parties unanimously acknowledge the Advisory Opinion and call on all Treaty parties to refer to it in their NPT disarmament reporting.

Clearly legal arguments do not guarantee outcomes, and state practices fall far short of these obligations. Nevertheless, these conclusions point to widespread international expectations that have significant political consequences. To effectively manage the political dynamics linking nuclear disarmament and non-proliferation it is essential to start with a clear understanding of the nuclear disarmament norm, as outlined here. Such an understanding illuminates the extreme frustration among many non-nuclear-weapon states at the perceived lack of nuclear disarmament progress, which currently hampers non-proliferation efforts. To realise the NPT’s objective of preventing catastrophic human suffering due to nuclear conflict, multilateral nuclear disarmament obligations must be clarified, acknowledged and implemented.

# The Political Effects of Nuclear Proliferation

Alexandre Debs (with Nicholas Anderson and Nuno P. Monteiro, Yale University)



Alexandre Debs is Assistant Professor of Political Science at Yale University, working on the causes of international conflict, nuclear proliferation, and democratisation. He received a PhD degree in Economics from M.I.T., an MPhil from Oxford University and a B.Sc. from Université de Montréal.

**What are the benefits of nuclear acquisition? The existing literature focuses on the role of nuclear possession, posture, and superiority in determining the incidence and outcome of interstate crises.**

We argue that nuclear acquisition has wider military and political benefits. Specifically, nuclearisation has important military benefits when it introduces a marked shift in the balance of power vis-à-vis the state's adversaries. When the new nuclear state already enjoyed high relative power or a high level of allied commitment prior to acquiring the bomb, the military effect of nuclearisation is low. For such states, the only political benefit of nuclear acquisition will be greater autonomy in pursuit of foreign policy goals. When, however, both the country's relative power and the level of allied commitment prior to nuclear acquisition were low, nuclear weapons present a significant military benefit. Whenever its security interests are at stake, the new nuclear state will consider escalation. This significant military benefit, in turn, is likely to produce a

political benefit. Internalising the risk of escalation, both allies and adversaries of the new nuclear state may make political concessions to its security. We illustrate our theory using four historical cases. South Africa, which was already strong vis-à-vis its adversaries prior to nuclearisation, enjoyed limited benefits from building the bomb. Likewise with France which, already having deep U.S. commitments to its defence prior to nuclearisation, benefited from nuclear possession only in acquiring greater autonomy. In contrast, the military benefits of nuclear acquisition were greater for states that were relatively weaker vis-à-vis their adversaries and enjoyed a lower level of support from allies prior to going nuclear. Such was the case with China and Israel. As a consequence of this military effect, which brought with it greater risks of escalation, Washington made security concessions to each country. We conclude with policy implications.

# Understanding the Challenges and Building Global Capacity toward Verifying Multilateral Nuclear Disarmament

*Hassan Elbahtimy*



Hassan Elbahtimy is a Postdoctoral Researcher at the Centre for Science and Security Studies, King's College London, where his research includes the role of trust in nuclear verification and the history of non-aligned nuclear diplomacy. Hassan was awarded a PhD from King's College London for a thesis that addressed the historical origins of Egypt's nuclear policy, 1955-1968.

**Nuclear disarmament has long been widely acknowledged as one of three pillars of the Non-Proliferation Treaty (NPT). Since 1995, when the Treaty got an indefinite extension, the NPT regime has shown increasing emphasis on disarmament.**

In 2000, thirteen practical disarmament steps were agreed upon, and in 2010, nuclear disarmament featured prominently in the 64-point action plan. This growing international salience of disarmament has also been coupled with increasing polarisation between the nuclear haves and have-nots. While nuclear-weapon states argue for a step-by-step movement toward disarmament, frustration about lack of substantial progress has given ground to renewed calls for a comprehensive approach that would ban nuclear weapons on par with chemical and biological regimes.

This paper surveys the evolution of the current polarised discourse on nuclear disarmament and argues for the importance of a new academic disarmament research agenda that would

constructively enhance the international community's readiness, capabilities and understanding of nuclear disarmament. In doing that, it highlights the changing context through which future movement toward disarmament is likely to take place. As numbers of warheads go down, calls for multilateral disarmament will intensify. Multilateralism will involve states with smaller nuclear arsenals, but also a wider international audience seeking assurances that disarmament measures are taking place in an irreversible and verifiable manner. Despite progress in transparency by some nuclear-weapon states, effective verification would call for increased availability of information and access to sensitive materials, components and facilities. Future disarmament is likely to take place in a complex environment where non-proliferation, security, health and safety considerations would interact with and influence the process of verification. By examining these themes, this paper seeks to unpack some of the disarmament verification challenges and highlights how these factors can influence the generation of trust within such verification regime. In doing so it highlights the value of verification research as an integral component to any serious effort to move toward a world free of nuclear weapons.



# Overcoming Challenges of Non-nuclear-weapon States Involvement in Disarmament Verification

Malte Götttsche



Malte Götttsche is a research associate at the Centre for Science and Peace Research at the University of Hamburg, where he has recently submitted his physics dissertation on nuclear disarmament verification. Malte has previously been a fellow at the Center for Nonproliferation Studies in Monterey where he dealt with interdisciplinary nuclear issues.

**As Non-Proliferation Treaty (NPT) Article VI was essential for non-nuclear-weapon states (NNWS) to accept the NPT, they must gain confidence in disarmament progress. This could best be achieved by involving them in the 'strict and effective international control.'**

For deep cuts, effective international control likely requires direct verification of warheads and fissile materials. Such verification is unprecedented and poses challenges due to the sensitivity of warheads, materials and facilities, in particular when NNWS inspectors are involved. They must be able to obtain a high degree of confidence, yet the information they may receive is limited due to NPT Art. I/II. Recognising the capacity-building need for effective verification, the 2010 Review Conference agreed on the importance of supporting international cooperation in this regard (NPT/CONF.2010/50). This presentation discusses the challenges and shows how natural sciences can contribute, based on four years research at the University of Hamburg.

Effective verification likely requires three components: the authentication of warheads and fissile materials, unique identification of these, and the continuity of knowledge from the first inventory declaration through irreversible disarmament. For all three components, the protection of sensitive information requires managed access procedures severely limiting inspector movement during on-site inspections, as well as tools and methods that prevent the release of such information. One example is information barriers that analyse sensitive measurement data for warhead authentication in a way that the output is non-sensitive. For inspectors to trust such limited output without being able to review it, an unprecedented high reliability of measurements and analyses is required.

How can tools be developed to verify warheads when an NNWS inspector does not know what they look like? Most research is conducted in the nuclear-weapon states (NWS) and primarily concerns preventing the release of sensitive information. The reliability requirement is, however, at least an equal challenge that is sometimes overlooked. For NNWS to trust the reliability of tools and methods, they should get more involved in such research. One such example is

the project at the University of Hamburg. Research results demonstrating the need for improving techniques frequently considered mature are presented. To overcome these challenges, international cooperation should include joint research by NWS and NNWS. Best practices include systematic approaches also studying limitations of tools and methods, peer-reviewed publications of reproducible research and joint technical exercises involving governmental and independent scientists.

# The History of Article VI: Five Lessons for the NPT Today

*Matthew Harries*



Matthew Harries is Managing Editor of *Survival*, and a Research Fellow at the International Institute for Strategic Studies (IISS) in London.

**This paper tells the history of the Non-Proliferation Treaty's (NPT) disarmament obligation from the negotiation of the treaty in the 1960s to the present day, drawing conclusions for current debates about the relationship between non-proliferation and disarmament. It explores not just the literal meaning of Article VI, but the political bargains behind the treaty text – and the way in which they have evolved over time.**

Derived from the author's PhD thesis, the paper draws on a wide range of archival sources – US presidential papers at the Lyndon Johnson Library in Austin, Texas; the Foreign Relations of the United States series; the records of the Eighteen Nation Disarmament Committee; UN General Assembly documents; records of the US Senate Foreign Relations Committee; and UK government papers held at the National Archives in Kew. It also benefits from the author's interviews with officials and experts at the 2010 NPT Review Conference and subsequent Preparatory Committee meetings.

The paper argues that the NPT has always carried with it an expectation of progress on disarmament, while accepting that there cannot be a binding link between the non-proliferation obligation and specific disarmament steps. Article VI is the product of two facts: firstly, allowing some states to possess nuclear weapons while preventing others from doing so, as the NPT does, is inherently unjust; but, secondly, this injustice is, for most states most of the time, less threatening to their interests than further nuclear proliferation, especially in their own region. This was true at the time of the treaty's negotiation – when states calculated that reaching agreement on an NPT was more important than insisting on a 'package deal' linking non-proliferation to disarmament steps – and is still true today. Even in the absence of disarmament progress, the NPT remains considerably better than nothing.

The political dynamic of the NPT can only function, however, if the treaty is seen as part of a broader process, and if the division of the world into nuclear- and non-nuclear-weapon states is seen as only temporary. The focus on disarmament, moreover, is not simply a preoccupation of the Non-Aligned Movement – it has been a Western preoccupation before, and may well be again. Achieving the negotiation of the NPT in the 1960s was a delicate exercise not only in gaining the support

of non-aligned non-nuclear-weapon states, but also in alliance management. Today, coping with the political dissatisfaction of Western non-nuclear-weapon states is again becoming a major task of NPT diplomacy.

Lastly, disarmament has long been the natural focus of NPT Review Conferences, but the answer to the question of what will happen if disarmament progress runs aground has never been settled. These arguments are presented as five historical 'lessons', of direct relevance to policymakers and diplomats in the NPT process today.

The paper concludes by warning of the overlap between those who object to the treaty on grounds of disarmament, and those who object because they harbour nuclear-weapons aspirations. The NPT represents a shared interest in non-proliferation, and it is legitimate to ask those who are pushing hardest for disarmament whether they are risking that shared interest, and providing a useful rhetorical shield for those who wish the treaty harm for other reasons. But the paper also warns that the political injustice of the NPT is acute, and that simply because non-proliferation is a shared interest does not mean that political problems related to disarmament will not damage the treaty. The nuclear-weapon states would be ill-advised, in other words, simply to call the non-nuclear-weapon states' bluff.

Lastly, the paper outlines key questions about the relationship between non-proliferation and disarmament that were left unanswered in the negotiation of the text of Article VI, and which must be addressed in order to keep the NPT healthy in the years to come: what is the relationship between nuclear and conventional disarmament; how should nuclear weapons possessed by states outside of the NPT be treated; and how, in practical terms, should a multilateral route towards disarmament be planned?

# Multilateral Groupings and the Humanitarian Initiative in the 2015 NPT Review Cycle:

## Engagement, Diverging Postures and Possible Implications for the 2015 NPT RevCon and the 2020 NPT Review Cycle

*Jenny Nielsen*



Jenny Nielsen is a Postdoctoral Research Fellow in the School of Political Science and International Studies at the University of Queensland (Australia), researching nuclear disarmament issues. She holds a PhD from the University of Southampton (UK) which focused on US nuclear non-proliferation policy vis-à-vis Iran in the 1970s.

**Since its inclusion in the Final Document of the 2010 Non-Proliferation Treaty Review Conference (NPT RevCon), the “humanitarian dimension” initiative addressing the disarmament pillar of the NPT is gaining strength and momentum within the non-proliferation regime, including within the NPT review process.**

The evolving, cross-grouping, nuanced and multi-aimed initiative is supported by an increasing number of states that are deeply concerned by the consequences of use of nuclear weapons and that wish to highlight and address the catastrophic humanitarian consequences of nuclear weapons.

Stressing the inherent risks and “unacceptable humanitarian consequences caused by the immense, uncontrollable destructive capability and indiscriminate nature of these weapons,”

the states supporting and engaging in this initiative are using this dimension to refocus attention on progress towards the goal of nuclear disarmament. The initiative broadly aims to refocus the urgency of renewed attention on disarmament on the basis of the catastrophic and indiscriminate effects of a nuclear weapon detonation, whether by accident, miscalculation or design, which cannot be adequately addressed by any state or international organisation.

The growing momentum of the initiative is consolidating itself firmly in the NPT review process, the UNGA First Committee, and in international conferences sponsored by key drivers of the initiative (Norway, Mexico and Austria). Despite the evolving consolidation of this initiative in the non-proliferation regime, the discernable nuances and multiple aims within the initiative – held by states engaging in its activities – requires closer analysis. Similarly, the envisaged pathways, pace and ultimate aims held by those states currently engaging and supporting the initiative’s activities and statements at multilateral

fora require examination. This paper will assess the engagement by the member states of the main multilateral groupings operating in the non-proliferation regime which address nuclear disarmament issues (New Agenda Coalition (NAC), Non-proliferation and Disarmament Initiative (NPDI), the LAS, CELAC, the EU and the P5). In doing so, the possible implications and strains of the evolving, divergent and nuanced postures towards reaching a shared vision on implementing effective measures regarding the disarmament pillar of the NPT will be offered. This will be relevant for the 2015 NPT Review Conference and the 2020 NPT review cycle.

# Building a Trust Toolkit: Lessons from US-Russia Strategic Arms Control

*Heather Williams*



Heather Williams is a MacArthur Postdoctoral Fellow in the Centre for Science and Security Studies in the Department of War Studies at King's College London, where her research focuses on trust-building in international relations. She was a Research Fellow on Nuclear Weapons Policy at Chatham House until January 2015, where her work focused on the Nuclear Non-Proliferation Treaty and humanitarian impacts of nuclear weapons.

**One of the most common recommendations among nuclear policy experts is to promote 'trust and confidence-building measures.' Policymakers will similarly suggest, 'States will trust each other when it is in the national interest to do so.' But what exactly does this entail?**

Rather than speaking in the abstract or focusing solely on sources of distrust, experts and policymakers alike can instead ask, 'Trust to do what?' For trust is not a binary, but rather operates along a spectrum and is dependent upon the terms of a trusting agreement, typically established through the process of negotiations and Joseph Nye's concept of nuclear learning. For this reason, past models of trust, such as the Prisoner's Dilemma or the English School's emphasis on individuals, are insufficient for explaining when and why trust is in the national interest in arms control agreements. Instead, actors have a greater degree of agency than is often ascribed to them and will negotiate the terms under which they will trust.

To explore this concept of 'negotiated trust,' this research project developed a trust framework using levels of analysis (international, domestic, and individual), drawing on Putnam's two-level

game and new research on 'political neuroscience,' which was applied across four cases of U.S.-Russia strategic arms control: the 1972 Strategic Arms Reduction Talks (SALT), 1991 Strategic Arms Reduction Treaty (START), 2002 Moscow Treaty, and 2010 New START Treaty. Research included elite interviews in Washington, Moscow, and London with treaty negotiators in order to collect data as to what determines when trust is in the national interest, and to tell the stories behind the treaties.

The findings included a 'trust toolkit' ranging from broad to specific recommendations. Primarily, the research suggests that trust-building requires domestic consensus-building. This can take the form of education campaigns, such as the Obama Administration's ongoing engagement with Congress for a Comprehensive Nuclear-Test-Ban Treaty (CTBT); or changing relations among domestic actors, such as Gorbachev's relationship with the military-industrial complex. An additional finding was the importance of personalities and personal relationships. In many of the cases, it took a 'trust champion' to overcome sources of distrust and find a negotiated solution that could be defined as the national interest. Trust-building evolves over time through small steps and can have a cyclical effect. Though these findings are rooted in bilateral strategic arms control, they can be applied to multilateral agreements, such as the Non-Proliferation Treaty (NPT), to explain trust dynam-

ics, and to identify opportunities to build trust particularly between nuclear-weapon states (NWS) and non-nuclear-weapon states (NNWS) and among the NWS themselves.

The paper and presentation will first introduce the concept of 'negotiated trust,' then identify various trust deficits within the NPT that may present a challenge during and beyond the 2015 Review Conference. These include NNWS distrust of NWS over access to civilian nuclear energy and compliance with Article VI, as recently manifested in the humanitarian impacts of nuclear weapons initiative and the growing debate over whether a nuclear weapons ban or a step-by-step approach is the best path to disarmament. The presentation will then discuss items in the 'trust toolkit,' building on contemporary history and empirical evidence, and how these may be applied over the next NPT review cycle to create favourable conditions for further arms reductions among the five NWS. It will focus on US-Russia arms control, but also include potential applications for the 'P5 process.'



# Sea-Based Nuclear Weapons and Global Nuclear Disarmament

*Tong Zhao*



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**This research highlights the importance of reducing sea-based nuclear weapons for the overall success of global nuclear disarmament.**

Different from traditional perceptions, sea-based nuclear weapons are not necessarily the most survivable or the least destabilising types of nuclear weapons. This is due to two reasons. First, sea-based nuclear weapons considerably increase the chances of direct interaction between two or multiple countries' nuclear weapon systems. As they are usually deployed outside of one's own territory or territorial waters, sea-based nuclear weapons are sent out on patrols in international waters even during peacetime and raise the chances of accidental encounters and hostile interactions between different nuclear weapons states. Second, due to the nature of such weapons and their operational requirement, some sea-based nuclear weapons significantly blur the line between nuclear weapons and conventional weapons and are easy to cause military tensions at the conventional level which could then lead to nuclear escalations.

For such reasons, the existing misperception among some nuclear-armed countries that sea-based nuclear weapons are the most stabilising and credible means of deterrence, and that therefore they should be preserved in the long-term, should be challenged. Current global nuclear disarmament efforts can be more effective if the international community pays more attention to the reduction and disarmament of sea-based nuclear weapons.

Drawing on historical experience between the United States and the Soviet Union/Russia, this research proposes a set of measures to reduce and eventually eliminate surface-ship-based nuclear weapons. For countries that are developing and are considering developing such weapon systems, this research analyses why such development and deployment programmes undermine a state's own security interests and therefore should be abandoned.

For countries that already possess nuclear ballistic missile submarines and submarine-launched ballistic missiles, this research points to a number of measures that countries can take to reduce the number of such weapon systems and associated warheads without undermining existing deterrent capability.

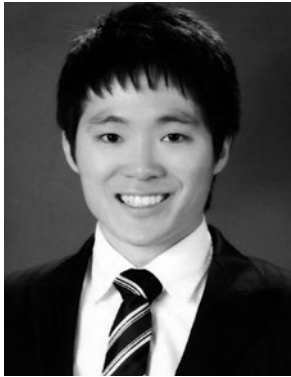


# Section 2

**Peaceful Uses:  
Safety, Security, and  
Justice**

# Determinants and Issues of Newcomers to Nuclear Power in Asia

*Sungyeol Choi<sup>1</sup>, Hyunyub Noh<sup>2</sup>, Il Soon Hwang<sup>2</sup>*



Sungyeol Choi is an assistant professor of nuclear engineering in Ulsan National Institute of Science and Technology. He graduated from Seoul National University and was a Research Fellow at Harvard University.

**Despite the Fukushima accident, the number of newcomers to nuclear power is still growing worldwide, now comprising over 45 countries according to the World Nuclear Association. The market size of the nuclear industry could double by 2030 due to the rapid nuclear expansion. For these reasons, it is critical to guarantee the states' inalienable right to peaceful use of nuclear energy while helping them to actively engage with the nuclear non-proliferation regime. An empirically grounded analysis was performed to identify the determinants of the newcomers to nuclear power in a resolute manner and the issues faced by the newcomers in realising the plans for their nuclear power programs.**

The expansion of nuclear power is especially high in Asia. Today, Asia has 27.1% of nuclear power plants in operation in the world, but it contains 71.0% of nuclear power plants under construction. The market driven by China and South Korea is growing rapidly, while the contribution of newcomers will

steadily increase after 2030. China is constructing 25 nuclear power plants, about 36.2% of the total number in the world. The installed capacity of nuclear power in China will increase up to 58 GWe by 2020. South Korea now operates 23 nuclear power plants to produce about one-third of domestic electricity and is constructing five more units in Korea and four units in the United Arab Emirates. In Japan, the 4th Strategic Energy Plan proposed by the Minister of Economy Trade and Industry in 2014 still defines nuclear power as an important power source. It also recommends continuing to research and develop a closed nuclear fuel cycle associated with Generation IV reactor systems. In addition, the United Arab Emirates, Vietnam, Indonesia, Turkey, Bangladesh, Kazakhstan, Saudi Arabia, Malaysia and other newcomers stand ready to follow the experiences of Korea, Taiwan, India, and China that now have significant dependence on nuclear power.

Based on a series of meetings we have organised and attended since 2008, serious exchanges have been made with decision-makers, government officers, industry leaders, and academics in these countries. Drivers for consideration of nuclear power in newcomers are still unchanged after the Fukushima accident. Primary drivers include the increased demand for energy and the desire for energy independence. They also share the concerns on climate change and unstable fossil fuel prices. According to private exchanges, their top priority issues are public support, human resources, financial resources, safety,

waste management, and potential suppliers. Although the International Atomic Energy Agency has a programme, the Integrated Nuclear Infrastructure Group, to help them, great concerns still remain with respect to non-proliferation, and security as a trade network becomes complex. To meet the growing demand for fuel cycle technologies from newcomers, a multinational approach may be an important option to make all enrichment and reprocessing activities transparent while meeting nuclear interests.

Since these issues are definitely not easy for newcomers to solve, several countries have failed to operate nuclear power plants as they planned. In the Philippines, the new government cancelled the Bataan nuclear power plant project that was nearly complete. The construction of the nuclear power plant was completed, but it was never fuelled and operated. Brazil began the construction of the Angra 3 nuclear power plant in 1984. However, the construction was stopped after two years. The site is conserved and many components are still stored. This delayed construction was started again in 2010 for entry into service in 2015 and later delayed to 2018. In Romania, five nuclear power plants were originally under construction in 1980s, but only two of them were completed. The remaining three units were delayed for 30 years. Romania is now planning to restart the old projects and is trying to complete these three units.

Running a new nuclear power programme is also difficult for countries with many years of construction and operation experience in nuclear power plants. The French project in Finland was delayed for more than four years. The original plan was to start the plant in April 2009, but the plant will not be started before 2016. The two nuclear power plants in South Korea are also delayed due to fake certificates for control cables. This scandal will delay the completion of two nuclear reactors by at least one year from their original plans. Since the 1970s, the United States has cancelled 88 nuclear power plants under construction or in planning. Among the 88 units, 38 units were cancelled during construction. Although many of these units were cancelled after the Three Mile Island and Chernobyl accidents, there were 20 cancelled units before these accidents because of public, financial, and technical challenges.

These challenges can be used as an opportunity to achieve a more active level of regional cooperation to overcome the many issues faced by newcomers as well as to increase the

transparency of nuclear power programs. In response to the Fukushima disaster, South Korea, Japan, and China agreed to launch cooperation on nuclear safety. Cooperation on safety goals, standards, and regulatory practices may lead to detailed cooperation in regulation and industrial quality assurance as well as improving the transparency of nuclear industry safety. Progress on nuclear safety cooperation in the Northeast Asia can be gradually extended to nuclear security and fuel cycles. This cooperation can reduce financial and technical risk while sharing more information in a reliable framework. Regarding the fuel cycle cooperation, the multinational back-end fuel cycle is less active than that of the front-end fuel cycle mainly because of the different perceptions of nuclear power countries on the urgency of spent nuclear fuel issues. In particular, these spent nuclear fuel issues, the later step of the nuclear fuel cycle, are often overlooked in newcomers when they introduce nuclear power plants. The nuclear energy cooperation of Northeast Asia may also serve as a vehicle to establish Asian cooperation by inviting appropriate member states to participate. In parallel, the cooperation may function to share human capital and infrastructure for the development of next generation professionals in Asian countries.

*Keywords: nuclear power, non-proliferation, new comers, multinational cooperation, Asia*

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# A New Pathway to Enhance the Nuclear Security Regime?

## Emerging Approaches in Southeast Asia and in the Gulf Region

*Francesca Giovannini*



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**In the past decade, the regions of Southeast Asia and the Gulf have witnessed a rapid burgeoning of institutions devoted to managing hazards<sup>1</sup> and reducing the potential impact of disasters.<sup>2</sup>**

At the time of their establishment, Disaster Management Organisations (henceforth DMOs) were designed to operate within a narrow mandate to assist countries and help communities to recover from natural disasters. But in recent times, their scope has been substantially enhanced so as to allow them to intervene also in man-made disasters.

DMOs are generally referred to as merely technical organisations, but the evolution of their mandate and the expansion of

their portfolio of responsibilities are allowing them to act, albeit unofficially, as alternative political venues to advance goals of collective security that might not be achievable through conventional settings, such as through regional organisations.

One area where DMOs might prove to be of particular importance is the area of nuclear security where the international regime remains voluntary and fragmented, and the adoption and implementation of international guidelines and policies continue to be uneven across and within regions.

DMOs might be effective in this area because through their role they can help to gather support towards nuclear security goals by reframing the problem of nuclear terrorism from a political liability of states to a collective responsibility.

The underlying paradigm that underpins DMOs' operations is that security is a collective endeavour and that all hazards are trans-boundary in nature. This also means that responses to such hazards are only as strong as the weakest link. The inability of one country to respond to a hazard imposes externalities on other countries and significantly lowers the collective security.

1 In this paper, I define hazard as: "A potentially damaging physical event, phenomenon and/or human activity which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation". The definition is provided in The Agreement on Disaster Management and Emergency Response, Vientiane 26 July 2005, article 1, Paragraph 9.

2 In this paper I define disaster as: "A situation that occurs when a hazard impacts on a vulnerable population, whose inherent capability is not enough to withstand or cope with its adverse effects, causing damage, casualties and disruption". The definition is provided in The Agreement on Disaster Management and Emergency Response, Vientiane 26 July 2005.

Nuclear terrorism is trans-boundary in nature and requires more than just national approaches. The premise of collective security on which DMOs operate clashes with the conventional notion accepted by the international nuclear community today that “the responsibility for nuclear security within a State rests entirely with the state.”<sup>3</sup> Therefore, the paradigm of collective security advocated by DMOs helps shift the discourse of nuclear terrorism from a political problem for states into a collective responsibility and generates incentives for cooperation that might not exist through other approaches.

DMOs in Southeast Asia and in the Gulf require member states to undertake comprehensive risk assessment and hazard and vulnerability analysis, and to undertake “measures to reduce losses from disasters which include: developing and implementing legislative and other regulatory measures, as well as policies, plans, programmes and strategies.”<sup>4</sup>

The process of risk assessment and policy-formulation is particularly critical in focusing states’ attention and resources to prevent and respond to the risk of nuclear terrorism. Previous studies show how countries in Southeast Asia and in the Gulf have downplayed the real danger posed by nuclear terrorism as an over-stated concern of Western countries. And as the nuclear security agenda has grown increasingly politicised in international and regional settings, several attempts conducted from 2004 onwards to advance nuclear security objectives both globally and regionally ultimately have fallen short.

Yet today, states that seek membership in DMOs are required to undertake comprehensive, reliable and rigorous assessment of their security apparatuses, including exploring vulnerabilities in their domestic disaster-response systems and adopting all necessary policies to reduce those vulnerabilities. This includes re-examining existing border control policies, but also assessing technology and expertise that, if improved, could significantly enhance the capability of a state to respond to and mitigate the threat of nuclear terrorism.

There are at least three factors that can explain why DMOs are increasingly playing a relevant role in nuclear security: the rapid spread of nuclear power in Southeast Asia and the Gulf Region, the demonstration effects resulting from the accident of Fukushima, and the establishment of a US-led nuclear security agenda.

Although a global nuclear renaissance has failed to materialise, interest in nuclear power has not waned but has continued to grow, particularly in Southeast Asia and in the Gulf Region where countries such as Vietnam, Malaysia, the United Arab Emirates and Saudi Arabia are expected to become the nuclear newcomers of the 21st century.

Other regional players in these two regions have voiced concerns about the risks and externalities that nuclear power presents and have expressed scepticism on the governance abilities of their nuclear newcomer neighbours to manage a reliable, safe, secure nuclear programme. The expansion of DMOs mandate in the nuclear sphere has therefore served an important purpose: to reassure several stakeholders groups that a regional infrastructure for disasters preparedness is in place in case national responses fail.

Finally, the third reason for the changing role of DMOs has to do with the leadership role that the United States has played in identifying new ways to advance nuclear security cooperation. In the aftermath of 9/11, numerous new institutions, including United Nations Resolution 1540 and the Proliferation Security Initiative (PSI), among others, came about because of the proactive role that the United States and several Western partners played towards their establishment. Although these global mechanisms have proven to be an important first step to generate global awareness about nuclear terrorism, to be successful they have to be complemented with reliable and effective additional instruments. DMOs might provide a creative and innovative way to bypass complacency and generate much needed support towards the global nuclear security agenda.

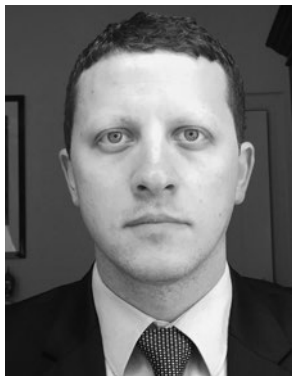
3 IAEA Objectives and Essential Elements of a State’s Nuclear Security Regime, IAEA Nuclear Security Series, N. 20, 2013, p. 1.

4 Agreement on Disaster Management and Emergency Response, Vientiane, 26 July 2005 PART III, Disaster Prevention and Mitigation, Article 6 Paragraph 2.

# Reinforcing the Three Pillars:

## How Nuclear Security Efforts Underwrite the Strength of the Non-Proliferation Regime

*Jonathan Herbach*



Jonathan Herbach is a lecturer in public international law at Utrecht University in the Netherlands, as well as a research fellow specialising in nuclear security and arms control law at the university's Centre for Conflict and Security Law. In preparation for the 2014 Nuclear Security Summit in The Hague, he advised the Ministry of Foreign Affairs of the Netherlands on matters related to the international legal framework.

**The consensus communiqué adopted at the 2010 Nuclear Security Summit (NSS), a process initiated by President Obama originally with the aim of securing all vulnerable nuclear material within four years but since expanded in scope, declared nuclear security to be a shared objective alongside the goals of non-proliferation, nuclear disarmament and peaceful uses of nuclear energy.**

In other words, this statement placed nuclear security on the same level as the three pillars of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The reasoning behind this is clear. Nuclear security is focused specifically on preventing acts of nuclear terrorism, a threat that is not directly addressed by the NPT and one that came to the fore following the terrorist attacks of September 11, 2001 some 31 years following the treaty's entry into force. Instead of being a "fourth pillar" of the non-proliferation regime, however, the structure that has been developed for nuclear security – based on specific rules, norms and organisation – plays a fundamental role in supporting each of the elements of the regime embodied in the NPT. This presentation focuses primarily on the internation-

al legal dimensions of nuclear security and the role that the legal framework first established to protect nuclear materials in peaceful use can play in strengthening the non-proliferation regime going forward.

Nuclear security began in the form of measures aimed at the physical protection of nuclear material and was an extension of the non-proliferation regime. Pursuant to Article III of the NPT, non-nuclear-weapon states parties are obligated to conclude an agreement with the International Atomic Energy Agency under the Agency's safeguards system with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. While the safeguards system was set up to focus on detecting and deterring such diversion of nuclear material to non-peaceful purposes, it was recognised early on that physical protection of nuclear material and nuclear facilities from acts such as theft and sabotage was also highly important to both non-proliferation and radiation safety. At the first Review Conference of the NPT in 1975, the Conference of States Parties called upon all states to "enter into such international agreements and arrangements as may be necessary to ensure" the physical protection of nuclear material in use, storage and transit, "including principles relating to the responsibility of states, with a view to ensuring a uniform, minimum level of effective protection for such material." This



led to the adoption of the Convention on the Physical Protection of Nuclear Material (CCPNM), which remains the only legally binding instrument aimed at the physical protection of nuclear material.

More recently, at the 2010 NPT Review Conference, the Conference of States Parties reiterated the importance of effective physical protection of all nuclear material and the need for stronger international cooperation on physical protection. In the recommendations for follow-on actions, the Conference listed several actions related to nuclear security in the context of non-proliferation and peaceful uses of nuclear energy, including ratifying relevant nuclear security-related treaties. The 2010 Review Conference coincided with the aforementioned first NSS, which brought together 47 states (the number was raised to 53 for the subsequent two Summits in South Korea and The Netherlands). Of the states that have participated in the Summit process, three – India, Pakistan and Israel – are nuclear weapons possessors that are not party to the NPT. All nuclear weapons possessing states, except North Korea, are also states parties to the CPPNM. It is noteworthy that the two elements that characterise nuclear security efforts – the focus on preventing acts of nuclear terrorism and the participation of states not party to the NPT that possess nuclear weapons – are the same issues that are considered primary shortcomings of the NPT regime.

Therefore, the potential contribution of continuing nuclear security efforts – not only limited to the legal framework but also including, for instance, following up on commitments that have been made by states through the NSS process – to the strengthening of the non-proliferation regime is twofold. First, it involves harnessing the body of rules and guidelines requiring and assisting states with developing domestic nuclear security systems and facilitating international cooperation to prevent criminal or unauthorised acts by non-state actors. The rules and guidelines include not only physical protection measures, but also criminalisation of theft and smuggling, which are of clear relevance for non-proliferation. Second, states should make use of the institutional arrangements built around nuclear security commitments. The institutionalisation issue is more complicated, but could comprise regular Review Conferences for the CPPNM alongside political partnerships, such as the Global Initiative to Combat Nuclear Terrorism. The purpose of such institutionalisation would be to engage on a continuous basis, also with non-NPT states, on the topics related to nuclear materials

and facilities for both peaceful and military use with the aim of building confidence, increasing compliance pull with international norms and deepening cooperation.

As the 2015 NPT Review Conference takes place, states participating in the NSS are examining ways of sustaining the nuclear security mission following the imminent conclusion of the Summit process, and a number have urged incorporating the discussion of nuclear security within the broader discourse on non-proliferation and disarmament. With that in mind, this presentation will conclude with a brief look into the more distant future at a couple of potential paths for longer-term sustainability, including further UN Security Council action under Chapter VII of the Charter and a new legally binding instrument.

# Nuclear Waste Disposal as a Transnational Issue

*Behnam Taebi*



Behnam Taebi is an assistant professor of philosophy at Delft University of Technology (the Netherlands) and a research fellow at Harvard Kennedy School's Belfer Center. His area of research is nuclear ethics and he is the coordinating editor of a book on 'The Ethics of Nuclear Energy. Risk, Justice and Democracy in the post-Fukushima Era' (Cambridge University Press, 2015).

**A mere three-and-a-half years after the catastrophic nuclear events in Japan, it is still too early to draw conclusions about how Fukushima Daiichi has affected global nuclear energy policy. The first signs, however, seem to indicate that there will be no dramatic change in the projections for nuclear energy growth either before or after the Fukushima Daiichi accidents.**

In addition to the 30 countries that are currently producing nuclear energy, another 45 countries seem to be potentially interested. These developments have different implications for the Non-Proliferation Treaty (NPT) that aims to allow for the transfer of nuclear technology for peaceful use. In this presentation, I will focus on the challenges of nuclear waste disposal in the existing and future nuclear energy-producing countries

While there is international consensus that the country producing the nuclear waste is responsible for its disposal, with the accumulation of nuclear waste, policymakers are increasingly turning to the possibility of multinational repositories. This is especially the case in Europe, where a number of nuclear waste management organisations are considering the feasibility of a European Repository Development Organisation (ERDO).

In addition, there are different initiatives to set up commercial fuel leasing arrangements to the effect that uranium will be leased by a country that will then receive spent fuel after operation.

Multinational repositories and other arrangements to jointly store or dispose of nuclear waste have evident safety, security and economic benefits, but they raise a number of ethical and governance issues that need to be considered. I argue that any exchange of nuclear waste across national borders needs to be carefully examined by focusing on the fundamental issues of justice it gives rise to. In this presentation, I will review three notions of justice that play a key role, namely international justice, intergenerational justice and procedural justice.

Multinational repositories could be beneficial from the point of view of justice to posterity, but they essentially create international injustice between participating countries. In dealing with this issue we need to carefully consider what constitutes a fair distribution of benefits and burdens between countries. We should further stipulate fair procedures for decision-making that involves a number of countries, sometimes with an imbalance of political or economic power. Thinking in terms of justice will help us assess the (moral) acceptability of multinational repositories, and the criteria under which they could be acceptable.

# Section 3

**Non-proliferation:  
Cooperative and Coercive Approaches**

# Negotiating Nuclear Sensitivity:

## Export Controls and Article III of the NPT

*Isabelle Anstey*



Isabelle Anstey is a PhD Candidate in the Centre for Science and Security Studies, Department of War Studies, King's College London, where she also worked for a number of years. She holds an honours degree in History from the University of Edinburgh and a Master's degree in International Relations from King's College London.

**Underpinning the nuclear non-proliferation regime is the need to distinguish military from civilian nuclear technology – to prevent the spread of nuclear weapons while promoting access to nuclear power. This paper argues that in the absence of any objective way to determine the difference between civilian and military nuclear material and technology, the non-proliferation regime has had to continually construct and control a boundary between the two. This construction has primarily taken place in the negotiation of “trigger lists” by nuclear supplier states attempting to harmonise their nuclear export control policies at an intersection of political, technological and commercial interests and identities.**

The development of the “atom” as either a source of unimaginable devastation or of plentiful peaceful energy is at the heart of twentieth and twenty-first century nuclear politics. Beginning in the earliest days of nuclear technological development, and accelerating after President Eisenhower's 1953 Atoms for Peace speech, the problem of the “dual-use”

nature of nuclear technology bedevilled policy makers. Politicians in the 1940s confidently predicted the development of a technical solution – a failsafe way to draw a line between civilian and military nuclear power. This technical solution never came – it remains elusive – but the line had to be drawn anyway, for political rather than technical reasons. Nuclear energy promised to have enormous commercial potential, but it was a complex and highly specialised field. The promise of nuclear energy provided a powerful incentive to export nuclear technology to states that did not already have it; the complexity meant that the majority of states that might want nuclear power, for any reason, would have to rely to some extent on technology transfers from other states. No state to date, not even the United States, produced a nuclear weapon entirely free from outside assistance. Nuclear technology transfers could be two things – commercial opportunity or nuclear proliferation. Suppliers had an interest in making the distinction, but telling the difference was not a simple or objective determination. Rather the difference had to be negotiated, and, as far as an individual supplier was concerned, be as much in their interests as possible.

Those states that can supply nuclear material and technology have had a dominating voice in the construction of technology as nuclear sensitive or otherwise. The negotiations between nuclear suppliers on export controls constituted the territory on which commercial and non-proliferation interests were defined and shaped. The trigger lists and guidelines produced

represent not an objective assessment of the most sensitive nuclear technologies and how best to control them, but the ongoing process of defining “nuclear sensitivity” in ways that shaped and reinforced the dominant nuclear discourse.

A traditional interpretation of these negotiations is as a clash of commercial and non-proliferation interests – as indeed many of the participants themselves saw it. And it was; but what was also going on was the production, reproduction and legitimisation of these states’ interests and identities and the meaning that certain technologies held both for them and for the non-proliferation regime they supported. The redefinition of nuclear sensitivity, as well as the expansion and refinement of the trigger lists, all served to legitimise and further certain ideas about world nuclear order and how it is organised and policed.

The ten years between 1967 and 1977 covering the negotiations surrounding Article III of the Non-Proliferation Treaty (NPT) and the early days of the Zangger Committee and Nuclear Suppliers Group were crucial for the construction of “nuclear sensitivity.” In the earlier years, it had been possible to rely on relatively broad definitions to exert control, but these were rapidly becoming politically inexpedient. By the late 1960s, there were a number of nuclear suppliers in the commercial game, and it was increasingly clear the IAEA had failed as the supplier of choice for aspiring nuclear powers. In 1968, the NPT opened for signature, and Article III.2 bound parties to certain obligations regarding the supply of nuclear technology.

The NPT introduced a line between nuclear-weapon states (NWS), and non-nuclear-weapon states (NNWS), but to be an NNWS did not mean having no nuclear technology at all. The right to civil nuclear technology was enshrined by Article IV at the same time as the right to military nuclear technology was relinquished in Article II. Despite this effort, the treaty was never specific about what states parties gave up, what they gained a right to, and how to tell the difference. Article III dealt with how to legitimise transfers of sensitive nuclear technology, thus playing a central role in ensuring that Article IV was being fulfilled while Articles I and II were being upheld. Article III alone, however, told the suppliers very little about what was and was not to be controlled and how. Certain technologies would have to be classified as military in nature and prohibited by the NPT, some as nuclear sensitive and thus subject to safeguards, and some as benign. What was particularly important

was that all states should agree on the appropriate categorisation. A series of multilateral negotiations were necessary, where technologies were given a particular nuclear identity. While this did not change what the technologies could do, it changed what they meant.

The export of natural uranium research reactors and heavy water were given a new meaning in May 1974, when India conducted a test explosion in Rajasthan using material produced by a Canadian-exported reactor moderated with US heavy water. The assumption that “nuclear sensitivity” is an objective technological classification through which proliferation can be controlled fails to appreciate two vital issues: nuclear technology is inherently dual-use, and the division of its uses into civilian and military is a political construction that reflects and serves powerful interests and identities. The space between the neat categorisation of civilian and military technology the treaty implied and the development of export control lists is occupied by an ongoing negotiation of nuclear sensitivity that remains one of the key sites for the practice of nuclear control and the maintenance of nuclear world order.

# Impact of the Ukrainian Crisis on Iranian Nuclear Choice

*Oleksandr Cheban*



From 2014 Oleksandr Cheban works as a postdoctoral fellow at the International Relations department of Odessa National I.I.Mechnikov University in Ukraine. In 2012 – 2013 he worked as a visiting research fellow at the Moscow-based NGO “Russian Center for Policy Studies” (PIR Center).

**In the early 1990s, Ukraine had strong doubts regarding relinquishing its nuclear status. Currently, Ukraine is in a very vulnerable security situation which was predicted earlier by the opponents of Ukrainian nuclear disarmament.**

Even the Ukrainian Ambassador to Iran said in the spring of 2014, in an interview to Iranian media, that the Ukrainian decision to give up nuclear weapons was a big mistake. Russia's violation of the Budapest memorandum increased the number of nuclear status proponents in Ukraine and could lead to the same effect in other countries including Iran. Such a situation undermines the Non-Proliferation Treaty (NPT) regime.

The author of this poster presentation suggests that Ukrainian events have an influence on the situation surrounding the Iranian nuclear programme. The poster presentation considers three questions. First, has the Ukrainian crisis strengthened Iran's will to seek nuclear weapons? Second, how might the Ukrainian crisis have influenced the nuclear negotiations with Iran in Lausanne and how could it impact the future talks on the final nuclear agreement? Third, what are the implications for the NPT regime and international security?

The author of this poster presentation considers different answers to these three questions which are proposed by Ukrainian, Russian and Iranian officials and experts, and compares these answers with the Western experts' assessments. The author draws the conclusion that Iran has decided at least to postpone for some period of time the obtaining of nuclear weapons despite the bad experience of non-nuclear Ukraine. However, thanks to the Ukrainian crisis, Iran could become more dangerous even without a nuclear weapon. The Western powers are concentrating their efforts on solving the Ukrainian crisis, and currently they have limited capabilities to counteract Iran's aggressive policy in Yemen and in other Middle Eastern countries. After the lifting of economic sanctions, Iran could use its growing economic capabilities to conduct an even more active and offensive policy in the Gulf region than Russia conducts in Ukraine. Such an active Iranian policy aimed at destabilising the situation in Yemen and probably in Saudi Arabia could lead to increasing oil prices, growing instability in the Middle East region and the whole world. In these turbulent conditions, Russian positions in Ukraine and probably in other Eastern Europe countries could considerably strengthen. Thus, in the near future Iran could also influence the Ukrainian crisis which consequently influences the situation around Iran. The poster presentation considers the possible options on how to decrease the negative impact of Ukrainian crisis on Iranian nuclear and foreign policy.

# Technical Aspects of the Verification of Non-proliferation:

## The Role of the Safeguards Analytical Laboratory

*Naida Džigal*



Naida Džigal graduated from Imperial College London Physics and is currently a final year PhD Student at the Vienna University of Technology. She is also a third-year Consultant at the Office of Safeguards Analytical Services of the International Atomic Energy Agency in Vienna, Austria.

**For nearly 60 years, the International Atomic Energy Agency (IAEA) has held a unique position and mandate in non-proliferation and early detection of undeclared nuclear activities through its safeguards system. Part of the IAEA's mission is to “verify through its inspection system that states comply with their commitments under the Non-Proliferation Treaty (NPT) and other non-proliferation agreements, and to use nuclear material and facilities only for peaceful purposes.”**

To assist in this purpose, the IAEA maintains local dedicated laboratories in Seibersdorf, near Vienna (Safeguards Analytical Services – SGAS), and is assisted by a Network of Analytical Laboratories (NWAL). SGAS serves as a broker for the NWAL and acts to a large extent as the locus of this network by providing reference materials and guidelines for quality control, organising technical meetings and sharing and consolidating operational protocols.

The NWAL laboratories process two main types of samples from nuclear facilities: nuclear material (minerals, yellow cake, different compounds in enrichment lines, fuel, nuclear waste, etc.) and environmental samples (safeguards swipes). Samples from the former (nuclear material) are necessary in verifying the correctness, and samples from the latter (environmental swipes) are vital for verifying the completeness of a state's declaration.

Environmental swipe sampling is based on the release scenario and the swipes are used to collect dust particles dispersed in locations of safeguard interest. Particles collected from the environment of nuclear facilities carry information on present and past undertakings. In particular, they provide evidence of the main declared activities, but also information on undeclared material, e.g. via singular enrichment events, or research endeavours. They are exclusively handled in cleanroom facilities where all measurements are conducted using micro- and ultra-micro-analytical techniques.

At the IAEA, the swipes are processed and analysed at the Safeguards Analytical Laboratories where advanced instruments such as the LG-SIMS (Large Geometry Secondary Ion

Mass Spectrometry), TIMS (Thermal Ionization Mass Spectrometry), ICP-MS (Inductively Coupled Plasma Mass Spectrometry), LA-ICP-MS (Laser Ablation ICP-MS) and SEM (Scanning Electron Microscopy) are routinely used alongside established radiochemical methods for the characterisation of particles.

This contribution examines some technical aspects of environmental sample analysis such as sampling, sample handling, selection of analytical tools, reporting criteria, quality control and quality assurance, as well as fundamentals of method validation. These technical issues are of primary importance since it is only through correct and reliable data that all parties' credibility is sustained and the peaceful use of nuclear technology worldwide facilitated.

Finally, this paper comments on the present project for Enhancing Capabilities of the Safeguards Analytical Services (ECAS). Up to now, funding through generous extrabudgetary contributions from IAEA Member States has supported the construction of two laboratories, as well as their equipping for handling uranium and plutonium, nuclear material, environmental samples, calibration and the performing of other low-level activities such as trace and impurity characterisation. The ECAS project is a unique, multi-year endeavour to design and construct new laboratory facilities that will enable the IAEA to meet safeguards analytical requirements for decades to come.



# Coercive Non-proliferation:

## Security, Leverage, and Nuclear Reversals

*Gene Gerzhoy*



Gene Gerzhoy is a Postdoctoral Research Fellow with the Belfer Center for Science and International Affairs at the Harvard Kennedy School. He received his PhD in International Relations from the University of Chicago, specialising in non-proliferation, alliance politics, and coercive diplomacy.

### **Why do some states with nuclear weapons ambitions comply with international demands for nuclear reversal, while others refuse?**

Past research on nuclear decision-making has downplayed the inhibiting effect of superpower coercive pressure on the nuclear ambitions of second-tier states, focusing instead on norms and domestic politics to explain why states enter into and comply with the non-proliferation regime (Hymans 2006, Solingen 2007, Rublee 2009).

More recent scholarship has demonstrated the pivotal role of external pressure in containing the spread of nuclear weapons (Gavin 2012, Miller 2014, Monteiro and Debs 2014), but there has yet to be a comprehensive explanation of the conditions under which non-proliferation demands result in peaceful nuclear reversals.

This paper fills that gap in the literature by describing how different coercive levers employed by a non-proliferator interact with a nuclear aspirant's military security environment to produce incentives for nuclear restraint. The availability of different coercive levers depends on the relationship between the non-proliferator and the aspirant – ally, non-ally, or adversary – and on the degree to which coercive costs are conditionally linked to the aspirant's nuclear choices. To test this argument, the paper analyses four cases of nuclear decision-making: West Germany, South Africa, Libya, and Pakistan. It concludes by deriving the broader implications of its theoretical framework for international relations theory, and for the future of the non-proliferation regime.

# From Nuclear Rivalry to Nuclear Cooperation:

## How a Mutual Hostility towards the NPT Led to Two Former Nuclear Rivals Creating the World's Only Existing Bilateral Mutual Safeguards Inspection Agency

*Sara Z. Kutchesfahani*



Sara Z. Kutchesfahani is a Senior Research Associate at CITS/UGA. She is the author of "Politics and the Bomb: The Role of Experts in the Creation of Cooperative Nuclear Non-Proliferation Agreements" (Routledge: 2014).

**It is widely acknowledged that the Non-Proliferation Treaty (NPT) established a two-tier bargaining system between the five recognised nuclear weapon states (the nuclear haves) and all the other signatories (the nuclear have-nots) with the understanding that the nuclear haves would work towards nuclear disarmament and help the nuclear have-nots acquire peaceful nuclear technology; in exchange, the nuclear have-nots agreed never to seek a nuclear weapons programme.**

Such a promise led many of the nuclear have-nots to openly criticise the NPT, denouncing it as unfair, discriminatory, and insufficient in providing appropriate security guarantees, resulting in the Argentines labelling it "the disarmament of the disarmed" treaty.

However, what has been under-explored is how a mutual hostility towards the NPT shared by two former nuclear rivals led to the creation of the world's only existing bilateral mutual safeguards inspection agency. Argentina and Brazil both viewed the NPT as discriminatory, yet through the NPT negotiations, they reached common ground in three distinct nuclear policy areas: (1) non-proliferation, (2) nuclear disarmament, and (3) peaceful uses of nuclear energy – the three pillars of the NPT. What occurred over time was a change from a largely reactive policy to a perceived and real foreign pressure to active, bilateral nuclear cooperation, which then led to eventual involvement with the nuclear non-proliferation regime.

More specifically, this research expounds that had it not been for the NPT, a common nuclear policy may not have emerged between Argentina and Brazil, which would not have led to the creation of the Brazilian and Argentine Agency for the Accounting and Control of Nuclear Materials (ABACC). Argentina and Brazil's nuclear cooperation began out of a common opposition to the NPT, and, over the subsequent 20 years, ended

up facilitating a non-proliferation outcome: the creation of the world's only existing bilateral mutual safeguards inspection agency. Against the backdrop of the "disarmament of the disarmed" treaty, an epistemic community comprised of Argentines and Brazilians began to engage in sustained dialogue, as well as in trust and confidence building measures, such that over the years, the support and political will of the political leadership helped establish ABACC. Important lessons learned from the creation of ABACC could be useful to assist in the creation of something similar in the Middle East, which may help curb Iran's nuclear ambitions.

# Ideational Sources of Non-proliferation Policy in the Global South

*Michał Onderco*



Michał Onderco is Max Weber Fellow at the European University Institute (Florence, Italy). He received his PhD from the Free University Amsterdam. His work focuses on non-proliferation and international institutions. His book *Iran's Nuclear Program and the Global South: The Foreign Policy of India, Brazil, and South Africa*, is forthcoming with Palgrave in 2015.

**Countries in the Global South, particularly the three large democracies – India, Brazil, and South Africa – have been strong opponents of nuclear weapons proliferation, though they existed outside of the formal structures of nuclear governance for an extended period of time.**

Such enthusiasm for the NPT and non-proliferation regime has contrasted, however, with quite opposite positions towards proposals coming from the West about how to stop nuclear weapons proliferation, as well as lukewarm attitudes towards Iran's nuclear program. These positions were surprising for Western diplomats and remain counterintuitive for academic analysts.

My research argues that to understand the answers from the countries of the Global South to the challenge of non-proliferation, we need to understand the ideational sources of their non-proliferation policies. These sources, different in each of the cases, nevertheless provide a mindset through which state leaders interpret complicated puzzles of world politics.

Why should we focus on ideas? Often, material incentives provide ambiguous motivations. Simply put, states can choose from multiple equally possible paths. Leaders' ideational frameworks influence how they respond to these incentives. These ideational frameworks originate from an array of historical experiences, socialisation, and self-perception. They are sometimes conflicting, and even contradictory. However, they have something in common – they allow leaders to solve complex policy puzzles in ways that “make sense”.

An explanation based on ideas does not exclude an explanation based on interests. Ideas shape how leaders see their states' interests. Already in the early 20th century, scholars of international relations put a strong emphasis on ideas influencing how states employ the tools of their foreign policies. However, these scholars focused heavily on human nature, and unsurprisingly found the origins of state action therein. Even more recent work, focusing on both material and domestic institutional factors to explain foreign (and non-proliferation policy) cannot satisfactorily explain policy choices, when material motivations are not strong and domestic institutions provide multiple policy options.

I argue that ideas guiding policy makers are domestically grounded. In democratic countries, these ideas broadly reflect the ideas of a significant part of the population; otherwise leaders would not get elected.

Unsurprisingly, such mindsets are different not only between Western countries and the countries of the Global South, but also amongst the countries of Global South themselves.

In South Africa's leaders' minds, world politics is where the oppressor tries to perpetuate the supremacy over the oppressed. South African leaders see their world as a bulwark against such oppression; hence non-proliferation policy is conceived to protect those whom South African leaders see as the most vulnerable – non-nuclear-weapon states from the Global South, among them Iran. In India's leaders' minds, the world politics is a forum in which India must find ways – however circuitous they need be – to ensure its domestic growth. In case of the non-proliferation policy, this means fighting battles as if they were unrelated to one another; seeing each policy puzzle in a separate box. This leads to a sometimes incoherent policy, but always to a very timid one. For Brazil's leaders, status is of the utmost importance, and foreign policy is guided towards its attainment. In field of non-proliferation, this means tailoring the policy towards increasing Brazil's standing in the world, but it also explains the occasionally contradictory nature of such policy. These preferences affect very strongly how these countries prefer to see the shape of their non-proliferation policies.

If one looks at non-proliferation to answer the question of "what rising powers want", then the answer must unequivocally be "it depends." Yet, they are not jackals preying on the system of global governance; in fact, they are quite well-versed in its language. Their preferences, however, are different from established powers and from the middle powers of the West. Despite being liberal democracies, these states do not see the "liberal peace"; they see the world primarily as a place for struggle.

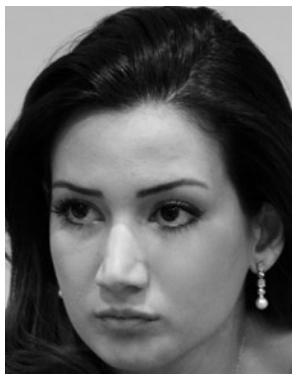
Countries of the Global South do not see non-proliferation as a question of striving for justice and fairness, they see it as a fierce power struggle, where risks abound and states need to protect themselves. The preoccupying focus on the maintenance of state autonomy can be understood as aiming to increase space for manoeuvre. This lies in stark contrast with the penchant for supranational governance advocated by the Western countries.

For the countries of the Global South, non-proliferation policy represents much more than management of access to nuclear materials. The frustrations with the Western diplomats' approach stem partially from not understanding (or not appreciating) the big picture considerations of these countries. For India, Brazil, and South Africa, which see themselves as the "rising powers," global politics is predominantly about the future. The future will be shaped by how their big picture goals will be realised.

# Nuclear Strategy & Status:

## Assessing the Impact of Nuclear Strategies on Power and Status, and the Case of the Islamic Republic of Iran

*Mahsa Rouhi*



Mahsa Rouhi is a Visiting Assistant Professor in the Department of Political Science and a research associate at MIT, Center for International Studies where she has worked on various research projects since 2009. She received her PhD from King's College, University of Cambridge, UK.

**What impact does a country's nuclear strategy have on its regional power and status? This paper explores the relationship between the stage of development of a country's nuclear programme and its status.**

The dearth of nuclear-weapon states suggests that there may be differential status benefits that occur at each of the nuclear programme development stages: nuclear abstention, nuclear threshold, nuclear ambiguity, and self-declared nuclear power. The paper attempts to measure the value assigned to the development of a nuclear programme both in terms of status and bargaining for status to explain countries' cost-benefit analysis for decisions regarding which stage of nuclear development they aim for.

Obscured by concerns about superpowers' nuclear grand strategy for nearly fifty years, the broader importance of other countries' nuclear programmes has largely been ignored. Nuclear programmes have important ramifications for countries' status, defined in terms of hard power, soft power, and institutional standing. This paper provides an in-depth analysis of Iran's nuclear strategies in order to explain states' cost-benefit analysis for the level of advancement of their nuclear programme as they bargain for power and status.

# Regional Approaches to Nuclear Non-Proliferation

*Wilfred Wan*



Wilfred Wan is a JSPS-UNU Postdoctoral Fellow with the UNU Centre for Policy Research and Hitotsubashi University in Tokyo, Japan. He holds a PhD in Political Science from the University of California, Irvine.

## **The regional dimensions of the myriad challenges that plague the Nuclear Non-Proliferation Treaty (NPT) and regime have become manifest in the current era.**

Most prominent is the controversy over the Weapons of Mass Destruction Free Zone (WMDFZ) in the Middle East, with the standoff stemming from the Iranian non-compliance case also continuing to destabilise the volatile region. Holdouts India and Pakistan appear engaged in a renewed arms race; separate bilateral cooperation deals have also raised the ire of compliant non-nuclear-weapon states (NNWS). Meanwhile, North Korea's programme poses a security threat on the peninsula and beyond.

Regional arrangements have long been a part of the regime. Nuclear-Weapon-Free Zones (NWFZs) are heralded as successful non-proliferation instruments, regional confidence-building measures, and global disarmament norm-builders (Parrish & Du Preez 2011; Rydell 2012). Yet, a regionally oriented nuclear framework has myriad possibilities. This presentation considers the possibility for substantial changes in how the Asia-Pacific region tackles the non-proliferation conundrum. The overall project examines the region and others with greater detail. It assesses the conditions for NWFZ establishment, institutionalisation of existing nuclear mechanisms, creation of specialised organisations, and agenda expansion of existing arrangements.

## **NORTHEAST ASIA - Six-Party Talks**

In the volatile Northeast Asian security environment, it cannot be overlooked that the nuclear issue has provided a consistent focal point for dialogue. The Six-Party Talks have grown from an ad hoc arrangement regarding the immediacy of the North Korean nuclear crisis into a "semi-permanent forum," even establishing a Northeast Asia Peace and Security Mechanism Working Group (Akiyama, 2011, p. 34). Yet, any institutionalisation intertwined with the talks is fraught with complication. The overall fragility of the process – including the current five-year break – does not bode well for constructing a broader framework. While all sides remain in agreement that the talks present the only venue through which denuclearisation of the peninsula can take place, the process of constructing a permanent nuclear framework in Northeast Asia may be better off omitting North Korea in its early stages.

## **Nuclear-Weapon-Free Zone**

Discussions about a Northeast Asian (NEA) NWFZ have receded, though progress in the Middle East WMDFZ could portend pressure for similar movement in Northeast Asia. Regardless, substantive concerns complicate any such efforts. None of the existing treaties include nuclear powers in the main text; a NEA-NWFZ would have to include distinct responsibilities for China, Russia, North Korea, and the US, recalling the NPT's problematic two-class divide. Even a limited Korea-Japan NWFZ entails its own obstacles, vis-à-vis the freedom of movement for ships and aircraft in international waters and

airspace. Given the global power presence and its strategic significance, determining the physical boundaries of a NEA-NWFZ presents a massive challenge.

### **Nuclear Security**

The nascent and decentralised nature of the global nuclear security framework opens the door for a greater regional presence. South Korean President Park Geun-hye (2014) has called for a “nuclear security dialogue process.” China, Japan, and South Korea have in fact discussed collaboration among their centres of excellence, for technical training and research and development. South Korea has hosted a regional workshop on Resolution 1540 implementation. Still, the issue remains marked by a “lack of clear authority, resources and government structure” (Thakur & Evans, 2013, p. 170). Russia’s withdrawal calls into question the permanence of a Nuclear Security Summit process post-2016, while Resolution 1540 remains controversial in its legislative impositions. Whether the current context contains enough of a foundation for broader regional nuclear cooperation remains questionable.

### **Nuclear Safety / Energy**

Nuclear safety represents an intriguing possibility for institution building. While the level of unity cannot compare to the oft-cited EURATOM model, the trilateral economic cooperation between China, Japan, and South Korea offers a logical core. The growth of the nuclear sector invites collaboration on issues of safety, waste management, and emergency response, while nuclear security gaps may provide the parallel to the non-proliferation concerns that contributed to EURATOM’s domain. Obstacles remain. Fragile relations must improve before a shift from forums to organisations with executive authority is feasible. The involvement of nuclear-weapon states (NWS) also complicates confidence-building processes, echoing the problematic dynamic stemming from the French presence in EURATOM (Mallard, 2008). Still, the notion of safety cooperation as a gateway for broader nuclear cooperation is promising.

### **SOUTHEAST ASIA - Preview**

It is with shifting security dynamics and architecture that Southeast Asia must confront the emergent nuclear challenges. Vietnam, Indonesia, and Malaysia are proceeding with their plans for power plant construction (Caballero-Anthony, Cook, Trajano, & Sembiring, 2014). Issues of security and safety will become prominent in a region previously linked to nuclear trafficking, and pinpointed as “a central entrepôt for the A.Q.

Khan network” (Finlay, 2014, p. 128). These issues are exacerbated by the increased presence of terrorist groups in recent years. Further, there remains concern about Myanmar’s nuclear ambitions – due in part to its relationship with North Korea (Selth, 2013).

The discussion of the Southeast Asian nuclear order is inseparable from the overarching presence of the Association of Southeast Asian Nations (ASEAN). It was within the context of an ASEAN Working Group that the Bangkok Treaty of 1995, establishing a Southeast Asia NFWZ (SEANWFZ), was negotiated and drafted. However, the 1995 treaty does not explicitly prohibit the manufacture of some nuclear-related components, nor research towards weapons acquisition (Hamel-Green, 2005). Further, the SEANWFZ lacks a permanent secretariat and remains tethered to the state-oriented IAEA verification system. With ASEAN’s extended reach and progressively broader agenda, it will play a central role in future regional non-proliferation efforts, including interrelated issues of security and safety.

### **Conclusion**

The nuclear arena demands a more dynamic non-proliferation regime, one that disentangles regional considerations from the global architecture. In Northeast Asia, the impact of the Fukushima accident and the newfound focus on nuclear security might offer the impetus for steady cooperation. A bottom-up process of transparency, information exchange, and confidence building appears possible in nuclear security and safety. Meanwhile, Southeast Asia’s non-existent nuclear structure may allow more top-down guidance, though institutionalisation will be tempered by the ASEAN way. In this manner, this project examines how different regions can more effectively tackle non-proliferation, assessing existing nuclear and broader security frameworks, and drawing upon political, economic, and socio-cultural indicators.



# Apartheid's Atomic Bomb:

## Birth and Demise

*Anna-Mart van Wyk*



Anna-Mart van Wyk is the head of the School of Social Science at Monash South Africa and an adjunct Associate Professor in the School of Historical, Philosophical and International Studies at Monash University Australia. She specialises in South Africa's nuclear history and broader policy issues related to nuclear non-proliferation, and global arms control and disarmament.

**Today, it is general knowledge that the pre-1994 apartheid government in South Africa manufactured six nuclear devices and then took an unprecedented decision in August 1989 to completely destroy the devices. This was followed by South Africa's accession to the Non-Proliferation Treaty (NPT) in 1991.**

To date, the mere fact that South Africa is still the only country to have fully developed a nuclear weapons arsenal and then renounced it has put it in a position where it can challenge the nuclear-weapon states to meet their disarmament commitments under the NPT. It also placed South Africa in a position where it could act as a bridge to the non-aligned nations, play an active role in the indefinite extension of the NPT in 1995, as well as be instrumental in the ratification of the Pelindaba Treaty, under which a Nuclear-Weapon-Free Zone in Africa was established.

The reasons for both acquisition and dismantlement of nuclear devices by South Africa remain a topic of debate and study, with scholars particularly trying to compare the South African case with other so-called rogue states seeking to, or already developing nuclear weapons, in an effort to strategise how best to address this threat. This is no easy task, as the drivers

for Pretoria's bomb can be considered quite unique and not necessarily applicable in totality to current proliferators. Furthermore, despite global diplomatic efforts and sanctions, it took South Africa 21 years to accede to the NPT. During this period, global opposition to its apartheid policies resulted in embargoes and sanctions, which served as catalysts for the country becoming a recognised nuclear proliferator and sanctions buster. Driven by domestic and regional threat perceptions, South Africa produced six nuclear devices as a deterrent strategy. It was only by 1987 that South Africa for the first time indicated its intention to accede to the NPT.

This contribution describes South Africa's position on and involvement in the multilateral negotiations leading to the NPT's agreed text, and South Africa's perspective on the nascent non-proliferation agreement. The domestic and international motives, intentions and incentives that shaped South Africa's development of 'the Bomb' and refusal to participate in the NPT until ratification in 1991, are analysed in an effort to determine if any lessons can be learned from its legacy. A number of contentions will be explored, for example if the South African case fits both the norms model of assuming that a state will pursue nuclear weapons as a symbol of its modernity and identity, and the national security model, which argues that states will consider a nuclear option when sufficiently threatened by other states. The conclusion will hint that South Africa's signing of the NPT resulted from certain perceived

incentives such as domestic political changes, the end of the international and regional Cold War, and the termination of the country's international isolation. Moreover, the signing of the NPT paved the way for the IAEA's disarmament verification process in the country, which was successfully concluded by 1993. With this completed, South Africa was recognised as a unique case of nuclear roll-back. This bestowed the country with significant moral and normative power and a unique nuclear identity as a state that terminated its nuclear weapons programme. Important in terms of its signature of the NPT, South Africa as a state party to the NPT could now participate in the NPT conferences. Ironically, South Africa's attendance of its first NPT conference in 1995 coincided with the 25-year Review Conference of the NPT as prescribed in Article X. The latter had to determine the future life span of the very treaty South Africa had been repeatedly called upon to sign since 1968. As mentioned, South Africa played a major role in the indefinite extension of the treaty, emerging from the conference as somewhat of a hero and having come a full circle from its earlier status of nuclear pariah.

# **Section 4**

**Nuclear and Weapons of  
Mass Destruction Free Zones**

# Reconciling Order and Justice:

## NPT and the Middle East Resolution

*Tytti Erästö*



Tytti Erästö was a research fellow at the Belfer Center, Harvard Kennedy School of Government (2012-2014) and the Vienna Centre for Disarmament and Non-Proliferation (autumn 2014). She received her PhD in International Relations from the University of Tampere (2013) and is currently a nuclear arms control specialist at SaferGlobe research network, Finland.

**Despite the unequal terms between nuclear-weapon states (NWS) and non-nuclear-weapon states (NNWS) in the Non-Proliferation Treaty (NPT), the treaty is nearly universal.**

This seems consistent with Hedley Bull's argument regarding nuclear weapons that justice considerations are secondary to those of order, given the dangers of proliferation and the difficulties of achieving universal disarmament. However, Bull also highlighted that the NWS had a special responsibility for maintaining this uneasy consensus by showing discipline and restraint. In the 1970s, he thought this meant working to accomplish a comprehensive test-ban treaty, progress on disarmament, commitments to refrain from first use, and negative security assurances.

The above suggests that the legitimacy of the NPT rests not only on the NWS living up to their obligations, but also on their efforts to promote the kind of international order that precludes the need for NNWS to pursue their own nuclear weapons. By demonstrating commitment towards these goals, the NWS can show that they are actively addressing the problem of injustice. Particularly since 1995, the NWS success in performing this task has been assessed in the NPT review process, where the meaning of justice is constantly renegotiated.

One key theme emerging from this process has been the Middle East resolution, calling for the establishment of a Weapons of Mass Destruction-Free Zone (WMDFZ) in the region. On the one hand, the resolution was based on such established principles as disarmament, NPT universality and support for Nuclear-Weapon-Free Zones (NWFZs). In addition, it can be understood in terms of the above-described need for the kind of order that precludes the need for nuclear proliferation in the specific Middle Eastern context. On the other hand, the inclusion of this highly politicised issue in the NPT agenda was problematic, as progress depends on bringing on board the region's only nuclear power and non-NPT member. How should NWS responsibility be understood in such circumstances?

This paper seeks to answer that question, first of all, by analysing relevant discourse by key stakeholders—that is, the regional proponents of the Middle Eastern WMDFZ, Israel and the US (which apart from being one of the conveners of the planned WMDFZ conference arguably has most leverage over its ally). In addition to describing the Middle Eastern countries' demands for order and justice, the discussion thus also describes the dynamics that partly explain the deadlock over this issue. Finally, in light of that analysis, and drawing from English School theory, the paper offers some suggestions for overcoming the deadlock.

# Five Years after Entry Into Force of the Treaty of Pelindaba on the African Nuclear-Weapon-Free Zone:

## Progress, Challenges, and Next Steps

*Hubert K. Foy*



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**The entry into force of the Treaty of Pelindaba on the African Nuclear-Weapon-Free Zone (NFWZ) on July 15, 2009, was an important step towards global nuclear disarmament by restricting the territories of the Zone – land, space and waters – where such weapons may be freely produced, transported, tested, stationed, and used.**

Five years after the entry into force of the treaty, its implementation efforts reveal a mixed bag of progress and challenges that calls for more analysis concerning next steps on how to make further progress. Using open-ended interviews, observations, and document reviews, this paper describes the progress on ratifications of the treaty by relevant states, protocols by eligible states and nuclear-weapon states, and implementation of relevant treaties, agreements, and conventions by state parties. The paper further describes progress on efforts towards establishing the secretariat of the African Commission on Nuclear Energy, the treaty's implementation agency. However, the

treaty faces serious challenges on multiple fronts as it seeks to address issues of implementation and enforcement. The paper examines issues delaying ratifications by relevant states of the treaty, an eligible state (Spain) of Protocol III, and a nuclear-weapon state (the United States) of Protocols I and II. The paper further examines a dilemma concerning the treaty's applicability to the Mauritius-claimed territory Diego Garcia, an island in the Indian Ocean under UK control that is used as a military base by the United States. An analysis of Russia's reservations concerning "negative security assurance" attached to its ratification of Protocols I and II in March 2011 is presented. Analysis of administrative and technical challenges delaying the establishment and operationalisation of the Commission's secretariat is also presented. Having described the challenges, next steps to make further progress are identified. They include strategies towards establishing a Commission, achieving universality of the treaty and its protocols, and capacity-building initiatives on national implementation and enforcement mechanisms. Together the analyses underscore the implementation of the African Nuclear-Weapon-Free Zone as a legitimate mechanism towards anticipation of a nuclear-weapon-free world, and the importance of considering a comprehensive approach for its effective and sustainable implementation.

# How the Treaty of Tlatelolco Shaped the NPT's 'Grand Bargain'

*Jonathan Hunt*



Jonathan Hunt is a Stanton Postdoctoral Fellow at RAND Corporation. He earned a PhD from the University of Texas at Austin and is writing an international history of nuclear diplomacy.

**Latin American negotiations from 1962 to 1967 to bar nuclear weapons from the region helped transform the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) from a superpower entente into a global settlement by informing how the NPT would accommodate the interests of non-nuclear-weapon states. The making of the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, also known as the Treaty of Tlatelolco, was closely linked to that of the NPT.**

The two treaties had similar goals, common drafters, and even shared language. Led by Mexican Undersecretary of External Affairs Alfonso García Robles, the Treaty of Tlatelolco opened for signature on February 14, 1967, seventeen months before the NPT on July 1, 1968. In the interim, García Robles offered Mexican and Latin American support for the NPT in exchange for nuclear-weapon states' signatures on Protocol II of the regional accord, which required them to "fully respect" the statute of denuclearisation. He and his deputies were also key players in the NPT's drafting process, proposing and revising preambular statements and articles that constituted the trea-

ty's "grand bargain" between nuclear haves and have-nots.

The Brazilian ambassador to the United Nations (UN) first introduced the concept of a Latin American Nuclear-Weapon-Free Zone (NWFZ) in September 1962, weeks before the Cuban Missile Crisis. The initiative gathered momentum after that event. In April 1963, Mexico, Brazil, Bolivia, Chile and Ecuador issued a joint statement endorsing a regional agreement not to "manufacture, receive, store, or test nuclear weapons or devices for launching such weapons." The Preparatory Commission for the Denuclearization of Latin America convened four times between March 1965 and February 1967 in Mexico City, where it deliberated on what features the zone would have. García Robles served as the commission's chair, successfully invoking a Bolivarian tradition in Latin America regarding the rule of law and regional cooperation in arguments for a treaty that featured a low barrier to entry into force, language that would effectively disallow "peaceful" nuclear explosives, and a strong inspection regime managed by the International Atomic Energy Agency (IAEA).

From the start, the Treaty of Tlatelolco was seen as having implications for the NPT. The United States feared that talks in Mexico City might set dangerous precedents for non-proliferation proceedings at the Eighteen Nation Committee on Disarmament (ENDC) in Geneva and the UN in New York. U.S. officials also hoped that progress in Mexico City might improve the negotiating climate in Geneva and New York,

where disagreements between the United States, the Soviet Union, and their respective blocs had caused logjams. In 1965, neutral, non-nuclear-weapon states pushed Resolution 2028 (XX) through the UN General Assembly (UNGA), which among other directives called for the NPT to “embody an acceptable balance of mutual responsibilities and obligations of the nuclear and non-nuclear Powers” and not to interfere with NWFZs. By September 1967, Soviet and American officials had struck compromises on the first three articles of the NPT covering transfers or acquisitions of nuclear weapons and a safeguards regime overseen by the IAEA, whose status as the most suitable agency the Treaty of Tlatelolco had cemented. Afterward, US Secretary of State Dean Rusk informed President Lyndon Johnson that “the game will move to the non-nuclear powers.”

Mexico and Brazil represented Latin America among the ten neutral nations on the ENDC. On September 19, 1967, Mexican diplomat Jorge Castañeda put forward a set of proposals whose purpose was to balance more evenly the rights and responsibilities of nuclear-weapon and non-nuclear-weapon states in the NPT. The Mexican amendments moved some preambular statements to the body, where they would become the treaty’s fifth, sixth and seventh articles. Article V authorised an international service to provide nuclear explosives in accordance with article 18 of the Treaty of Tlatelolco. Article VI inscribed a “solemn recognition of the special responsibility of the nuclear Powers” to faithfully pursue “effective measures,” such as NWFZs, related to ending the nuclear arms race and effecting nuclear as well as general and complete disarmament. Likewise, Article VII ensured that the treaty would not jeopardise the creation of denuclearised zones. Castañeda proposed strengthening Article IV as well, which article 17 of the Treaty of Tlatelolco had originally inspired. He endorsed adding a separate paragraph mandating “the fullest possible exchange of information on the peaceful use of nuclear energy” and a “legal obligation” that they be facilitated by nuclear-weapon states. These proposals won the support of neutral delegations and were quickly adopted.

The UN met to debate the NPT in April 1968. The Latin American and African blocs were the largest in the UNGA, where they accounted for nearly half the delegations and, with the Western and Eastern blocs, more than two-thirds, which would ensure a commanding majority. Mexico was the key to Latin America. García Robles used this leverage to win two

more concessions: the inclusion of “equipment” and “materials” in Article IV’s technical-assistance clause and a preambular reference to the principle of peaceful conflict resolution in the UN Charter. The French ambassador noted the revisions helped “dispel the reservations of the majority and, at least, those of the Latin American countries,” paving the way for the treaty’s commendation in New York.

This episode casts light on historical sources of contemporary debates about the NPT; whether it was principally meant to halt the spread of nuclear weapons to new states or to formalise a “grand bargain” whereby most states forwent nuclear weapons in exchange for technical assistance and “good faith” disarmament efforts by authorised nuclear-weapon states. Mexico and Latin America’s contributions register the debt that the NPT owed to the broadness of the international movement for multilateral nuclear arms control in the 1960s. Its consensual yet contested origins attested that states beside the nuclear powers had a genuine interest in nuclear regulations and prohibitions, as long as they reflected their economic and political interests and accorded with the principles upon which the UN had been founded.



# Tlatelolco Tested:

## The Malvinas/Falklands War and Latin America's Nuclear-Weapon-Free Zone

*Ryan Alexander Musto*



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**During the 1982 Malvinas/Falklands War and in its aftermath, Argentina accused Great Britain of violating Latin America's Nuclear-Weapon-Free Zone (NWFZ) by militarily deploying nuclear-propelled submarines to the demarcated geographic area and by entering the zone with ships carrying nuclear weapons, possibly with the intent of using them in the War.**

This Non-Proliferation Treaty (NPT) Symposium paper examines the unprecedented role played by OPANAL, the non-proliferation agency charged with upholding the 1967 Treaty of Tlatelolco that established Latin America as the first NWFZ in an inhabited region of the world, in addressing what remain the only accusations of a militaristic violation of a NWFZ to date.

Utilising primary source materials from OPANAL, this NPT Symposium paper finds that while OPANAL was mostly an inefficient and ineffectual agency during the 1970s, it provided a central forum through which to address the non-proliferation concerns raised by the conflict. Argentina and Brazil, erstwhile rivals and the two most advanced nuclear states in Latin Amer-

ica, were not parties to Tlatelolco, but found in OPANAL a common shield against perceived nuclear imperialism after the Malvinas/Falklands War.<sup>1</sup> OPANAL provided these two rivals a chance to collaborate on regional nuclear non-proliferation initiatives even as they were external to the Tlatelolco regime, thereby helping to build trust not only between themselves but with other Latin American states as well.

OPANAL provided all Latin American states a forum to engage in multilateral contact on nuclear non-proliferation issues as well as to maintain contact with non-Latin American nuclear-weapon states, all (crucially) without extra-regional oversight. Despite the underwhelming official response by OPANAL to perceived British violations of Tlatelolco during the Malvinas/Falklands War, Argentina, Brazil and other states still found it to be important, and joined in efforts to strengthen the Latin American nuclear non-proliferation regime moving forward. Perhaps the larger point to be made is that Argentina, Brazil and other states wanted OPANAL to rectify perceived violations of Tlatelolco.

<sup>1</sup> Though both states signed the "Treaty of Tlatelolco" that established Latin America's NWFZ in 1967, Argentina refused to ratify it, possibly in response to its exclusion from the Treaty's initial negotiation in 1963. Brazil ratified the Treaty in 1968, but refused to waive paragraph 2 of Article 28 that delayed enforcement of Tlatelolco for a state until all possible parties fully adhered to it through signature and ratification. As a result, the Treaty was null and void for both Argentina and Brazil.



Overall, this NPT Symposium paper finds that even a weakened regional non-proliferation agency like OPANAL can play an important role in the aftermath of a nuclear threat from an extra-regional state. In looking to the future, this NPT Symposium paper suggests that Africa's NWFZ would benefit from understanding how OPANAL dealt with the Malvinas/Falklands War, as its own non-proliferation agency, AFCONE, is faced with the contested island of Diego Garcia.

Ultimately, proposals for the creation of a Weapons of Mass Destruction Free Zone in the Middle East would be well served by including plans for the creation of a regional non-proliferation agency like OPANAL. The regional rivalries and conflicts of the Middle East and the inherent opacity of the nuclear field make imperative the creation of a diplomatic space dedicated to achieving dialogue, political transparency, and cooperation in issues of regional nuclear non-proliferation.



# Section 5

**The NPT Regime**

# “What are we doing here?”

## The Role and Relevance of the Nuclear Non-Proliferation Treaty

Tom Coppen



Tom Coppen is currently finalising his PhD dissertation on international law and the nuclear non-proliferation regime at Utrecht University in the Netherlands. As a researcher he is part of the Centre for Conflict and Security Law, and has served as a Special Advisor to the Netherlands' delegations at NPT Review Conferences, PrepComs, and IAEA meetings since 2010.

**Forty-five years after its entry into force and twenty years after the indefinite extension of its duration, what is the role and position of the Non-Proliferation Treaty (NPT)? What is its influence; is it still relevant? At the point of the ninth NPT Review Conference, what can be said about the importance of these meetings?**

This poster presentation is based on a PhD dissertation that comprises an international-legal analysis of the nuclear non-proliferation regime, based on applicable rules of public international law in general and the law of arms control in particular. A defining aspect of this specialised field of international law is that “there are no rules, other than such rules as may be accepted by the state concerned, by treaty or otherwise, whereby the level of armaments of a sovereign state can be limited.” Thus, states ultimately make a sovereign decision whether to consent and adhere to non-proliferation rules.

International law, including the non-proliferation regime, aims to create a set of parameters that will prompt states, as rational actors, to forego the acquisition or possession of nuclear arms. The non-proliferation regime is a well-integrated polit-

ical-legal order, consisting of many instruments, built on the foundation of a constitutional treaty: the NPT. Several constitutional characteristics of the NPT can be discerned:

The NPT combines elements of non-proliferation, disarmament, technology transfer and confidence-building to implement one shared overall goal: maintaining peace and security by means of the prevention of the dissemination of nuclear weapons and their eventual elimination. It is not a contract or *quid pro quo*. There was certainly a ‘bargain’ underlying the conclusion of the Treaty, but the existence of a compromise is a *conditio sine qua non* for the conclusion of any agreement; even national constitutions rest on a social contract.

As with many other constitutional documents, the NPT contains fundamental norms and rules for the political-legal order it establishes. The basic tenets of these norms have gone virtually unchallenged. However, as a constitutional treaty, the NPT suffers from a degree of indeterminacy. Its provisions often lack specification and definition, leaving large legal gray areas.

Similar to national constitutions, many of these gaps have been ‘filled’ over time. One way in which this process took place has been the establishment of additional instruments, based on the basic norms of the NPT, such as Nuclear-Weapon-Free Zones, the Comprehensive Nuclear-Test-Ban Treaty, or various safeguards agreements. Additionally, the NPT itself has benefited from a dy-

namic interpretation by its members, turning it into a 'living document'. Practice and developing insights and conventions have adapted the meaning of the provisions of the NPT over time.

Such progressive interpretation of the NPT is crucial in order for it to retain its relevance. Arms control law must adapt itself to changing circumstances, whether these are of a political, technological or any other nature, to prevent its obsolescence. Since Review Conferences are central to the evolutionary interpretation of the NPT, their importance for the continued relevance of the NPT can hardly be overestimated.

In purely legal terms, Review Conferences may be reflective of subsequent agreement and practice amongst the parties to the NPT. Under the law of treaty interpretation, this is of leading importance when interpreting the provisions of the NPT – more so than its preparatory documents and the intention of the drafters reflected therein. If NPT members have developed a state practice that is sufficiently consistent and common to establish a discernible pattern, *opinio juris* indicates whether they intend this practice as a basis for the NPT's interpretation. Review Conferences constitute the primary forum both for encouraging the harmonisation of state practice as well as for reflecting the *opinio juris* of NPT member states.

In more practical terms, this means that the role of Review Conferences is twofold. First, they must include a legal debate on the meaning of the provisions of the NPT and the obligations contained therein. Second, they must be the primary platform for the open discussion of plans and issues connected to the implementation of the overall goal of the NPT. If possible, these processes should lead to a form of consensus reflected in a Final Document. If not, there is no reason for concern. The history of the NPT indicates that its norms, once established or developed, have never been eroded by the failure of Review Conferences to reach consensus.

This answers the question: why the NPT and its Review Conferences are relevant, or "what are we doing here?" It leads to the following observations.

There is no Grand Bargain 'in' the NPT. There is one at the basis of it, which is as good as meaningless in legal terms; so is the concept of the 'pillars' of the NPT. These are political constructs, as NPT states search for compromise in its implementation, and should be regarded as such.

This means that current discussions at Review Conferences, which mix political targets and legal arguments, are often misguided and counterproductive. Review and forward-looking discussions should be clearly separated, and the latter should be conducted in a more open, informal and dynamic manner.

For this to succeed, neither the importance of Final Documents as stand-alone instruments, nor the consequences of the failure to adopt them should be overstated. On their own, the texts of Final Documents do not bind states. They may reflect a binding interpretation of the NPT, but can only do so when supported by consensual and consistent practice. On the other hand, as mentioned before, the NPT and the non-proliferation regime will not collapse if a Review Conference does not end in consensus.

It is better to focus on small attainable steps when circumstances are difficult in order to prepare for larger leaps when they improve. This is exactly how the NPT and, with that, the non-proliferation regime have evolved over multiple decades.

# Dealing with Challenges from within the NPT Regime:

## The Case of Brazil

Renata H. Dalaqua



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**Brazil's nuclear trajectory and engagement with the nuclear order illustrate many of the possibilities, as well as the limits, of the Non-Proliferation Treaty (NPT) regime. Through the perspective of this non-nuclear-weapon state (NNWS), the present work addresses three recurrent tensions that have affected the internal dynamics of the regime: a) the reluctance on the part of some NNWS to agree to additional non-proliferation measures; b) the NNWS' pursuit of nuclear energy and c) of naval nuclear propulsion.**

Based on the analysis of Brazil's nuclear ambitions and its views on the international order, this work explores ideas that can be useful in making the NPT more resilient as a platform for global nuclear governance in the years ahead.

### **Brazil's Nuclear Choices and the NPT Regime**

#### ***a) Reluctance to Additional Non-Proliferation Measures***

Before and even after it joined the regime in 1998, Brazil has

maintained a critical stance on the NPT, constantly denouncing what it perceives to be a discriminatory nuclear order. Exploring the boundaries of the regime, the country chose not to sign the Additional Protocol, a voluntary instrument that is in force in most NNWS.

The latest National Strategy of Defense (2008) states that Brazil will not adhere to amendments to the NPT until the nuclear-weapon states (NWS) advance their own nuclear disarmament. This shows that, together with some other non-nuclear countries, Brazil cannot be counted on to support further non-proliferation measures, which are usually promoted by the nuclear-armed countries.

At the root of Brazil's reluctance are concerns about fairness and justice, as the NPT treats countries differently and imposes stronger obligations on the side of non-proliferation than on the side of disarmament. Additionally, Brazil is not satisfied with the slow pace of nuclear reductions and the lack of any realistic short-term or medium-term prospects for achieving nuclear disarmament.

#### ***b) Autonomy in the Nuclear Fuel Cycle***

Since the 1970s, Brazil has undertaken major efforts to develop indigenous nuclear technology or otherwise acquire it.

Nuclear autonomy is seen as one of the most significant features of an industrialised country and also as a right under the NPT.

Similarly to other developing and emerging countries, Brazil argues that the benefits of nuclear science and technology should not be restricted to the major powers and promotes a view of the NPT as an instrument that can expand the reach of the applications of nuclear energy for peaceful purposes. This became evident in the Brazilian attempt to act as a diplomatic broker and find a solution to the impasse regarding the international negotiations about the Iranian nuclear programme in 2010.

Nuclear autonomy can serve multiple purposes: social and technological development, political power and commercial interests. This last one is often emphasised in the case of Brazil, as the country possesses large uranium reserves and sees itself as a potential player in the global nuclear market.

Although the international market still holds promise, the domestic economy experienced a recent period of bonanza, which favoured projects in the nuclear sector. In the late 2000s, the Brazilian government decided to resume the construction of a third nuclear power reactor and to take up the project of developing a nuclear-propelled submarine.

### ***c) Naval Nuclear Propulsion***

Although nuclear propulsion is not prohibited by the NPT, the only members of the regime that have nuclear submarines are the NWS. Thus, if successful in this venture, Brazil will become the first NNWS to join the “nuclear submarine club.” Since there is no precedent for such a case, this will represent new challenges to safeguards, inspections, monitoring and verification.

Developing a nuclear submarine has long been a goal of the Brazilian navy. Such a vessel would be useful in guarding the country’s coast, as well as protecting offshore natural resources – usually presented as Brazil’s “blue Amazon.”

Undoubtedly, the nuclear submarine project is also construed as a symbol of political power, international pre-eminence, modernity and development. All these features have been evoked as a means to justify increased public spending in the nuclear sector.

## **What Can We Learn from the Case of Brazil?**

The Brazilian case shows that NNWS that could do more to promote and strengthen the regime resist cooperation on nuclear non-proliferation. Even though they continue to share the common interest of avoiding nuclear proliferation and achieving disarmament, some NNWS oppose provisions that could improve the regime because these are perceived as establishing unfair obligations. In this regard, a sense of what is just sometimes overrules the notion of usefulness.

Brazil’s dissatisfaction with the lack of nuclear weapons reductions and the absence of a timeline for eliminating the NPT inequality is shared by many NNWS. These concerns have the potential to weaken the NPT’s legitimacy and negatively affect compliance. NNWS may increasingly question the purpose and the benefits of the regime and seek nuclear hedging to satisfy prestige or security ambitions.

## **Recommendations to Strengthen the NPT Regime**

- It is imperative to revitalise nuclear diplomacy, especially between the US and Russia. This does not mean that both countries have to solve all of their problems, but they need to be able to agree on measures to demonstrate their willingness to rethink nuclear deterrence.
- The nuclear-armed countries should set time goals for negotiations of each agreed disarmament measure. These measures should also be implemented with defined timeframes, benchmarks and accountability measures. This would definitely alleviate some of the tensions within the regime.
- To restore goodwill among the large majority of the NPT states parties who have renounced nuclear weapons, NWS should take concrete actions that recognise the important role played by the NNWS. One possibility would be to remove the reservations placed in the protocols of Nuclear-Weapon-Free Zone treaties.
- It is important to reinforce the NPT’s identity as a transformation regime. The most effective way of doing so is by agreeing on cutting down the numbers of nuclear warheads and their delivery systems.

# Beyond Pessimism:

## Why the Treaty on the Non-Proliferation of Nuclear Weapons Will Not Collapse

*Liviu Horovitz*



Liviu Horovitz is a PhD Candidate at the Center for Security Studies within the ETH Zurich. His latest research was printed in Journal of Strategic Studies and he is currently co-editing a volume on the origins of the NPT.

This poster questions the predominantly pessimistic assessments of the future of the Non-Proliferation Treaty (NPT). After analysing available evidence on states' interests and interactions within the NPT's framework, it argues that several negative expectations are unwarranted. Conversely, the poster identifies three potentially threatening scenarios. In so doing, it scrutinises the likely impact of reactive nuclear proliferation; analyses the probability of significant actors challenging the existent nuclear architecture; and explores whether the treaty's enforcement might soon be diluted. The poster concludes that the NPT is unlikely to face fundamental threats in the foreseeable future.



# The NPT in a Time of Power Transition

*Benjamin Zala*



Benjamin Zala is a Lecturer in International Politics at the University of Leicester, UK. He has published in the areas of great power politics, International Relations theory and nuclear weapons issues.

**There is now widespread agreement that the global distribution of power is either in the early stages of, or has already begun a period of transition. Given the historical connection between nuclear weapons and great power status, the question of how rising powers will affect the global nuclear order and the international regimes and norms that sustain it has become one of the most pressing of the twenty-first century.**

The Non-Proliferation Treaty (NPT) regime has the potential to become a key area of contestation between established and emerging powers as they strive for greater recognition in the decades to come. Yet a number of rising powers already occupy different positions within the global nuclear order. The much-discussed BRICS grouping is illustrative of this.

China and Russia hold the privileged position of being part of the five nuclear-weapon states (NWS) identified by the NPT, India possesses nuclear weapons and remains outside of the treaty, while Brazil and South Africa both gave up nuclear weapons programmes and joined the NPT but remain

deeply critical of the lack of progress on nuclear disarmament under Article VI.

This poster discusses the differences and commonalities on nuclear weapons issues amongst these states as they negotiate their way through the end of the unipolar period, as well as the prospects or otherwise of a significant challenge to the NPT. It will look at the ways in which the three pillars of the NPT are affected by the larger context of a shift in the global order from West to East and the so-called 'rise of the rest' and map out the key areas of contestation between the established and rising powers. In doing so, the poster will suggest a number of ways of mitigating the possibilities of the shift in the global order undermining support for, and adherence to, the treaty.

A common position amongst rising powers (perhaps using one of the diplomatic groupings of rising powers as a platform) on the need for greater assertiveness amongst the non-nuclear-weapon states (NNWS) could act as a catalyst for a wider pushback against the continued reluctance of the NWS to seriously act on their article VI obligations. The role of states such as Brazil in arguing against the need for all states to sign the Additional Protocol of the NPT (Ruble 2010: 54), which raises the bar on safeguards against proliferation, without the NWS first making significant progress on disarmament is an early sign of the potential of this

kind of rising power leadership. The precedent for the use of Southern coalitions in negotiations to push the established powers into deadlocked talks exists across a number of issue areas including global trade, environmental negotiations and the reform of the Bretton Woods financial institutions, and there is no reason to think that things like the five-yearly Review Conferences of the NPT could not go the same way, particularly when rising powers have less to lose in the short-term than in, for example, trade talks. Beyond intransigence in particular negotiations and the coordinated creation of deadlocks in certain areas, other options including 'regime shifting' (in which authority is shifted from one organisation or treaty arrangement to another) and other forms of contested multilateralism remain immediate strategies open to dissatisfied rising powers (Keohane and Morse 2014).

When we consider the potential for a proliferation challenge posed by rising powers, it is not enough to simply analyse the military balance or whether exiting defence alliances and nuclear assurances are enough to meet the material defence needs of certain states. The power of the link between the possession of nuclear weapons and major power status is such that our analysis must also be attuned to the avenues open to rising powers for climbing the social hierarchy – and whether it is at all possible to do so as a non-nuclear-weapon state. As Ted Hopf reminds us, like power, "identities are always relational" (2002: 7), which means that while the existing powers and even the front running rising powers (China and India) possess nuclear weapons, the identity that Brazil, South Africa and perhaps further down the line others such as Turkey and Indonesia are able to forge for themselves will be, at least to some degree, shaped by their position outside of the nuclear club.

Further to this, it should be noted that the distinction being made here between a moral challenge in which rising powers refuse further cooperation or even start to reduce cooperation on non-proliferation issues until the NWS make greater efforts on their Article VI obligations and a material challenge in terms of their own nuclear status need not be an unambiguous choice one way or the other. As Miles Kahler has pointed out, "In the non-proliferation regime, mastery of nuclear technology and status as at least a near-nuclear power grant leverage to force adjustment in the regime, as India's bargaining with the United States demonstrated"

(2013:720). Therefore, if the likes of Brazil and South Africa choose to play a spoiler role within the NPT, this could be strengthened by a degree of ambiguity about the future of their own nuclear weapons status. In this sense, the two challenges may in the end go hand in hand.

In the end, just as in much of the power transition theory literature that argues that it is declining rather than rising powers that ultimately decide whether power transitions end in conflict or not, it may well be the established powers in the global nuclear order – in this case the five NWS – that play the greatest role in either facilitating or mitigating a serious challenge to the global nuclear order from rising powers. Neither a proliferation nor a disarmament challenge mounted by one or more of the current set of rising powers will be easy to do if the NWS demonstrate genuine progress on their Article VI obligations.