Strål säkerhets myndigheten
Swedish Radiation Safety Authority

Author: Harald Müller
Carmen Wunderlich
Marco Fey
Klaus-Peter Ricke
Annette Schaper

Research

2014:04

Non-proliferation 'Clubs' vs. the NPT

Report number: 2014:04 ISSN: 2000-0456
Available at www.stralsakerhetsmyndigheten.se

SSM perspective

Background
The Swedish Radiation Safety Authority (SSM) is among other things an administrative authority for issues of nuclear non-proliferation. SSM contribute to withholding and developing national competence for current and future needs within the authority's area of responsibility and therefore takes initiative to research.

In terms of nuclear non-proliferation, the Authority shall seek to ensure that nuclear material and technology are not used for nuclear weapons. The Authority oversees the nuclear material in Sweden and Swedish nuclear facilities, equipment and technology is used as declared in accordance with Sweden's international commitments.

The study is the result of a call for tenders which took place in autumn 2013.

Objectives
The purpose of this study is to gather and disseminate knowledge, to support SSM in the international work, and to build knowledge in the long term in nuclear non-proliferation.

Results
The study analyses the relationship between the Nuclear Non-Proliferation Treaty, NPT and various initiatives and institutions ('clubs') based outside the NPT framework, which aims to improve and strengthen the Treaty. The study identifies conflicts and possible synergies and proposes options for developing and improving the interaction between the NPT and 'clubs' in order to increase the overall efficiency.

The report describes facts about the various non-proliferation 'clubs', and also analyses and formulates conclusions about the various international initiatives in non-proliferation. The subject is vast and the report therefore cannot naturally go in depth but provides useful information for those working in the area, but also for those generally interested. The report contains several ideas that can be studied further.

Project information
Contact person SSM: Henrik Moberg
Reference: SSM2013-3347

Strål
säkerhets
myndigheten
Swedish Radiation Safety Authority

Authors: Harald Müller, Carmen Wunderlich, Marco Fey,
Klaus-Peter Ricke and Annette Schaper
PRIF/HSFK, Frankfurt, Germany

2014:04

Non-proliferation 'Clubs' vs. the NPT

Date: Januari 2014
Report number: 2014:04 ISSN: 2000-0456
Available at www.stralsakerhetsmyndigheten.se

This report concerns a study which has been conducted for the Swedish Radiation Safety Authority, SSM. The conclusions and viewpoints presented in the report are those of the author/authors and do not necessarily coincide with those of the SSM.

Content

List of Figures **3**
List of Abbreviations **4**
Summary **6**
Sammanfattning **10**

Chapter I: Introduction **14**
1. Plan of the Study **17**
2. Methodological Approach **19**

Chapter II: Case Studies **20**
1. The Nuclear Suppliers Group **20**
1.1. Description 20
1.1.1. Mission 20
1.1.2. Membership 21
1.1.3. Structure and Organization 21
1.1.4. Decision-Making Structure 22
1.1.5. Outreach 23
1.1.6. Confrontational versus Cooperative Instruments 23
1.2. Assessment 24
1.2.1. Internal and External Evaluation 24
1.2.2. Reasons for Success or Shortcomings 25
1.2.3. The Outliers' Criticism 25
1.3. What's next? 28
1.3.1. Involvement of Companies/Best Practices 28
1.3.2. Post-Shipment Control 28
2. The Proliferation Security Initiative **30**
2.1. Description 30
2.1.1. Mission 30
2.1.2. Membership 32
2.1.3. Structure and Organization 32
2.1.4. Decision- Making Structure 34
2.1.5. Outreach 34
2.1.6. Confrontational versus Cooperative Instruments 37
2.2. Assessment 38
2.2.1. Internal Evaluation 38
2.2.2. External Evaluation and Reasons for its Success and Shortcoming 39
2.2.3. The Outliers' Criticism 40
2.3. What's next? 40
3. The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction **42**
3.1. Description 42
3.1.1. Mission 42
3.1.2. Membership and Organization 43
3.1.3. Decision-Making Structure 45
3.1.4. Outreach 45
3.1.5. Confrontational versus Cooperative Instruments 46
3.2. Assessment 47
3.2.1. Internal and External Evaluation 47
3.2.2. The Outliers' Criticism 49
3.3. What's next? 49
4. GTRI Global Threat Reduction Initiative **51**

4.1. Description 51
4.1.1. Mission 52
4.1.2. Membership 54
4.1.3. Structure and Organization 54
4.1.4. Decision-Making Structure 54
4.1.5. Outreach 55
4.1.6. Confrontational versus Cooperative Instruments 55
4.2. Assessment 56
4.2.1. Internal Evaluation 56
4.2.2. External Evaluation 58
4.2.3. Reasons for Success and Shortcomings 59
4.3. What's next? 61
5. Global Initiative to Combat Nuclear Terrorism 63
5.1. Description 63
5.1.1. Mission 63
5.1.2. Membership 64
5.1.3. Structure and Organization 65
5.1.4. Decision-Making Structure 66
5.1.5. Outreach 67
5.1.6. Confrontational versus Cooperative Instruments 67
5.2. Assessment 68
5.2.1. Internal and External Evaluation 68
5.2.2. Reasons for Success and Shortcomings 69
5.2.3. The Outliers' Criticism 69
5.3. What's next? 69
6. The Nuclear Security Summits 71
6.1. Description 71
6.1.1. Mission 71
6.1.2. Membership 73
6.1.3. Structure and Organization 75
6.1.4. Decision-Making Structure 75
6.1.5. Outreach 75
6.1.6. Confrontational versus Cooperative Instruments 76
6.1.7. Relationship to the NPT 77
6.2. Assessment 77
6.2.1. Internal and External Evaluation 77
6.2.2. The Outliers' Criticism 80
6.3. What's next? 80

Chapter III: Comparison 82
1. Performance 82
2. Explanation 85
3. Non-Proliferation and Counter-Terrorism: Varying Acceptance 88
4. Additional Evidence 91
5. Conclusions 93

Chapter IV: Re-Designing the Interface; Strategies for Bridging the Legitimacy Deficit 95
1. Reform Steps within Existing 'Clubs' 96
1.1. Mixed groupings: Removing 'Northern' Dominance 96
1.2. Enlarging 'Club Membership' 96
1.3. Reducing Discrimination 97
1.4. Outreach 97
1.5. Funding/Capacity Building 97
2. Beyond Existing 'Clubs' 99

2.1. Global Export Control Working Group.....99
2.2. The Connection Nuclear Security/Export Controls and Capacity Building.....99
2.3. Public/Private Partnerships as Part of Capacity Building and Post-Shipment Controls.....100
2.4. Avoid Premature Hardening of Soft Measures.....101
2.5. “Friends of the Additional Protocol”.....102
3. Creating Favorable Conditions: Shaping the NPT Context.....103
3.1. Disarmament.....103
3.2. Middle East.....104
4. Options for Swedish Engagement.....105
References.....110

List of Figures

Figure 1: OEG members, Original 11+4 Core Group.....32
Figure 2: Map of Proliferation Security Initiative endorsing states.....33
Figure 3: Development of number of PSI supporting countries.....35
Figure 4: GP participants.....45
Figure 5: Global Initiative Partner Nations.....65
Figure 6: Development of GICNT membership.....65
Figure 7: NSS participants, original 2010 participants.....74
Figure 8: NSS participants and outlier states with weapons-usable nuclear materials.....74
Figure 9: Comparison of the initiatives along various categories.....86

List of Abbreviations

ABAAC	Argentine-Brazilian Agency for Accounting and Control
ACA	Arms Control Association
AP	Additional Protocol
CBNR	Chemical, biological, radiological, and nuclear
CPPNM	Convention on the Physical Protection of Nuclear Material
CTR	Cooperative Threat Reduction
CG	Consultative Group
DoE	Department of Energy
GAO	Government Accounting Office
GICNT	Global Initiative to Combat Nuclear Terrorism
G8GP	G8 Global Partnership
GP	Global Partnership
GPWG	Global Partnership Working Group
GTRI	Global Threat Reduction Initiative
FMCT	Fissile Material Cut-off Treaty
FRRSNF	Foreign Research Reactor Spent Nuclear Fuel
FSU	Former Soviet Union
HEU	Highly enriched Uranium
HLPM	High-level Political Meetings
IAEA	International Atomic Energy Agency
IAG	Implementation and Assessment Group
ICSANT	International Convention for the Suppression of Acts of Nuclear Terrorism
IEM	Information Exchange Meeting
IMPC	International Materials Protection and Cooperation Program
INFCE	International Nuclear Fuel Cycle Evaluation
INTERPOL	International Criminal Police Organization
ISP	Inspektionen för strategiska produkter
LEEM	Licensing and Enforcement Experts Meeting
LEU	Low-enriched Uranium
MFA	Multilateral Fuel Arrangements
Mo-99	Molybdenum-99
NAC	New Agenda Coalition

NAM	Non-Aligned Movement
NISS	NSG Information Sharing System
NNSA	National Nuclear Security Administration
NNWS	Nonnuclear weapon states
NPDI	Non-Proliferation and Disarmament Initiative
NPT	Nuclear Non-Proliferation Treaty
NSG	Nuclear Suppliers Group
NSS	Nuclear Security Summit
NTI	Nuclear Threat Initiative
NWS	Nuclear weapon states
NWFZ	Nuclear-weapon-free zone
OEG	Operational Experts Group
PrepCom	Preparatory Committee
PSI	Proliferation Security Initiative
RDD	Radiological dispersal device
RERTR	Reduced Enrichment for Research and Test Reactors
ROEG	Regional Operational Experts Group
RRRFR	Russian Research Reactor Fuel Return
RevCon	Review Conference
SNNAP	Swedish Nuclear Non-Proliferation Assistance Programme
SUA	Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation
UNCLOS	UN Convention on the Law of the Sea
WMD	Weapons of mass destruction

Summary

The project examines the relationship between the Nuclear Non-Proliferation Treaty (NPT) and the various exclusive initiatives and institutions ('clubs') established outside the treaty regime that aim at improving the nuclear non-proliferation toolbox. The aim of this project is to identify frictions and potential synergies in order to develop options to improve the interface between the regime and the 'clubs' and thereby to enhance the efficiency of both.

The non-proliferation toolbox of the NPT has been strengthened many times since the treaty became effective in 1970. Mostly, these improvements have been due to learning effects by the regime community, triggered by outside developments such as the Indian nuclear explosion in 1974 or the uncovering of Iraq's clandestine nuclear program after the Gulf war of 1991. These complements to the regime have been added partly within and partly outside of the NPT process. Within regime structures, modifications have focused particularly on the strengthening of the verification system specifications of Article VI obligations as well as the commitment to work towards a nuclear-weapon-free zone (NWFZ) in the Middle East.

There were also considerable changes outside established regime structures, such as the establishment of NWFZs in Latin America, the South Pacific, Southeast Asia, Mongolia, Central Asia, and Africa as well as the creation of the Nuclear Suppliers Group (NSG) in order to improve export control stipulations to prevent the transfer of nuclear material and related know-how. Additionally, multilateral fuel cycle arrangements were explored in the context of the International Atomic Energy Agency (IAEA) as well as initiatives in the realm of nuclear security and counter-terrorism. Many of these initiatives aimed at closing existing gaps in the NPT and were entrusted to smaller, closed 'club-like' entities lacking a legal underpinning and armed with a panoply of instruments ranging from more confrontational ones (coercion, pressure, sanctions) to cooperative ones (persuasion, capacity building, information sharing).

However, the growth of exclusive initiatives bears the risk to further harden the frontlines within the NPT, which have become fairly stable, pitting the nuclear weapon states against the majority of nonnuclear weapon states (NNWS; with non-nuclear weapon state allies to nuclear weapon states in a precarious position in the middle) and nuclear exporters against the countries of the Non-Aligned Movement (NAM). Traditional concerns of the NAM are centered on a conflict over distributive justice, i.e. the treaty-based claim of developing countries to receive assistance and cooperation in the peaceful use of nuclear energy. In the NPT, this conflict is aggravated by the inequality between nuclear weapon states (NWS) and NNWS and the latter's complaints concerning inadequate compliance with NWS' disarmament obligations as well as perceived unequal standards applied to NNWS parties as compared to nuclear weapon states not party to the NPT.

These frontlines have proven to be counterproductive in improving the NPT regime to better cope with today's challenges, such as the threat emanating

from non-state proliferation risks. The 'club' initiatives have grown, partially out of frustration with the slow pace of intra-regime innovation. They have also partly resulted from the generic inclination of U.S. governments to circumvent traditional (notably universal) fora, and have also evolved without a sound strategic prognosis and analysis of their potential and real consequences. While, to a certain degree, they have been responses to regime stagnation, they might have also contributed to cementing the existing frontlines.

The study therefore proposes to investigate the impact of the aforementioned non-proliferation 'clubs' on the performance of the NPT regime. The study aims to answer the following four research questions:

(1) Do 'club' activities create new assets for non-proliferation in terms of permanent barriers to the spread of nuclear weapons and to nuclear terrorism, or are the results of limited or no impact?

(2) Do 'club' activities harden or soften the frontlines in the NPT? Are their initiatives integrated into the intraregime *acquis* or are they rejected, thus leading to further controversy?

(3) Concerning question 2, is there a difference between 'clubs' focusing on instruments of coercion or pressure as compared to 'clubs' focusing on persuasion and capacity building (these instruments are also typical for the EU, such as outreach activities with third countries that are initiated in order to support emerging export control systems)?

(4) Is it plausible that a re-designed interface between the regime and the 'clubs' could help to promote certain selective measures that have proven to be 'hard cases' for universalization in the recent past, but are generally assessed as highly useful steps to improve the non-proliferation toolbox (such as the IAEA Additional Protocol)?

The study covers six 'club' initiatives that are relevant in the nuclear non-proliferation regime: the Nuclear Suppliers Group (NSG), the Proliferation Security Initiative (PSI), the G8 Global Partnership (G8GP) Against the Spread of Weapons and Materials of Mass Destruction, the Global Threat Reduction Initiative (GTRI), the Global Initiative to Combat Nuclear Terrorism (GICNT) and the Nuclear Security Summits (NSS).

In terms of success, acceptance, and impact on the NPT regime, the performance balance of the 'clubs' differ considerably. Explanatory factors comprise the context (date of foundation), the relation to the NPT, the inclusiveness as indicated by the type of membership and the entry barriers, the degree of binding force, the impact on non-members, the instruments applied and outreach activities.

Overall, the NSG is least accepted and holds a fairly negative image among non-members from the developing world who suspect it to undermine their rights to peaceful uses of nuclear energy and technological cooperation. While initially the PSI was perceived as illegitimate, the fact that it overcame its exclusivity problem by expanding to the developing world mitigated this suspicion. The NSS in contrast was an outstanding success and at-

tracted support from the vast majority of NAM member states. Together with the G8GP, GICNT and GTRI, the NSS builds an interlocking framework of partially overlapping activities that serve to further nuclear security. While the NAM shares the concern about the threat from WMD terrorism, it opposes establishing nuclear security as a 'fourth pillar' in the NPT context at the cost of disarmament and peaceful uses. Initiatives are supported by the developing countries if they are seen as not impinging on the right to peaceful uses of nuclear energy and technological cooperation.

From our empirical observation, we thus arrive at the conclusion that 'club' initiatives meant to strengthen the NPT are unlikely to negatively impact consensus inside the regime or to provoke widespread opposition and more likely to attract support and to facilitate the participation of developing countries if the following conditions are met:

- they are not exclusively 'Northern' and discriminatory;
- they focus on voluntary measures agreed among members or adopted individually as well as measures of assistance, persuasion and capacity building;
- they do not impose 'hard' measures on third parties, and
- they do not affect the balance of the 'pillars' in the NPT.

Following this formula, some recommendations can be formulated on how to re-design the interface in order to bridge the perceived legitimacy gap of some of the 'club' initiatives:

(1) *Within the existing 'clubs'*, reform steps should aim towards a more inclusive membership by removing the 'Northern' over-representation and by attracting new members, particularly from the developing world, or by upgrading their status of participation. Apart from more inclusivity, 'clubs' should try to overcome double standards and reduce discriminatory structures, e.g. by striving towards a common legal framework, including the ratification of all international treaties and conventions in the realm of nuclear security (and the broader nuclear non-proliferation machinery). Outreach activities should be increased in order to mitigate exclusion problems and, instead of allowing mistrust to grow, to build sustainable legitimacy and enhance efficiency. Furthermore, member states should aim to maintain or increase funding and capacity building.

(2) *Beyond existing 'clubs'*, it might be worthwhile to strengthen the nexus between nuclear security, export controls and capacity building. Lessons might be drawn from the good experiences with overlapping and mutually reinforcing activities and initiatives in the nuclear security area. The success in this realm also indicates the advantage of informal measures and exploiting soft as compared to hard tools. In addition, like-minded countries with experience in nuclear related exports and/or imports might consider forming a 'global export control working group' in order to work out a universal, jointly negotiated export control agreement. While it might be vital to include members of the NSG, the participation of NWS would not be advisable. Similarly, some states could join forces and form a group of 'friends of the Additional Protocol (AP) with the aim of

advocating it by conducting outreach activities to non-members as well as offering experience and assistance to facilitate its implementation. Due to its proactive stance in nuclear non-proliferation and its exemplary national legislation, Sweden would be particularly apt to take a leading role in both of the latter initiatives. Another area in which Sweden would be prone to engage is the fostering of public/private partnerships as part of capacity building and post-shipment control.

(3) These two proposals aim towards reducing the tension between two of the three pillars of the NPT, namely non-proliferation and the peaceful uses of nuclear energy, by bringing them together in activities related to a non-pillar, namely nuclear security. However, the tensions within the NPT regime require remedy as well, particularly regarding nuclear disarmament and the situation in the Middle East. We thus suggest that a joint venture between two established North/South groupings, namely the New Agenda Coalition (NAC) and the Non-Proliferation and Disarmament Initiative (NPDI), work out quid pro quos regarding the precarious tension between disarmament obligations and peaceful nuclear cooperation. In the same vein, a group of 'friends of a Middle East Zone Free of Weapons of Mass Destruction' could be formed to demonstrate support for this project. This would constitute a welcome signal of support for Egypt (and some other Arab states) and a means to further promote the zone and develop proposals for possible steps as to how the project could move forward.

Sammanfattning

Denna studie undersöker förhållandet mellan icke-spridningsfördraget av kärnvapen (Nuclear Non-Proliferation Treaty, NPT) och olika exklusiva initiativ och institutioner (”klubbar”) som är etablerade utanför NPT:s ramverk och som syftar till att förbättra och förstärka fördraget. Syftet med studien är att identifiera eventuella konflikter och möjlig samverkan mellan NPT och ”klubbarna” för att kunna utveckla och förbättra samspelet och därigenom öka effektiviteten.

NPT trädde i kraft 1970 och har sedan dess kompletterats och förstärkts under flera olika tillfällen. Mestadels har förbättringarna byggt på lärda erfarenheter som många gånger utlösts av globala utvecklingar, så som den indiska kärnvapenexplosionen 1974 eller avslöjandet av Iraks kärnvapenprogram efter Gulfkriget 1991. Dessa komplement har delvis inkluderats i NPT-fördraget men andra har också behandlats utanför fördraget. De komplement som har behandlats inom fördragets ramar har haft fokus framför allt på att förbättra NPT:s kontrollsystem i linje med skyldigheterna i artikel VI samt åtagandet att arbeta för etablerandet av en kärnvapenfri zon (NWFZ) i Mellanöstern.

Det har också skett förändringar utanför fördragets ramar, som till exempel inrättandet av nya kärnvapenfria zoner i Latinamerika och Karibien, Antarktis, södra Stilla havet, Sydostasien, Mongoliet, Centralasien och Afrika samt skapandet av exportkontrollorganet Nuclear Suppliers Group (NSG). NSG har i uppgift att förbättra exportkontrollbestämmelser och förhindra överföring av kärnämne till icke-kärnvapenstater. Dessutom har det Internationella atomenergiorganet (IAEA) inkluderat områden som berör den multilaterala kärnbränslecykeln i sitt mandat, så som åtgärder på kärnsäkerhet och bekämpning av terrorism.

Många initiativ som har i syfte att korrigera och kompensera befintliga brister inom NPT, har överlämnats till mindre, stängda ”klubbliknande” enheter som saknar rättsligt stöd och som har arbetsmetoder som varierar från konfrontation (tvång, påtryckning, sanktioner) till mer kooperativa verktyg (övertalning, kompetensutveckling, informationsdelning).

Utökandet av dessa ”klubbar” riskerar att förstärka de redan existerande fronterna inom NPT, det vill säga mellan kärnvapenstater och icke-kärnvapenstater samt länder som exporterar kärnenergiämnen och länderna i den alliansfria rörelsen (NAM). Den största kritiken som NAM riktar mot exportländerna är bland annat bristen på assistans och hjälp som utvecklingsländerna har rätt till genom icke-spridningsfördraget för att kunna utveckla sina kärnenergiprogram. Kritiken grundar sig huvudsakligen på obalansen mellan kärnvapenstaters och icke-kärnvapenstaters rätt och skyldigheter inom fördraget. NAM har framfört stark kritik mot kärnvapenstaternas brist på nedrustning och att olika standarder tillämpas för kärnvapenfria länder i jämförelse med kärnvapenstaterna inom NPT.

Dessa politiska fronter har visat sig stå i vägen för många förbättringsåtgärder av icke-spridningssystemet och som därav har haft svårt att anpassas till

dagens nya utmaningar, t.ex. det stigande hotet att kärnvapen sprids till icke-statliga aktörer. Dessa ”klubbar” växer fram delvis på grund av frustration över den långsamma förnyelsen inom fördragets ramverk, men också delvis på grund av USA:s tendens att kringgå traditionella (särskilt multilaterala) fora. Dessutom har ”klubbarna” utvecklats utan att potentiella konsekvenser analyserats. Å ena sidan har ”klubbarna” fungerat som ett svar på brist på utveckling inom NPT men å andra sidan har de därmed bidragit till att förstärka föredragets redan befintliga fronter.

Denna studie undersöker dessa klubbar mer utförligt och ser hur de har påverkat och samspelat med NPT. Studien vägleds av följande frågeställningar:

(1) Skapar dessa ”klubbar” permanenta hinder för spridning av kärnvapen och för nukleär terrorism, eller har resultatet varit begränsat eller inte haft någon effekt alls?

(2) Har ”klubbarna” förstärkt eller försvagat fronter inom NPT? Inkluderas dessa initiativ i NPT-regelverket eller bidrar de endast till mer oenighet?

(3) Är det en skillnad mellan ”klubbar” med fokus på tvång eller påtryckningsinstrument och ”klubbar” som mer fokuserar på övertalning och kapacitetsbyggnad (typiskt för EU som t.ex. stödjer utvecklingsländer att utveckla sina exportkontrollsystem).

(4) Finns det en möjlighet att omstrukturera samarbetet mellan föredraget och ”klubbarna” så att de främjar vissa fronter som ses som extra svåra hinder för att nå NPT:s universalitet. Sådana åtgärder i allmänhet bedöms som mycket positiva för att förbättra icke-spridningsverktygen, så som IAEA:s tilläggsprotokoll.

Studien omfattar sex olika ”klubbar” som är relevanta i det nukleära icke-spridningssystemet: Nuclear Suppliers Group (NSG), Proliferation Security Initiative (PSI), G8:s initiativ om globalt partnerskap (G8GP), Global Threat Reduction Initiative (GTRI), det globala initiativet för att bekämpa nukleär terrorism (GICNT) och Nuclear Security Summits (NSS).

”Klubbarnas” framgång, acceptans och olika påverkan på icke-spridningsfördraget skiljer sig avsevärt åt och beroende på kontexten, relationen till icke-spridningsfördraget, typ av medlemskap, graden av bindande skyldigheter, påverkan på icke-medlemmar, de instrument som använts samt outreach-verksamheter.

NSG är den ”klubb” som är minst accepterad av icke medlemmar, speciellt av utvecklingsländerna som misstänker att NSG försöker underminera deras rätt till fredlig användning av kärnenergi och tekniskt samarbete. Även PSI kopplades länge till brister på legitimitet på grund av sitt snäva medlemskap. Detta förändrades dock när PSI öppnade upp för mer samarbete med utvecklingsländer. NSS har däremot varit en framgång och fick direkt stöd av många länder inom NAM. NSS, tillsammans med G8GP, GICNT och GTRI, lägger grunden till ett sammankopplat ramverk som förstärker nukleär säkerhet. Medan NAM delar oron om hotet från terrorism med massförstörelsevapen, opponerar de sig mot att etablera nukleär säkerhet som en så kallad ”fjärde pelare” i NPT på bekostnad av nedrustning och fredlig användning

av kärnenergi. Generellt får initiativen stöd från utvecklingsländer när de uppfattas som att de inte påverkar rätten till fredlig användning av kärnenergi och tekniskt samarbete.

Slutsatsen av våra empiriska observationer är att ”klubbinitiativ” antagligen inte påverkar konsensus inom NPT eller framkallar utbrett motstånd, utan snarare godkännande och får stöd, särskilt från utvecklingsländerna, om följande villkor är uppfyllda:

- medlemskapet bör inte enbart utgöras av västerländska medlemmar och ska vara icke-diskriminerande;
- att de fokuserar på frivilliga åtgärder som kommer ut ur gemensamma beslut samt åtgärder för assistans, övertygelse och kapacitetsuppbyggnad;
- att de inte vill införa ”hårda” åtgärder mot tredje part, och
- att de inte påverkar balansen av de tre ”pelarna” i NPT.

Baserat på dessa steg kan följande rekommendationer ges om hur man kan omkonstruera samspelet mellan dessa ”klubbar” och NPT och finna lösningar till bristerna på legitimitet för några av ”klubbarna”:

(1) *De befintliga ”klubbarna”* bör sträva efter ett mer inkluderande medlemskap genom att avlägsna den ’nordliga’ överrepresentationen och sträva mot ett mer globalt representativt medlemskap, med ökat medlemskap särskilt från utvecklingsländer. Förutom ett mer integrerat medlemskap bör ”klubbarna” sträva efter att få bukt med inbyggd dubbelmoral och minska diskriminerande strukturer. Detta bör göras genom att sträva mot ett gemensamt regelverk som inkluderar ratificering av alla internationella kärnsäkerhetsfördrag och konventioner (samt det bredare icke-spridningsregelverket). Outreach-verksamhet bör stärkas för att minska exkludering och för att öka långsiktig legitimitet och effektivitet. Dessutom bör medlemsstaterna sträva efter att bibehålla eller öka finansiering och kompetensutveckling.

(2) *Utöver befintliga ”klubbar”*, kan det också vara värt att stärka sambandet mellan kärnsäkerhet, exportkontroll och kompetensutveckling. Lärdomar kan dras från goda erfarenheter i och med överlappande och ömsesidigt förstärkande åtgärder och initiativ på kärnsäkerhetsområdet. Framgången inom kärnsäkerhet visar också på de positiva resultaten som informella åtgärder och utvecklingen av mjuka verktyg, till skillnad från hårda, har. Därutöver bör likasinnade länder med erfarenhet av kärnkraftsrelaterad export och/eller import överväga att bilda en global arbetsgrupp för exportkontroll med syfte att arbeta fram ett globalt gemensamt exportkontrollavtal. Trots att det kan vara viktigt att inkludera medlemmar från NSG, avråds från kärnvapenstaters deltagande. På samma sätt kan länder som stödjer IAEA:s tilläggsprotokoll (AP) gå samman och bilda en grupp för att förespråka och stödja implementering av tilläggsprotokollet för icke-medlemmar genom att erbjuda erfarenheter och hjälp. Sverige, med sin proaktiva hållning i icke-spridningsfrågan och exem-

plariska nationella lagstiftning, skulle vara särskilt lämpligt att ta en ledande roll i de båda sistnämnda initiativen. Sveriges engagemang skulle även lämpa sig inom främjandet av offentliga eller privata partnerskap vad gäller kompetensutveckling och transportkontroll.

(3) De två ovan nämnda förslagen avser att minska spänningen mellan två av tre pelare i icke-spridningsfördraget, närmare bestämt icke-spridning och fredlig användning av kärnenergi, genom att sammanföra dem i verksamhet med anknytning till kärnsäkerhet (en icke-pelare). Därutöver behöver spänningarna inom NPT också åtgärdas, i synnerhet kärnvapennedrustning och situationen i Mellanöstern. Vi föreslår därmed ett samarbete mellan två redan etablerade Nord/Syd grupperingar, nämligen New Agenda Coalition (NAC) och Non-Proliferation and Disarmament (NPDI). De bör utforma en ”ge och ta”-strategi *(quid pro quo)* avsedd att lösa den känsliga spänningen mellan nedrustningsskyldigheter och fredliga kärnenergisamarbeten. På samma sätt kan ett samarbete byggas för att stödja ett uppförande av en massförstörelsefri zon i Mellanöstern. Detta skulle även signalera stöd till Egypten och vissa andra arabstater samt vara ytterligare ett sätt att främja zonen och ta fram förslag till hur projektet kan utvecklas.

Chapter I: Introduction

The project inquires how the relation between the NPT regime and exclusive, 'club'-like initiatives and institutions aiming at improving the nuclear non-proliferation toolbox influences the efficiency of both the regime and the work of the 'clubs'. It aims at developing options to improve the interface between the regime and the 'clubs' and thereby to enhance the efficiency of both the regime and the 'clubs'.[1]

The non-proliferation regime has been strengthened many times since the NPT entered into force in 1970. Sharpening the toolbox for preventing the spread of nuclear weapons to additional countries and – more recently – to non-state actors has been in most cases the result of learning effects by the regime community, responding to experiences which were often as dramatic as the Indian nuclear explosion in 1974 or the uncovering of Iraq's clandestine nuclear weapons program after the Gulf war of 1991. These complements to the original regime have been added partly within and partly outside of the NPT process.

Within the NPT, developments covered not only the non-proliferation toolbox, but also nuclear disarmament. Parties revamped the verification system after findings were made in Iraq following the 1991 war and strengthened IAEA measures to prevent nuclear terrorism after 9/11. NPT Review Conferences managed to specify Art. VI obligations through the "Principles and Objectives" of 1995, the 'Thirteen Steps' of 2000, and the 'Plan of Action' of 2010 and, in that context, established a duty of accountability for the nuclear weapon states (NWS). Likewise, the depositaries took on the duty to work towards a Nuclear-weapon-free zone (NWFZ) in the Middle East. On the other hand, it is remarkable that, during the last ten years, attempts to further strengthen the non-proliferation toolbox have failed.

The normative framework of the non-proliferation regime experienced growth outside of the NPT process as well: additional nuclear-weapon-free zones in the South Pacific, Africa, Southeast Asia, and Central Asia were established while only one NWFZ existed in Latin America when the NPT was negotiated. The Nuclear Suppliers Group (NSG) took the lead from the NPT-related Zangger Committee in establishing and improving export control standards to prevent the transfer of sensitive knowledge, material, equipment and technology that could be used for making nuclear weapons, and to eliminate the risk of a 'race to the bottom' among exporters. UN Security Council Resolution 1540 transformed NSG rules into universal law. Multilateral fuel arrangements were explored in the International Atomic Energy Agency (IAEA), and some of these proposals were realized on a voluntary basis. Finally, nuclear security and counter-terrorism emerged as a new field, featuring a panoply of initiatives (e.g. the Nuclear Security Sum-

[1] We would like to thank Lea Manjana Pecht, Elisabeth Suh and Enrico Klotter for research assistance as well as Amanda Quinlan and Gabriella Irsten for proof reading. Research for this study was supported by a grant from the Swedish Radiation Safety Authority. We are grateful for their support.

mits, the Global Threat Reduction Initiative, the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction).

Since the terrorist attacks of 9/11, there has been an increasing tendency to entrust measures for improving the non-proliferation regime to smaller, closed 'club'-like entities that work without a legal underpinning, as opposed to the legally based treaty community. There has also been a tendency to apply measures of coercion, pressure, persuasion and capacity building with an intent to close existing gaps in the non-proliferation regime, including nuclear security against non-state actors. This tendency is mostly due to the predilection of the George W. Bush Administration for US-led 'coalitions of the willing' and the aversion against traditional, compromise-dependent multilateralism. But it did not end there, as additional initiatives of this kind under the Obama-Administration, which has taken measures that are much more inclined to multilateralism than those of the preceding administration, have indicated.

This growth of exclusive initiatives – we call them 'clubs' in this study – bears the risk to further harden the frontlines within the NPT that have become fairly stable, putting the nuclear weapon states against the majority of nonnuclear weapon states (NNWS) (with non-nuclear weapon states allied with nuclear weapon states in a precarious middle position) and nuclear exporters against the countries of the Non-Aligned movement (NAM).

All WMD regimes – nuclear, biological, and chemical – harbor a conflict over distributive justice, i.e. the treaty-based claim of developing countries to receive assistance and cooperation in the peaceful use of the respective technology. This conflict has four dimensions: it concerns (1) the appropriate size of such cooperation, (2) the weight of this norm in comparison with the non-proliferation norm, (3) whether the justice principle of *need* or of (market-related) *equity* should prevail, (4) procedural justice, i.e. decision-making outside of traditional, international law-based institutions that would have a possible impact on the interests of states not participating in these decisions, notably developing countries. It is here that 'clubs' enter the picture.

In the NPT, this multi-faceted conflict is exacerbated by the inequality between NWS and NNWS and the latter's complaints concerning insufficient compliance with disarmament duties as well as perceived unequal standards applied to NNWS parties as compared to nuclear weapons owners outside of the NPT. In the 1960s and 1970s, this conflict was dominated by controversies in the West, where the US as the dominant supplier stood at loggerheads with a group of reticent recipients that were not willing to accept any additional constraints on their civilian nuclear activities beyond the letter of the NPT and the ensuing safeguards agreement. This group included countries like Japan, Germany, Belgium, Switzerland, Italy and Spain. From the mid-1960s on, the conflict expanded to include the NAM. The signal came from the Havana Declaration emanating from the NAM summit in 1979.[2] This

[2] For the text see 6th Summit Conference of Heads of State or Government of the Non-Aligned Movement, Havana, Cuba, 3-9 September 1979, available at http://cns.miis.edu/nam/documents/Official_Document/6th_Summit_FD_Havana_Declaration_1979_Whole.pdf.

declaration lamented the attempts made to curb the rights of developing countries to enjoy the benefits of the peaceful uses of nuclear energy. Since this point, grievances have hardly come to die down.

The *intra-Western* dispute on distributive justice concerning the peaceful uses, triggered by unilateral US export control measures and pressures on NNWS to accept stricter verification measures, was productively transformed into the NSG and the Additional Protocol. In contrast, the same dispute *between the West and the NAM* has caused a virtual blockage of attempts to sharpen the 'toolbox' (e.g. response to withdrawal, Additional Protocol obligatory, legitimacy of export controls). The North-South 'justice gap' was much wider than discrepancies found in the West.

These frontlines have proven to be counterproductive in improving the NPT regime to better cope with today's challenges, such as the threat emanating from non-state proliferation risks. The NPT Review Conferences (RevCons) in 2000, 2005 and 2010 – that is, successful RevCons as well as failures – were disappointing for those interested in making the NPT a stronger instrument for preventing proliferation. The same can be said during the same period for decision-making at the IAEA headquarters in Vienna. This is not to say that there was no progress at all. But it is certainly true that whatever progress was made failed to meet needs and expectations.

'Club' initiatives have partially grown out of a frustration with the slow pace of intra-regime innovation. As previously mentioned, they also partly result from the generic inclination of US governments to escape the labors of traditional (notably universal) fora, and also develop without a sound strategic prognosis and analysis of their potential and real consequences. While to a certain degree they have been responses to stagnation, it might also be that they have contributed to the increasing restiveness of NAM as a whole or have become an influential part of it, thereby further fixating the existing blockage.

Thus, this study proposes to investigate the impact of the aforementioned non-proliferation 'clubs' on the performance of the NPT regime. There are four research questions that the study aims to answer:

(1) Do 'club' activities create new assets for non-proliferation in terms of permanent barriers to the spread of nuclear weapons and to nuclear terrorism, or are the results of limited or no impact?

(2) Do 'club' activities harden or soften the frontlines in the NPT? Are their initiatives integrated into the intraregime *acquis* or are they rejected, thus leading to further controversy?

(3) Concerning question 2, is there a difference between 'clubs' focusing on instruments of coercion or pressure as compared to 'clubs' focusing on persuasion and capacity building (these instruments are also typical for the EU, such as outreach activities with third countries that are initiated in order to support emerging export control systems)?

(4) Is it plausible that a re-designed interface between the regime and the 'clubs' could help to promote certain selective measures that

have proven to be ‘hard cases’ for universalization in the recent past, but are generally assessed as highly useful steps to improve the non-proliferation toolbox (such as the IAEA Additional Protocol)?

On the basis of the answers that the study finds to these questions, a response strategy will be worked out to influence the situation. The strategy will aim to improve the mutual relationship between the ‘club’ initiatives and the NPT regime with an intent to mellow the static and counterproductive front-lines inside the regime. The strategy also seeks to optimize the effect of the ‘club’ initiatives where possible. Swedish options that could support such a strategy will also be defined.

1. Plan of the Study

The study has selected six ‘club’ initiatives that are relevant in the nuclear non-proliferation regime:

- The Nuclear Suppliers Group (NSG) is a group of forty-eigth nuclear supplier countries that was established in 1975 with the objective of coordinating export policies and prohibiting the transfer of civilian nuclear materials and technology to non-NPT members, or states that are under suspicion of non-compliance with the IAEA safeguards. The export guidelines are, however, not legally binding and, recently, cooperation projects with NSG members and non-NPT members have led to internal struggles and harsh critique by technologically less advanced countries from the NAM.
- The Proliferation Security Initiative (PSI) was launched in 2003 with the aim of pre-emptively interdicting shipments via air, land, and sea of items and materials for weapons of mass destruction and their delivery systems from states and non-state actors of proliferation concern. More than ninety-eight countries coordinate their policies, conduct joint training exercises, develop best practices and information-sharing systems. As a politically binding measure, PSI is intended to enhance rather than to replace existing export control enforcement mechanisms. Originally, PSI comprised 11 ‘core states’ in order to guarantee a high degree of flexibility and efficient decision-making, but is today endorsed by 102 countries.
- The G8 Global Partnership (G8GP) Against the Spread of Weapons and Materials of Mass Destruction was launched in 2002 and aims to prevent terrorists or states of proliferation concern from acquiring weapons of mass destruction. Initially, the partnership focused on the Soviet Union’s weapons of mass destruction (WMD) legacy. Originally consisting of the G8 countries, the initiative today also includes non-G8 countries as donor participants, including Australia, Belgium, the Czech Republic, Denmark, Finland, Ireland, the Netherlands, New Zealand, Norway, Poland, South Korea, Sweden, and Switzerland.
- The Global Threat Reduction Initiative (GTRI), initiated by the US in 2004, subsumes several initiatives seeking to

"identify, secure, remove and/or facilitate the disposition of high risk vulnerable nuclear and radiological materials around the world that pose a threat to the United States and the international community" (NNSA 2013a).

- The Global Initiative to Combat Nuclear Terrorism (GICNT), initiated and co-chaired by the US and Russia in 2006, is a non-binding, voluntary measure that aims to enhance coordination and exchange of best practices in the field of non-proliferation. Currently, 85 partner states endorse GICNT's "Statement of Principles" and participate in joint exercises, while the IAEA and the EU have observer status.
- Started upon a US initiative in 2010, Nuclear Security Summits are held biennially (2012 in South Korea, 2014 in the Netherlands, 2016 in Washington) with high-level governmental attendance. The summit process aims to enhance international cooperation in order to prevent proliferation of nuclear material by non-state actors. A selected list of countries and organizations is invited to participate in the summits. In 2010 and 2012 about 50 national delegations as well as representatives from the UN, IAEA, and the EU attended the summits.

It subsumes low-enriched uranium (LEU) fuel development, reactor conversion, and highly enriched Uranium (HEU) fuel repatriation activities worldwide, as well as a number of other initiatives addressing nuclear and radioactive material security. It includes the Reduced Enrichment for Research and Test Reactors (RERTR) Program, the Foreign Research Reactor Spent Nuclear Fuel (FRRSNF) Acceptance Program, the Russian Research Reactor Fuel Return (RRRFR) Program, and others.

This enumeration documents the multiplication of 'clubs' in this policy field since 2001 and the focus of their activities on preventing access to nuclear weapons, technology, equipment and fissile and radioactive materials from falling in the hands of states as well as non-state actors. The selection permits the comparison of political effects, legitimacy and efficiency between 'old' (NSG) and 'new' (all the rest) 'club' activities as well as between more coercive (denial, interception) and more cooperative (voluntary commitments, outreach, assistance, information exchange, capacity building) approaches.

We proceed in this study as follows: first, the six 'clubs' are described in detail, including their founding date, membership, main activities, decision-making procedures and the type and degree of their binding members' behavior, international resonance/opposition and efficiency assessment. We then enter into the comparison, analyzing in some detail the assessment of these approaches in the NPT community, notably by the Non-Aligned Movement, and estimating the effects on the stability of the NPT. We try to develop options to better integrate these activities into the regime with a view to enhance their legitimacy and thus regime effectiveness. Finally, we make a few suggestions for Swedish policy.

2. Methodological Approach

The study proceeded in five steps. In a first step, the websites (if available) of and academic literature on the various initiatives was screened and the necessary information was extracted in a systematic manner.

Secondly, we compared the self-assessment of the initiatives regarding their success with accounts in the literature. Where we noted discrepancies, we applied our own assessment, based on telephone or e-mail interviews when and where necessary.

Step three comprised an investigation of the records, accounts and statements on the 'clubs' in the NPT review process (PrepComs and RevCons), the NAM summits as well as IAEA documents uttered during Board of Governors meetings or the General Conference.[3] The notes of the project leader from his participation in the last four NPT Review Conferences were also used as a source. The research followed the rules of qualitative content analysis to arrive at a reliable assessment. The core content to look for were utterances where speakers evaluate 'club' activities or draw relations between particular measures and issues in the regime (such as export controls) and 'club' activities (such as the Nuclear Suppliers Group).

Fourthly, we compared the 'club' initiatives under scrutiny with the aim of assessing and explaining their different performance in terms of success, acceptance, and impact on the NPT regime. Particularly, we inquired systematically how established tools of effective multilateralism (such as transparency, outreach, co-optation, co-ordination, capacity building, negotiation) impact on the perceived legitimacy attributed to the 'club' initiatives. Whether these tools might be used to improve the chances for promoting important measures in the regime was assessed in step five by using counterfactual methodology. For this selective thought experiment, we have selected the multilateral fuel cycle assurances and the Additional Protocol. In step six we transformed the findings into options for Swedish policy in light of Sweden's traditional engagement for both non-proliferation and effective multilateralism.

[3] Subject of the investigation were statements and working papers, which were conducted by NAM as well as by selected NAM member states in national capacity (Brazil, Nigeria, Egypt, South Africa, Algeria, Indonesia, Malaysia and Kazakhstan).

Chapter II: Case Studies

1. The Nuclear Suppliers Group

1.1. Description

The NSG was founded in the aftermath of the 1974 'peaceful' Indian nuclear explosion. The US government believed that it had to go beyond the Zangger Committee, which was created in the context of the NPT by nuclear exporters in order to coordinate implementation of Art. III.2 of the NPT on trade in nuclear materials and equipment, was insufficient to achieve the objectives of non-proliferation The US was concerned about of the absence of important exporters such as France, and because of the need – perceived in Washington – to go beyond the NPT in curbing the transfer of sensitive fuel cycle technologies (Werner 1995, p. 248ff.; Ricke 2005, p. 164; Deltac and Saferworld 1995, p. 15).[4] Negotiations among seven exporting countries (US, Canada, France, UK, Germany, the Soviet Union, and Japan) began in 1975 in London (which earned the NSG the nickname "London Club") and resulted in common guidelines for export policy, in 1976 including a list of items subject to export controls.[5]

After the uncovering of Iraq's nuclear weapons program following its defeat in the Gulf war of 1991, the insufficiency of existing regulations had become obvious and the NSG undertook a major reform of its guidelines and related list. The most important amendment was the inclusion of dual-use goods that had broader applications but could be used in nuclear (weapons) activities as well. The dual-use regime (part 2 of INFCIRC/254) consists, as does part 1, of guidelines and a list of goods.[6]

1.1.1. Mission

The NSG pursues the objective of non-proliferation of nuclear weapons through export control. It should be noted that Art. III.2 of the NPT obliges member states not to transfer special nuclear items without ensuring that the recipient has IAEA safeguards on the exported goods. The Zangger Committee, a group of exporters party to the NPT, had already drafted a list of goods to which this obligation should apply. The NSG, while also addressing the same goods, goes beyond the strict letter of the NPT if it seems necessary to achieve its objectives. A case in point was the promise to observe 'restraint' in sensitive fuel cycle transfers, the application of comprehensive safeguards as condition of supply (of which the exception for India is denoted as singu-

[4] INFCIRC/539/Rev.5, 4 December 2012, p. 3, available at http://www.iaea.org/Publications/Documents/Infcircs/2012/infcirc539r5.pdf.
[5] INFCIRC/539/Rev.5, 4 December 2012, p. 3, available at http://www.iaea.org/Publications/Documents/Infcircs/2012/infcirc539r5.pdf.
[6] INFCIRC/539/Rev.5, 4 December 2012, p. 4, available at http://www.iaea.org/Publications/Documents/Infcircs/2012/infcirc539r5.pdf.

lar), and export controls on nuclear-capable dual use items.[7] The NSG has technological developments screened regularly by technical experts in order to keep its lists up to date.[8]

The NSG wants to curb the risk of proliferation through trade while enabling and facilitating legitimate exchange to the largest extent possible.[9] A sharing of relevant information on acquisition efforts by countries suspected to conduct nuclear weapons programs and mutual notification of denied export licenses facilitate early warning and harmonization of practices within the group, particularly the principle of "no undercutting"[10] (Werner 1995, pp. 248-250).

1.1.2. Membership

As of today, the NSG has 48 member states. They include all five nuclear weapon states members of the EU and NATO (except Albania), Switzerland, Australia, New Zealand, Japan, South Korea, Ukraine, Belarus, Kazakhstan, Serbia, and the developing and threshold countries China, Mexico, Brazil, Argentina and South Africa. The EU and the chairman of the Zangger Committee participate as observers. As the composition shows, the West has a strong majority and the 'North' has an overwhelming majority in the group. This reflects capabilities and involvement in high-tech exports.

In deciding about the co-optation of new members, the group takes into account

> *"The ability to supply items (including items in transit) covered by the Annexes to Parts 1 and 2 of the NSG Guidelines; [a]dherence to the Guidelines and action in accordance with them; enforcement of a legally based domestic export control system which gives effect to the commitment to act in accordance with the Guidelines; adherence to one or more of the NPT, the Treaties of Pelindaba, Rarotonga, Tlatelolco, Bangkok, Semipalatinsk or an equivalent international nuclear non-proliferation agreement, and full compliance with the obligations of such agreement(s); support of international efforts towards non-proliferation of weapons of mass destruction and of their delivery vehicles".*[11]

1.1.3. Structure and Organization

The main organ of the NSG is the annual meeting of member states; its plenary is the central decision-making body. It installs working groups, notably for amending the guidelines and the lists. It authorizes the chair to conduct outreach activities, considers proposals emerging from the working groups,

[7] INFCIRC/539/Rev.5, 4 December 2012, p. 4, available at http://www.iaea.org/Publications/Documents/Infcircs/2012/infcirc539r5.pdf.

[8] Public Statement, Meeting in 2013, available at www.nuclearsuppliersgroup.org.

[9] INFCIRC/539/Rev.5, 4 December 2012, p. 1, available at http://www.iaea.org/Publications/Documents/Infcircs/2012/infcirc539r5.pdf.

[10] SIPRI, The 'No undercutting' principle in the Nuclear Suppliers Group, available at http://archives.sipri.org/contents/expcon/nonsg.html.

[11] The Nuclear Suppliers Group: Participants, available at http://www.nuclearsuppliersgroup.org/A_test/01-eng/06-parti.php?%20button=6.

deliberates about nuclear non-proliferation developments and policy, and admits new members. Decisions are taken by consensus (Werner 1995, p. 249). The plenary chair rotates annually. The chairs of the past, present and coming year constitute the 'Troika'.[12]

The Consultative Group (CG) meets at least twice a year and deals with issues related to the guidelines and their technical annexes. The Information Exchange Meeting (IEM) enhances the opportunities for member states to keep each other informed about relevant developments.[13] The Licensing and Enforcement Experts Meeting (LEEM) debates possible improvements of licensing practices, the implementation of export controls and the legal prosecution of breaches of export control law; there is a regular discussion of specific cases. Proposals by the LEEM are transferred to the plenary by the IEM.

Organizational work is done by the Permanent Mission of Japan to the International Organizations in Vienna as "Point of Contact".[14] Denial notifications and information about programs of concern are distributed via the NSG Information Sharing System (NISS) (Goorevich 2009, p. 2).

1.1.4. Decision-Making Structure

The NSG works as a "gentlepersons' agreement". Decisions are only politically binding and cannot be enforced legally. There are no sanctions to enforce compliance. However, the principle of unanimity enhances the acceptance of decisions which are regularly implemented, albeit with considerable time gaps among member states.

Decisions have an impact primarily on the member states themselves and on their nuclear-related industries that have to abide by the rules imposed by the NSG. Beyond membership, all current or potential importers of nuclear and nuclear related dual-use goods from a NSG member are touched because they are subject to the same rules and have to satisfy the conditions under which the NSG deems nuclear transfers admissible. Since the rules partly specify what is unspecified in the NPT, and partly go beyond the letter of the NPT, political space is opened up for disagreement about the legitimacy of NSG rule-making, even for NNWS parties to the NPT in good faith. This is the case, even though export denials to such parties on the basis of the NSG have, to our knowledge, not yet occurred. It goes without saying that NPT parties that are not in good standing with their NPT undertakings as determined by the IAEA, such as Iran, as well as non-NPT parties have been seeing a rather heavy impact since their access to desired goods has been distinctly restricted through the NSG's activities, which has forced them to take complex and often costly circumvention routes once they became determined to procure the items in question, anyway. These three groups of states,

[12] The Nuclear Suppliers Group: Home, available at http://www.nuclearsuppliersgroup.org/A_test/01-eng/05-orga.php.
[13] The Nuclear Suppliers Group: What are the activities of the NSG, available at: http://www.nuclearsuppliersgroup.org/Leng/04-activities.htm.
[14] The Nuclear Suppliers Group: Home, available at http://www.nuclearsuppliersgroup.org/A_test/01-eng/05-orga.php.

which are impacted by NSG work in different ways and to different degrees, dispose of common and divergent interests that may give incentives for coalition-building while at the same time stimulating disagreement.

1.1.5. Outreach

The NSG conducts two types of outreach activities. First, it approaches potential members, and in the past has entered into regular and sustained talks with their representatives with the intent of persuading those states to follow NSG policies and to test the possibility of inviting them as new members. This openness to enlargement is essential since the capability of contributing to international trade in nuclear and nuclear-related items is growing with the spread of scientific, technological and industrial capabilities. This phenomenon has accelerated through the forces of globalization.

Second, the NSG carries out, broader transparency and information measures in order to dispel the significant and politically detrimental mistrust that had been built up surrounding the 'conspirative' activities of the NSG and to prevent the concerns of the three affected group of states (see above) from coalescing around an oppositional position.

According to those lines, the group has engaged in outreach activities since the mid-1990 (Hibbs 2011, p. 47; Anthony et al. 2007). The NSG has conducted, mostly through the chair of the year, approaches to countries with a potential or real role as exporter or with a transshipment point such as Malaysia or Singapore,[15] and with nuclear weapons possessors outside of the NPT, such as India, Pakistan and Israel (which is generally credited by exporters of having nuclear weapons). It has convened dialogue seminars in 1997, 1999 and again in 2009. NSG chairs of the year have also delivered statements on behalf of the NSG at PrepComs and RevCons. A website was opened in 2002. In 1999, the NSG issued a comprehensive explanation of what it is and does, including its transparency and outreach measures, such as INFCIRC/539.[16] Since then, it has been updated five times and the latest version INFCIRC/539/Rev. 5[17] was published in 2012. However, all these measures have not succeeded in reversing the negative image of the NSG.

1.1.6. Confrontational versus Cooperative Instruments

Within the membership, instruments can be rated as largely cooperative, bolstered by the rule of consensus decision-making that precludes the majorization of single members or minorities. Yet, the influence of the United States is disproportional to that of other members, and the NSG is not completely free from internal political pressure. The original convening of the

[15] E.g. NSG Plenary Meeting in Aspen, 10-11 May 2001, Press Statement, available at www.nuclearsuppliersgroup.org; NSG Plenary Meeting Prague, 16-17 May 2002, Press Statement, available at www.nuclearsuppliersgroup.org.

[16] INFCIRC/539, available at http://www.iaea.org/Publications/Documents/Infcircs/1997/inf539.shtml.

[17] INFCIRC/539/Rev.5, available at http://www.iaea.org/Publications/Documents/Infcircs/2012/infcirc539r5.pdf.

group and the guidelines it adopted was in many ways a success of US policy.

The same applies for the re-convention of the NSG after a long latency period, when the experiences with Iraq's clandestine nuclear program convinced the United States that more stringent rules were needed. After Germany turned to full-scope safeguards as a condition of supply in 1990, US pressure mounted on the still reticent group members to fall in line, which happened in a relatively short time. The 1992 NSG meeting agreed to full-scope safeguards as well as to a new dual-use list on US initiative. Fifteen years later, the US exerted considerable pressure to obtain an exception from this the full-scope safeguards rule for its nuclear deal with India in 2007 (supported by France and Russia), and the minority of smaller countries that was highly skeptical of the deal fell silent in the end.

Export rules are imposed and changed by the NSG's decisions and applied consequently when non-members are the object of discipline. Recipient countries have to accept these rules without a chance to influence the rule-making process. Constraints on transfers as a consequence of suspicions concerning nuclear weapon activities might resemble sanctions. The NSG thus harbors one-sided and coercive instrument in its toolbox, which is somehow logical giving the self-assumed mission of the group.

Outreach activities, including some capacity building offers, add an element of cooperation to the instruments available to the NSG. These activities, however, have been less relevant for the group's practice thus far as compared to the more unilateral and quasi-coercive aspects.

1.2. Assessment

1.2.1. Internal and External Evaluation

In its publications, the group does not show an inclination to give an explicit self-evaluation of successes and failures. The group has certainly prevented a "race to the bottom" in export policies, has enhanced the level of information available to export controllers and adapted to change in both technology development and the number of transfer-capable countries. Through these effects, nuclear weapons programs have been slowed down and become more costly than they would have been otherwise. Without the NSG, non-proliferation policy would have been less successful. The NSG has been able to update (though slowly) its lists of sensitive materials and items, and the lists are also the most up-to-date. It has succeeded to expand the normative effect of its rules beyond its membership: The lists have been referred to in the UN Security Councils resolutions on Iran and North Korea and they are also indirectly referred to in UNSC Res. 1540 in a footnote as materials, equipment and technology covered by relevant multilateral treaties and arrangements. Annex II of the Additional Protocol is based on the NSG list 1.

On the other hand, the NSG has not prevented the emergence of some new nuclear weapon states that emerged after its foundation (Pakistan, North Korea) or the progress of some (real or suspected) nuclear weapons programs (Libya, Syria, Iraq, Iran). It helped to further curb the flow of items to some of those countries once their clandestine activities were revealed, but was not instrumental to terminate them where they were stopped by other means (South Africa, Libya, Syria, Iraq).

1.2.2. Reasons for Success or Shortcomings

The NSG functions through the activities of the member states. They implement new policies with different speed, and realize older policies with different effectiveness. While the principle of unanimity enhances the acceptance of decisions and has resulted in more sustainable guidelines, the consensus rule at times leads to adaptation delays (technologies and enlargement of membership) short of necessity. Decisive improvements such as the inclusion of dual-use items or of a catch-all clause (that is indispensable to prevent circumvention by exports of items whose parameters are marginally below listed specifications) came late, so that some 'horses were already out of the barn'.

Member states deal with very different diligence with the eternal problem of circumvention loopholes such as exporting companies not asking for licenses in the first place, or lying about the item that is to be exported, or stating a false recipient. In addition, there is the intrinsic difficulty for customs agents to understand what a particular export that passes through customs really contains.

1.2.3. The Outliers' Criticism

The NAM looks at the NSG with a critical, if not antagonistic attitude (Hibbs 2011, p. 11). The first indication of this critical position was the Havana Declaration of 1979 in which NAM complained about efforts to deprive developing countries of the fruits of the peaceful uses of nuclear energy by unilateral measures of denial.[18] The verdict was targeted against both US non-proliferation policy under the Carter Administration and the NSG, which had published its guidelines for the first time in 1977 (Potter and Mukhatzhanova 2012, p. 84). It should be highlighted that, originally, these concerns were not exclusively those of the NAM but were shared by industrialized recipient nations. As Phil Gummet observed in a contemporary analysis:

> *"A major disadvantage, however, was that it was seen by the customer nations as an unfair cartel and, in the case of customers who were parties to the NPT, as an unreasonable addition to the constraints already imposed by that treaty" (Gummet 1980, p. 551).*

[18] For text of the declaration see 6th Summit Conference of Heads of State or Government of the Non-Aligned Movement, Havana, Cuba, 3-9 September 1979, available at http://cns.miis.edu/nam/documents/Official_Document/6th_Summit_FD_Havana_Declaration_1979_Whole.pdf.

This position was taken at the International Nuclear Fuel Cycle Evaluation (INFCE) which lasted from 1977 to 1981, by such diverse delegation as Switzerland, Argentina, Belgium, Brazil, Italy, India and Pakistan. The NSG was seen as part of a stratagem to confine sensitive nuclear fuel cycle activities, which the critics viewed clearly as part of the peaceful uses of nuclear energy that had been defined as an "inalienable right" of NNWS in Art. IV of the NPT, to the territories of present technology holders (Gummet 1980, p. 559). The concern among industrialized critics mellowed only when they were co-opted, one by one, into the NSG. By the time of INFCE, the image of the 'London Club'[19] as a suppliers cartel ready to impose unnecessary and unjust constraints on developing countries had already hardened and has endured until today.

The NAM opposition against the NSG has two aspects, a more general and one NPT-specific one. In general, the NAM rejects asymmetrical decision-making structures in favor of the developed world. Such structures, it suspects, come at the expense of developing countries. NAM summits usually embrace the following formula in the very first part of their final document:

> *"The rich and powerful countries continue to exercise an inordinate influence in determining the nature and direction of international relations, including economic and trade relations, as well as the rules governing these relations, many of which are at the expense of developing countries".*[20]

The NSG, in general, is an example of what the NAM does not like about the existing order. The following statement from the 2009 NAM summit, which is again a formula repeated in every NAM statement concerning Art. III and IV at NPT Review Conferences, is clearly and unambiguously targeted at the NSG:

> *"The Heads of State or Government continued to note with concern that undue restrictions on exports to developing countries of material, equipment and technology, for peaceful purposes persist. They again emphasized that proliferation concerns are best addressed through multilaterally negotiated, universal, comprehensive and non-discriminatory agreements. Non-proliferation control arrangements should be transparent and open to participation by all States, and should ensure that they do not impose restrictions on access to material, equipment and technology for peaceful purposes required by developing countries for their continued development".*[21]

Secondly, the criticism uttered by NAM representatives against the NSG reflects both a priority among Art. III and IV of the NPT which is the reverse of the Western one: While the West weighs Art. III (safeguards and export controls), that is, non-proliferation proper, higher than cooperation in the

[19] The NSG first met in November 1975 in London and is thus often referred to as the 'London Club'.

[20] 15th Summit Conference of Heads of State or Government of the Non-Aligned Movement, Sharm el Sheikh, Egypt 11-16 July 2009, Final Document, available at http://cns.miis.edu/nam/documents/Official_Document/15Summit-Final-_Compiled.pdf.

[21] 15th Summit Conference of Heads of State or Government of the Non-Aligned Movement, Sharm el Sheikh, Egypt 11-16 July 2009, Final Document, available at http://cns.miis.edu/nam/documents/Official_Document/15Summit-Final-_Compiled.pdf.

peaceful uses, the NAM sets the opposite priority, claiming an overarching right to development to make up for past injustice suffered at the hands of colonialism. Likewise, NAM resents being subjected to rules set by the NSG outside of the existing multilateral legal framework without their own participation as a direct continuation of the philosophy of the colonial powers. They complain as well about the imbalance between non-proliferation measures directed against nonnuclear weapon states, and the complacency about non-compliance with the disarmament undertakings by the NWS. They accuse the NSG of contributing to this imbalance (Anthony et al. 2007, p. 4). Rather than a 'club' arrogating the right to set rules for the rest, NAM insists on multilateral negotiations to establish an export control regime based on agreed international treaty law (Anthony et al. 2007, p. 95).

The American nuclear deal with India and the ensuing decision by the NSG to grant an exception to India from comprehensive safeguards as a condition of supply reinforced misgivings about the NSG. It was felt that the group had unilaterally changed a rule that had been agreed to at the NPT Review and Extension Conference of 1995 as part of the "Principles and Objectives" that the Conference had adopted unanimously and had confirmed as part of the final declaration of the 2000 NPT Review Conference. That the change happened under pressure from the United States did not help. The misgivings expressed during the 2010 NPT Review Conference came particularly strongly from the Arab Group which was concerned that the Indian case might provide a precedence which would later be used to justify similar policies towards Israel (Potter and Mukhatzhanova 2012, p. 140).

NAM states are particularly critical of the NSG transgressing the letter of the NPT. This time-honored protestation has targeted most recently the June 2011 revised guidelines that require the Additional Protocol as a condition of supply for enrichment and reprocessing technology. The opposition to these guidelines views the Protocol as another intrusion of exporters into the sovereign decision-making of recipient states and as a violation of the rights accorded to recipient countries under Art. IV. Brazil and Argentina agreed to the decision only because, mediated by South Africa, the group recognized the regional verification practices by the Argentine-Brazilian Agency for Accounting and Control (ABAAC) as the equivalent of the Additional Protocol, thereby granting an exception to the two South American countries.[22]

The NAM-Group emphasizes that it is fundamental to make a clear distinction between legal obligations and voluntary confidence-building measures and that such voluntary undertakings shall not be turned into legal safeguards obligations. In this regard, the group also emphasizes that IAEA shall ensure avoiding any *ultra vires* acts which jeopardizes its integrity and credibility.[23]

[22] Pretorius, Joelien 2013: The 16th Non-Aligned Movement Summit: Beyond the Politics of Spectacle, available at http://www.e-ir.info/2013/02/26/the-16th-non-aligned-movement-summit-beyond-the-politics-of-spectacle/.

[23] Statement by Indonesia on behalf of the Group of Member States of the Non-Aligned Movement Parties to the Treaty on the Non-Proliferation of Nuclear Weapons at the 1st Session of the Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons Cluster 2 issues: Implementation of the provisions of the Treaty relating to non-proliferation of nuclear weapons, safeguards and nuclear-weapon-free-zones Vienna, 7 May 2012, §12.

The 2012 NAM summit in Teheran has clarified the policy once more: the movement refuses all measures that constrain the right of development, production and use of nuclear energy as discriminatory and illegal under the NPT. Proliferation measures and initiatives are to be embedded in international law with its relevant conventions and in accord with the UN Charter.[24]

1.3. What's next?

1.3.1. Involvement of Companies/Best Practices

Like legal undertakings from treaties, political commitments like the ones NSG members engaged in only have binding effects on governments and not on private actors. Yet private actors conduct the overwhelming majority of transfer acts. Integrating companies capable of exporting nuclear related items is thus an essential part of any efficient export control systems.
Some NSG members require companies willing to engage in nuclear related exports to install their own internal export control system, including strict guidelines for the behavior of employees. Some require boards to appoint one member as 'export control executive' personally responsible and liable for any violation of export control law and regulation. Routine information circulars enlightening companies on ongoing procurement efforts and related risks, awareness seminars and training workshops for employees involved in export activities are other examples of a useful government/company interface. NSG should collect such approaches, identify best practices, and disseminate them among the membership as well as introduce them into capacity building outreach activities aimed at non-members.

1.3.2. Post-Shipment Control

Post-shipment control means checking whether the recipient of the exported good is identical with the recipient noted on the license and whether it uses the good in the way indicated (and in the manner for which they are licensed). The NSG considered this approach inconclusively in 2005. A few states (the US included) practice targeted post-shipment control in special cases as a matter of national policy. It requires well-considered selectivity, i.e. careful pre-export analysis that identifies cases that would justify a post-shipment control approach. Obviously, post-shipment control is a tool to obviate a couple of circumvention (cheating) tactics (Berkol and Moreau 2009, p. 4). American experiences show a rate of discovering incorrect license application by way of post-shipment control (Berkol and Moreau 2009, p. 4). Post-shipment controls therefore develop a deterrent effect against potential wrongdoers over time.

[24] 16th Summit of Heads of State or Government of the Non-Aligned Movement, Tehran, 26-31 August 2012, Final Document, §188, 189, available at http://nam.gov.ir/Portal/File/ShowFile.aspx?ID=212cfdbf-6dbc-4185-a4f5-01fe30a0c772; similar passages can be found in digit 6 of the Tehran Declaration, available at http://nam.gov.ir/Portal/File/ShowFile.aspx?ID=6d1ea997-6620-465d-881c-e4f64970415b.

Post-shipment control needs a political or legal basis (bilateral agreements) between the exporting and the recipient states. Controls can be conducted by officials of the recipient states accompanied by representatives of the exporting state (e.g. from the embassy or the local consulate) or vice versa, or by the exporting company. At any rate, a degree of cooperation by the recipient government is indispensable. The NSG might recommend to all member states the introduction of post-shipment controls as a complement to traditional export controls.

In pursuing these improvements, the NSG must be careful not to produce further confirmation of its negative image among major developing countries. In the case of "best practices", this might be achieved by making the propagation of best practices part of enhanced outreach activities. It could be included into a package of services for capacity building for participants. The same approach could even be pursued for post-shipment controls which have, of course, the air of an additional, imposed control measure. Such controls could be embedded in capacity building packages and have been largely conducted by the exporting companies, with officials just accompanying them in an ostensibly facilitating function.

2. The Proliferation Security Initiative

2.1. Description

The Proliferation Security Initiative (PSI) was launched by then US president George W. Bush on 31 May 2003 in Krakow, Poland.

2.1.1. Mission

The broader rationale for creating the PSI was the sense within the US administration that a gap existed in the non-proliferation regime with regard to interdiction capabilities, laws and the political will to implement them. Specifically, there were concerns regarding interdiction in the transport phase:

> *"The PSI was intended to constitute a last line for halting transfers of WMD-related material, in case proliferators circumvented existing export controls and managed to load such material aboard a ship, plane or truck. Although interdiction of materials that have left the source state have been conducted in the past, the PSI was the first to provide a formula for enhanced cooperation and coordination between states in this area" (Durkalec 2012, p. 1).*

More immediately, the *So San* incident is attributed to have prompted the PSI (Koch 2012, p. 1; Dunne 2013, p. 3). In December 2002, US and Spanish ships cooperated in intercepting a North Korean vessel, the *So San*, which was believed to be carrying Scud missiles to Yemen. Indeed, 15 complete missiles plus conventional warheads and fuel were hidden in the ship's hold. The US, however, released the ship and its cargo after two days, claiming that, under international law, it had no authority to seize the shipment. On the same day, President Bush asked his National Security Advisor Stephen Hadley and National Security Council director Robert Joseph to present an analysis of the situation and a possible solution to prevent similar incidents in the future, thereby starting the process that led to the creation of the PSI six months later (Koch 2012, p. 1).

Under Secretary of State for Arms Control and International Security John Bolton, who was responsible for building the original coalition of states that subscribed to the PSI, the idea behind the initiative was later summarized as follows:

> *"We believe that the existing system of national export control systems [and] multilateral export control agreements were not completely effective because there's still a thriving black market in WMD components, technologies, and production materials. And what we wanted to do was to find more active ways of dealing with the ongoing trafficking in all of these WMD-related materials-not to replace the export control regimes, but to do something that would be more effective in handling all of this trafficking. And based on what we've seen with the So San interdiction [and] based on a variety of law enforcement and other operations that*

> *had been conducted, we felt there was a potential to have a multilateral agreement that would allow us to do that-to conduct interdiction of WMD trafficking at sea, in the air, and on land" (Boese and Pomper 2003).*

The PSI can best be described as

> *"a vehicle for securing the political commitment of states, and promoting their practical cooperation, to counter the transfer of weapons of mass destruction (WMD), their delivery systems and related materials to and from states and non-state actors of proliferation concern" (Dunne 2013, p. 2).*

It did not aim at creating new law. Rather, the initiative intended to foster the political will and enhance national capabilities to "take greater advantage of their own existing national laws to intercept threatening trade passing through their territories, where they have jurisdiction to act" (Davenport 2013). The PSI aimed to improve interdiction regarding all relevant transportation modes: on land, at sea, and in the air. On its very first meeting, according to Bolton, PSI members debated the relationship of the initiative with other arms control and export control regimes and agreed that the initiative should be seen as an addition, not a counter-initiative (Boese and Pomper 2003).

The PSI's "constitution" (Koch 2012, p. 15), the purely political "Statement of Interdiction Principles (SIP)"[25], was agreed upon among the original participants within a few months after Bush announced the initiative. It is a short statement that consists of three basic pillars: "undertaking effective measures to interdict the transfer or transport of weapons of mass destruction (WMD), the rapid exchange of information on suspected proliferation activity, strengthening national and international legal frameworks in support of the PSI, and taking specific actions in six different categories to prevent the transfer or transport of WMD, their delivery systems and related activities" (Coyle and Samson 2009, p. 3). The specific actions refer to

> *"stopping the transport of consignments of proliferation concern; the stopping, boarding and searching of vessels flying the flag of an SIP endorsing state that are 'reasonably suspected' of carrying consignments of proliferation concern; the denial of aircraft entry to national airspace and requiring aircraft to land for inspection if 'reasonably suspected' of carry consignments of proliferation concern; and controlling transshipment" (Dunne 2013, p. 13).*

Instead of pointing out specific countries – the US originally wanted to "name names" –, the SIP targets any state or non-state proliferators (Koch 2012, p. 18). Furthermore, the SIP stressed that actions under the PSI must be "consistent with national legal authorities and relevant international law and frameworks".[26]

[25] Proliferation Security Initiative: Statement of Interdiction Principles, available at http://www.psi-online.info/Vertretung/psi/en/07-statement/Interdiction-Principes.html.
[26] Proliferation Security Initiative: Statement of Interdiction Principles, available at http://www.psi-online.info/Vertretung/psi/en/07-statement/Interdiction-Principes.html.

2.1.2. Membership

Besides the United States, ten other countries were among the original participants: Australia, Japan and the eight EU members France, Germany, Italy, the Netherlands, Poland, Portugal, Spain, and the United Kingdom. It was the US National Security Council's idea to keep the original membership limited to a small group of like-minded countries and, only after agreeing on the "Statement of Principles", to start taking more participants on board. There were concerns that agreeing on the SIP would become difficult if more countries were involved, especially Russia. At that time, China was not considered at all; it was viewed "as more of a proliferation problem than a partner" (Koch 2012, p. 9). After the SIP had been agreed upon, the "Core Group" was expanded when Canada, Norway, Russia and Singapore joined in 2004.

2.1.3. Structure and Organization

The PSI does not have a secretariat, staff, spokesperson or budget. It has repeatedly been named, especially by the US, an "activity, not an organization" (Bolton 2004). A "two-tier participation structure" (Dunne 2013, p. 3) characterizes the initiative. Tier one is the Operational Experts Group (OEG), which steers the PSI and currently consists of 21 states. Besides the first 11+4 members, it includes Argentina, Denmark, Greece, New Zealand, Turkey, and the Republic of Korea (see figure 1). These states "meet the somewhat subjective criterion of being the 'most active and strongly engaged' members" (Williams 2013). This is true for all countries except for Russia and Argentina, who were included mostly "because of the political and regional factors, respectively" (Koch 2012, p. 21). The OEG members decide by consensus upon who else should be invited to join the group, thus turning it into a 'club' within the 'club'.

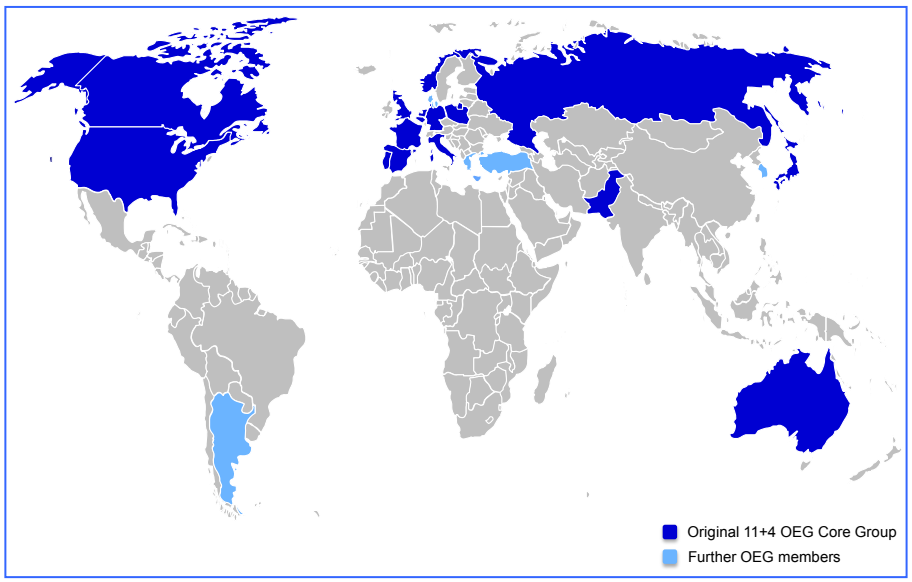

Figure 1: OEG members, Original 11+4 Core Group (source: MF)

Tier two, in contrast, is inclusive. It consists of many more countries that have become supporters of the PSI, 102 in total as of October 2013. The bar for entry is low. In order to become a supporter of the PSI, a state simply needs to make a political commitment by publicly endorsing the SIP (Williams 2013). Furthermore, the commitment goes only as far as the endorsing state is willing to take it. If a country is not able or willing to engage in PSI activities, it is not required to do so; there are no preconditions in terms of interdiction capabilities (Dunne 2013, p. 16).

While endorsement for PSI grew over the years, it remains uneven in regional terms (see figure 2). Europe accounts for half of the supporters with all European states (except Monaco) participating. Also all OECD members (except Mexico) endorsed the PSI. Participation looks bleak in South Asia, the Western Hemisphere, and Africa. Notable outliers are Brazil, China, Egypt, India, Indonesia, Malaysia, Mexico, Pakistan, and South Africa (Koch 2012, p. 20).

The OEG remained mainly a Western 'club'. Of the 21 countries, ten are members of the EU and 18 of the OECD. As mentioned, Argentina and Russia were invited into the OEG for political (RUS) and regional (ARG) reasons, not for their commitment to counter-proliferation. Only one current member of the NAM (Singapore) is represented in the OEG.

Apparently, more countries expressed their wish to become member in the OEG. But the US was worried that too large a steering committee would become incapable of rapid decision-making. For the same reason, international organizations, e.g. the EU and NATO, were not included in the OEG. The EU, however, was ultimately participating in the Core Group and later in OEG meetings as part of the respective EU presidency's delegation (Koch 2012, p. 11).

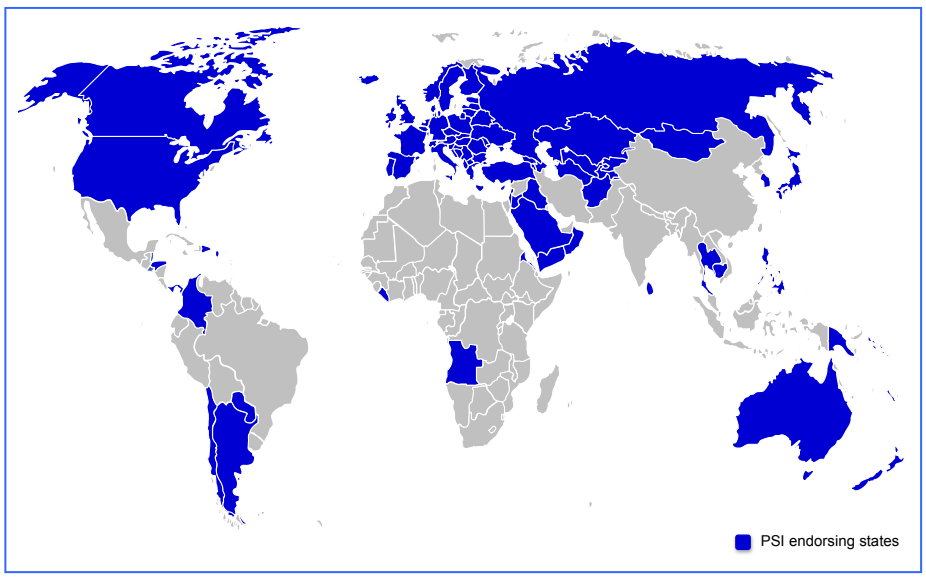

Figure 2: Map of Proliferation Security Initiative endorsing states (source: MF)

The OEG serves as a forum for continuous policy discussion. Its primary purpose, though, is handling operational issues such as preparing exercises, sharing information, elaborating best practices and lessons learned, and discussing legal issues. National delegations to the OEG were originally comprised almost exclusively of defense officials, but today include representatives from foreign ministries, intelligence, law enforcement and a variety of other agencies.

During the first years of the PSI, the OEG met three to five times annually. Since 2009, this has been reduced to one annual meeting (Durkalec 2012, p. 7). On an even less frequent basis, PSI supporting states hold High-level Political Meetings (HLPM). Four such HLPMs have taken place in 2004, 2006, 2008 and 2013.

In 2009, US President Barack Obama, in an effort to strengthen the PSI, proposed to turn the initiative into a "durable, international institution" (Obama 2009). This resulted in little else than the US taking over the role of what it called a PSI Focal Point. The idea behind this is to better coordinate the activities of all PSI members, not just those of the OEG.

2.1.4. Decision- Making Structure

The few decisions that the PSI participants take within the framework of the initiative result from OEG meetings. The OEG discussions are kept classified. Only brief press releases and the chairman's statements are accessible to the public (Williams 2013). Although decisions are taken by consensus, the US is primus inter pares. It, for example, not only drafted the "Statement of Principles" but also chaired the Paris meeting where the SIP was agreed upon in a notorious Boltonesque way. The Undersecretary's approach to reaching agreement on the SIP was later described by observers as "blustery" and "high-handed" (Koch 2012, p. 16). As a result, the final SIP did "not differ fundamentally from the initial US draft; the text was fine-tuned by the Core Group rather than significantly altered" (Koch 2012, p. 16).

Although the SIP states in abstract terms that the PSI targets actors engaged in WMD proliferation and although there exists no formal or informal target list (Dunne 2013, p. 15), the US has a clear idea on which states are to be targeted with priority and which ones are not. Whereas Iran, North Korea, and Syria have been named as main states of concern, US friends and allies outside the non-proliferation regime, such as India, Israel, and Pakistan, are not targeted (Davenport 2013; Su 2012, p. 111; Boese and Pomper 2003; Coyle and Samson 2009, p. 9). One observer described the PSI as "discriminatory in that it does not target proliferation of WMD in general, but is targeted at 'States or non-State actors of proliferation concern'" (Su 2012).

2.1.5. Outreach

There are different addressees and different modes for PSI outreach. Outreach is mainly directed at non-endorsing states which the OEG as a group or any individual OEG member considers important for combating prolifera-

tion. Generally, the OEG aims at reaching out to coastal, transit and overflight countries, but also to countries with useful capabilities for interdiction and/or countries posing proliferation risks. The former category includes countries with a capable coast guard, navy, or air force and those which have neighbors targeted by UN Security Council sanctions. Countries in the latter category have, for example, WMD knowledge, technology and/or material supply chains, large ports/hubs, major dual-use relying/producing industries, and/or large or open ship registries (Dunne 2013, p. 10; Durkalec 2012, p. 8).

Immediately after the Paris meeting in September 2003, in which the Core Group agreed upon the "Statement of Interdiction Principles", the 11 original members started reaching out. One month later, more than 50 countries had endorsed the SIP. In early 2004, Canada, Norway, Russia, and Singapore were added to the Core Group. As shown in **Figure 3**, the number of PSI endorsing countries grew to over 60 within a few months and to 102 over the following years.[27]

While this number is impressive, important countries remain unwilling to join the PSI, among them Brazil, Egypt, India, Pakistan and South Africa. Concerns are especially strong with regard to Asia:

> *"7 of the 35 most registered flags are from Asian states not participating in the PSI (China, Hong Kong, Indonesia, Malaysia, Taiwan and Vietnam). Together they account for about 14 percent of the world's deadweight tonnage. Furthermore, 6 of the 10 busiest ports in the world are located in China" (Durkalec 2012, p. 9).*

The US and other OEG members have repeatedly but unsuccessfully tried to convince China and Indonesia in particular of joining the PSI (Koch 2012; Davis et al. 2007, p. 17).

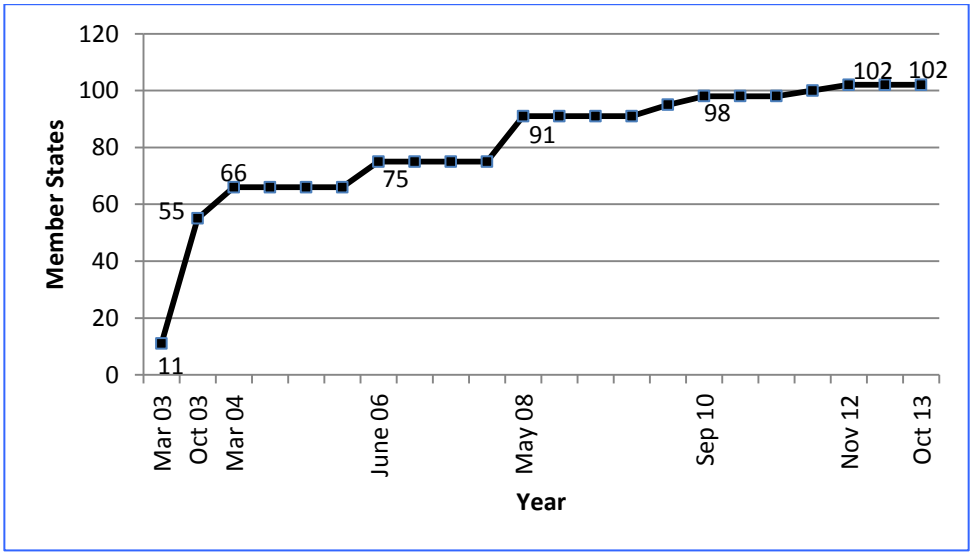

Figure 3: Development of number of PSI supporting countries (source: MF)

[27] For a detailed overview of the development of PSI endorsement, see http://www.nti.org/treaties-and-regimes/proliferation-security-initiative-psi/.

Most countries were approached bilaterally by OEG members with the suggestion to support the PSI. John Bolton explained how early outreach looked like:

> *"We really started after the Paris meeting where the statement of interdiction principles was adopted-the United States went out to every country that we have diplomatic relations with, provided them with a copy of the statement of interdiction principles, and tried to explain what the PSI was about, and solicited support from the country, depending on the circumstances of the country. Some states are flag states for ships, some states are coastal states, some states have borders that are used for transshipment, some states are important manufacturing states, obviously there's overlap there as well. But we've been soliciting both public statements of support and ways of working with countries that are particularly important, some of the big transshipment countries and big transshipment centers and that sort of thing. That public outreach function is something that has consumed a lot of our time diplomatically since the Paris meeting. I think explaining the thinking behind the initiative and what the states that have become participants in it have agreed to and what might follow in the future has been the major [activity]" (Boese and Pomper 2003).*

Another former State Department official described PSI outreach mainly as a matter of bilateral dialogue with the purpose of alleviating the concerns of prospective candidates:

> *"There was an education process.... No sovereign government... is going to say that 'we're not interested in helping,' but there's a great interest in knowing what we were asking them to sign, too. So I think the hurdle was sort of an education process" (Davis et al. 2007, p. 9).*

Other outreach measures were 'Regional Operational Experts Group' (ROEG) workshops and PSI exercises after which some countries became supporters of the initiative and others, among them China, India, Malaysia, and Pakistan, participated without joining the PSI (Durkalec 2012, p. 10; Dunne 2013, p. 10).

Some small outreach activities are directed towards the public. Germany, on behalf of the OEG, recently set up a rudimentary website that is supposed to better inform the public.[28] Media coverage of the PSI has increased over the years and countries organizing PSI exercises have allowed media outlets to participate as observers (Dunne 2013, p. 8). When the Japanese Ministry of Foreign Affairs hosted interdiction exercise 'Pacific Shield 12' in July 2012, it stated as one of three purposes that "by showing the whole live exercise to the observers and media, we aim at improving their understanding of the purpose, details, and importance of the PSI."[29]

[28] See http://psi-online.info.

[29] See http://www.mofa.go.jp/policy/un/disarmament/arms/psi/pacific_shield_12.html.

2.1.6. Confrontational versus Cooperative Instruments

The idea behind the PSI was to deter proliferation by increasing the costs for the proliferator and further decrease the legitimacy of illicit exports (Durkalec 2012; Davenport 2013). For this purpose, the PSI draws upon inward and outward oriented instruments: Inward oriented instruments are of a cooperative nature. They have the purpose of capacity building, information sharing, enhancing common standards of and establishing routines for interdiction. Meetings (of the OEG, the ROEGs, and high-level representatives of states), workshops, and exercises[30] as well as handbooks and guidelines belong in this category (Dunne 2013, p. 5).

Actual operations of interdiction fall into the category of outward oriented instruments. While they can be confrontational (e.g. enforced interdiction through military interception), the majority of instruments used to tackle specific WMD shipments deal with the problem at a much earlier state:

> *"PSI interdiction can encompass a broad range of activities: denying export licences; recalling goods shipped by a domestic company that are in violation of that state's export control laws; denying overflight permission; using political pressure to divert ships to ports of origin; or naval boarding on the high seas that leads to the seizure of proliferation-related equipment. Despite the fact that boarding and searching a merchant vessel at sea is the most recognized image of PSI interdiction, such cases are very rare. For practical reasons, interdiction usually occurs when the consignment is in port, on the ground or at a customs post. An interdiction operation usually involves the engagement of civilian law enforcement authorities, such as customs officials, port authorities or air traffic officials. The number of interdiction scenarios that necessitate the engagement of the military is very limited" (Durkalec 2012, p. 17; see also Dunne 2013, p. 35; Williams 2013).*

Bilateral shipboarding agreements were an important precondition for granting PSI states' legal authority to interdict shipments in international waters. From 2004 onwards, the US negotiated and signed such agreements with eleven countries that together account for 45 percent of the world's commercial fleet tonnage. These countries are Antigua and Barbuda, the Bahamas, Belize, Croatia, Cyprus, Liberia, Malta, the Marshall Islands, Mongolia, Panama, and Saint Vincent and the Grenadines (Durkalec 2012, p. 12). This list includes the top five countries with open ship registries (Nikitin 2012a, p. 4).

[30] As of October 2013, more than 50 multinational exercises (live exercises, games, tabletop exercises, command post exercises, or simulations) have taken place. Most of them involved maritime interdiction (Durkalec 2012, p. 14). For a detailed description of an exercise see, for example, Ricke (2004, p. 3).

2.2. Assessment

2.2.1. Internal Evaluation

The number of interdiction attempts and successes is unknown. Supposedly, as of April 2009, there had been 50 successful interdictions. A former Bush administration official recently revealed that there "have probably been more interdictions of the PSI […] in the last couple of years than […] during the initial phase of the PSI in the Bush administration" (Davenport 2013). However, the number of interdictions plays no role for self-evaluation. The US laid out three criteria against which it wanted to measure success of the PSI: the level of universality, the number and complexity of exercises, and the number of shipboarding agreements (Durkalec 2012, p. 19). A 2012 US Government Accountability Office report, however, criticized the administration for not properly evaluating the degree to which the PSI was meeting its aims (Oswald 2013).

Ad-hoc evaluation, including that of the US, was positive though. President Obama, for example, called the PSI a "core element of the international non-proliferation regime" (Presidential Statement by Obama 2013). At the 2009 ROEG meeting, the US stated:

> *"We have a solid record of success. The PSI exercise program, the review and strengthening of legal authorities, the sharing of law enforcement and export control best practices, the consultations on organizing governments to address the prevention of proliferation – all of these have translated into building our collective abilities to conduct real-world WMD-related interdictions" (Foley 2009).*

A State Department official in 2006 also highlighted the fact that it became easier to cooperate on interdictions; a Polish official in 2007 made a similar statement (Davis et al. 2007); and Denmark's ambassador to the US claimed in 2005 that there had been significantly less missile shipments since the PSI existed (Davenport 2013). The Chairman's Statement at the fifth PSI meeting in 2004 noted with satisfaction that the PSI "is now operationally active" and that "specific, significant progress was thereby obtained in fighting proliferation activities and that PSI partners had contributed decisively to recently disclosed successes in the disruption or indeed dismantling of some previously covert WMD programs".[31] At the 2006 PSI High-Level Political Meeting, the Chairman's Statement assessed that the initiative is achieving results and that "PSI participating states have greatly improved their national capacities to interdict shipments of proliferation concern".[32] More specifically, it has been claimed that cooperation under the PSI has slowed down Iran's nuclear program (Davis et al. 2007, p. 14).

[31] PSI 2004: Chairman's Statement, Lisbon, Portugal, 4-5 March 2004, available at http://2001-2009.state.gov/t/isn/rls/other/30960.htm.

[32] Minister of Poland 2006: Proliferation Security Initiative, Chairman's Statement at High-Level Political Meeting, available at http://2001-2009.state.gov/t/isn/rls/other/69799.htm.

2.2.2. External Evaluation and Reasons for its Success and Shortcoming

Generally, observers attest the initiative to have achieved its main objective: curbing the illicit transfer of WMD material and delivery systems (Durkalec 2012, p. 19). It is hard, however, to measure the success of the PSI. Information on the number of interdiction attempts and their success rate is scarce. Even if the initiative was more transparent, it would be difficult to tell how many interdictions had occurred without the PSI (Dunne 2013, p. 11).

Perhaps the biggest achievement of the PSI is the increased attention that it drew to the lack of WMD shipment interdiction capabilities, laws, and political will. It has provided a forum for tackling this desideratum. UN Security Council resolution 1540, specifically paragraph 10, acknowledges the importance of the PSI but – due to a Chinese veto threat– does not explicitly mention the initiative (Davis et al. 2007). Many countries have now established contacts, routines, and national response plans for interdiction requests from fellow PSI participants. The large number of exercises among PSI participants (and occasionally non-participants) and the growing complexity of these exercises is also an achievement. Furthermore, regular meetings of the OEG and ROEGs keep the issue of proliferation and interdiction on the agenda.

On the other hand, these accomplishments are tarnished by a number of issues. First of all, although more than 100 countries endorse the PSI, it is far from universal. It is a problem for PSI that many important countries refuse to endorse the initiative. Secondly, and contributing to the first shortcoming, the internal hierarchy within the PSI – with the OEG being a 'club' within the 'club' – tarnishes the reputation of the PSI and feeds the perception that it is a Western, or even a US, undertaking. Thirdly, the countries profiting most from exercises, capacity building, and information exchange are the OEG members (Durkalec 2012, p. 20). Other PSI endorsing countries only participate in these benefits sporadically and unsystematically. Fourthly, the lack of transparency makes it difficult for countries outside the OEG and for civil society, the public, and businesses to evaluate the merits of the PSI. The counter-proliferation norm would probably get a boost if public knowledge was better on interdiction successes or failures. Fifthly, while enforced interdiction is the smallest part of PSI activities, most exercises are dominated by military components. This focus might divert "attention and resources away from more realistic scenarios", as some OEG members fear (Dunne 2013, p. 9). Lastly, many OEG members, let alone other PSI participants, have not (yet) implemented "the full range of proliferation-related international law into national law" which is key for interdiction operations (Dunne 2013, p. 43).[33] Much of the non-participants' criticism relates to these issues.

[33] Dunne (2013. p. 43) names "Security Council Resolution 1540, a series of sanctions-related resolutions and various arms control treaty obligations", but also the UN Convention on the Law of the Sea (UNCLOS), the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA) and the 2005 SUA Protocol.

2.2.3. The Outliers' Criticism

North Korea, probably the country targeted the most by the PSI, marks the extreme pole of opposition: it declared South Korea's participation a declaration of war (Dunne 2013). China, of all outliers not supporting the initiative, causes the biggest headache within the OEG. China's political support (it is the only non-participating P5-member), geographic proximity to North Korea, and military and intelligence capabilities would certainly increase the chances for successful interdictions in the region, if not deterrence in the first place. Geopolitical reasons offered for China's opposition relate to its heavy dependence on Middle East energy supply and the fear of granting the US interdiction rights that could be misused in a crisis (Davis et al. 2007). Moreover, China and Indonesia, while both in support of the initiative's non-proliferation goal and heavily courted by the US to join the PSI, remain opposed because of concerns about the legality of interdictions. Both countries repeatedly argued that PSI activities could infringe upon the principle of sovereign equality (Su 2012; Wolf et al. 2008). Indonesian and Malaysian sovereignty concerns with the PSI are related to the Malacca Strait and the right of innocent passage (Durkalec 2012, p. 10). Moreover, many outliers do not trust the nontransparent, 'club'-like setup and are worried that the real intentions of the PSI go beyond what is described in the SIP (Davis et al. 2007; Dunne 2013, p. 41). India also remains outside the PSI, although it has participated in PSI exercises. Besides domestic reasons, India took issue with the 2005 SUA Protocol that excluded trade between NPT members from the provisions of the SUA and feared that it may itself become a PSI target (Mohan 2010, p. 6). On a more general level, India has not made up its mind on whether it wants to openly endorse an initiative that is the "de facto enforcement arm of a system that has unjustly targeted India in the past" (Holmes 2008, p. 159).

Other countries' opposition relates to the PSI's perceived discriminatory nature: Arab countries criticize the double standards in targeting certain countries but not Israel (Su 2012, p. 112). Finally, there is concern that endorsing the PSI and complying with the SIP comes with economic costs as quick passage through ports could be impeded by interdiction requests and procedures (Durkalec 2012, p. 10).

In general, PSI falls into the category of activities generically disliked by the NAM. The PSI thus remains contested although the intensity of external criticism has decreased considerably over time.

2.3. What's next?

The PSI should, firstly, aim at increasing participation of crucial states, most importantly China (Dunne 2013; Durkalec 2012). This would help increase interdiction options as well as the PSI's legitimacy. Getting India, which is concerned about proliferation in South Asia and has participated in exercises, to endorse the SIP might be a lower hanging fruit than others and should be pursued with priority. India is a leader in the NAM and its support of the PSI would be a signal. Getting more countries to join the PSI may require higher representativeness of the OEG. This should be considered even at the

expense of its flexibility and political cohesion. The perception that the PSI is a Western dominated initiative and the resulting lack of trust will not dissolve unless more countries from the global South join the OEG.

Secondly, PSI participants, especially OEG members, should ratify the legal instruments that provide the basis for interdictions (Durkalec 2012, p. 20). The US has yet to ratify the 2010 Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation (Beijing Convention), UNCLOS, and the 2005 SUA Protocol.

Thirdly, the perception of the PSI as a primarily military matter may reinforce opposition with important outliers (China, Indonesia, India). This should not be too hard to tackle as most interdictions happen without military involvement. The ratio of military/civilian participation in PSI exercises and OEG/ROEG delegations could thus be easily reconciled with the initiative's true nature (Dunne 2013, p. 44).

3. The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction

3.1. Description

The G8[34] launched the Global Partnership at their summit in Kananaskis, Canada, in June 2002.

3.1.1. Mission

The terrorist attacks of September 11, 2001, and the resulting fear of WMD terrorism prompted the launch of Global Partnership (GP), non-proliferation, disarmament, and threat reduction initiative. It aims at supporting programs and projects that secure and/or dismantle chemical, biological, radiological, and nuclear (CBNR) weapons and materials at risk of illicit access and theft.

The GP is not meant as a substitute for other non-proliferation, disarmament, or threat reduction efforts. It explicitly aims at supporting such efforts. The US State Department has produced a fact sheet that lists a number of "outreach efforts to international organizations", including abstracts on how cooperation between the GP and the respective organization works or could work (US Department of State Fact Sheet 2012). The 2011 G8 assessment of the GP stated that "[p]riority will be attributed to ensuring close and effective coordination of activities and objectives, and to ensure complementarity, avoid duplication and fill gaps" (US Department of State on the G8 Summit 2011). However, it is often difficult to understand exactly to which degree many other initiatives, for example the Global Threat Reduction Initiative (GTRI), the Nunn-Lugar program (Cooperative Threat Reduction, CTR), or the Nuclear Security Summit pledges are subsumed under GP relevant funding. Indeed, almost any threat reduction effort seems eligible for GP accounting (Akbulut 2013).

Prior to the GP, the G8 commitment to non-proliferation and threat reduction had been limited.[35] The US, itself heavily engaged in threat mitigation since shortly after the end of the Cold War through CTR, introduced the idea of the GP after the 9/11 terrorist attacks in order to secure its fellow G8 partners' commitment to threat reduction. The EU and some of its members had also been involved in threat reduction before but, in the view of the US, not to the extent necessary. The GP, then, marked an "unprecedented commit-

[34] The G8 consists of US, Japan, Germany, U.K, France, Italy, Canada and Russia.

[35] There was only one G8 item explicitly linked to threat reduction: financial support for a plutonium disposition program in Russia. Italy and Germany did not participate in this (Heyes et al. 2011, p. 8), but Canada, France, Japan, the UK, and the US pledged $800 million: "this was the only area, prior to 2001, in which substantial non-US [G8] effort was collectively harnessed to address a specific CBRN threat" (Heyes et al. 2011, p. 15).

ment of resources by the G8 to address the non-proliferation problem" (Heyes et al. 2011, p. 8).

Together with the Canadian government, which hosted the 2002 G8 summit, the Bush administration prepared the ground for the initiative. It aimed at an outcome that increased long-term burden-sharing as well as political commitment. It achieved a doubling of the financial resources that were available at this point for threat reduction in Russia: their G8 partners at the summit pledged to match US spending of $10 billion over a time period of 10 years[36], leading to a total of $20 billion to be spend initially in Russia and later in other former Soviet republics on specific WMD non-proliferation, disarmament, and security projects.[37] These projects were to be conducted in cooperation with the respective recipient countries (Heyes et al. 2011, p. 9). First priorities for the GP were the dismantlement of decommissioned nuclear submarines, the destruction of chemical munitions, the disposition of fissile material, and the employment of former weapons scientists.[38]

In 2011, the G8 announced that it would extend the initiative indefinitely beyond 2012. Although chemical and nuclear issues in Russia will remain a focal point, other issues and recipients across the globe are supposed to move towards the center of the GP in its second mandate. US Assistant Secretary of State Thomas Countryman explains:

> *"There is still work to finish in the former Soviet Union, and we will finish it in partnership with the Russian Federation and with others, in the G8 and in the region. But with the amount of funding that we hope to have available, we need to look well beyond the region" (Davenport et al. 2012).*

The US has pledged another $10 billion for the second decade of the GP. Exact numbers for other countries are not known; the experience of making a public commitment in 2002 and getting criticized afterwards for not meeting it led most GP partners to refrain from making specific pledges (Davenport et al. 2012; Heyes 2013). With regard to issues, the G8 at their 2010 and 2011 summits decided that "nuclear and radiological security, biosecurity, scientist engagement, and the facilitation of the implementation of the UN Security Council Resolution 1540" should be among the priorities (Akbulut 2013, p. 14).

3.1.2. Membership and Organization

The G8 presidency serves as a secretariat for the GP. For overall coordinating purposes, the G8 created the Global Partnership Working Group under the G8 Senior Group on WMD. The chair of the GPWG rotates with the G8 presidency. Apart from that, the GP has not established any organizational or

[36] The GP is also known as the '10 Plus 10 Over 10 Program'.

[37] Ukraine was the second country to receive aid from the GP, beginning in 2004 (Applegarth 2004).

[38] Statement by G8 Leaders: The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, Kananaskis, Canada, June 27, 2002, available at http://www.g8.utoronto.ca/summit/2002kananaskis/arms.html.

legal structures; it is hardly more than a "political framework" (Heyes et al. 2011).

A set of rather vague principles and guidelines, agreed upon at the Kananaskis summit, form the broader basis of the initiative. The six "principles to prevent terrorists, or those that harbour [sic] them, from gaining access to weapons or materials of mass destruction" include the commitment to promote multilateral non-proliferation treaties and institutions; develop effective measures to account for, secure, and protect WMD items and assist countries lacking resources to do so; develop and maintain effective export controls, border controls, and interdiction capabilities; strengthen efforts to dismantle fissile materials, eliminate chemical weapons, and reduce biological agents.[39] The guidelines for the organization and management of cooperation projects state that such projects are conducted in partnership (bi- or multilaterally). Objectives are to be agreed upon by all project cooperation partners and implementation should include monitoring, auditing, and transparency. Donors should have adequate access to work sites, be exempted from taxes, and protected from liability claims (one of the main issues in the US-Russian CTR efforts). Furthermore, the guidelines acknowledge the recipients' need to protect sensitive information and intellectual property.[40]

Countries willing to commit to the principles and guidelines are invited to contribute to and join the GP. Besides the G8, Finland, the Netherlands, Norway, Poland, Sweden, and Switzerland (all invited in 2003), Australia, Belgium, the Czech Republic, Denmark, Ireland, the Republic of Korea, and New Zealand (all invited in 2004), and the Ukraine (invited in 2005) have contributed funding. Mexico acceded to the GP in December 2012 but it is unclear whether it will engage in or finance threat reduction projects abroad (Akbulut 2013). The newest participant is the Philippines, which joined in June 2013. It is likewise unclear to what extent the Philippines will participate as a donor. The EU and the Nuclear Threat Initiative (NTI) have contributed funding to the GP (Heyes et al. 2011, p. 2). Kazakhstan joined the G8GP in 2012 as a recipient country.

In total, the GP counts 26 participants as of November 2013. Although the G8 has engaged in reaching out, participation is rather limited. No countries from Africa, the Middle East, South Asia, or (with the exception of Mexico) Latin America have joined the initiative so far.

[39] Statement by G8 Leaders: The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, Kananaskis, Canada, June 27, 2002, available at http://www.g8.utoronto.ca/summit/2002kananaskis/arms.html.

[40] Statement by G8 Leaders: The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, Kananaskis, Canada, June 27, 2002, available at http://www.g8.utoronto.ca/summit/2002kananaskis/arms.html.

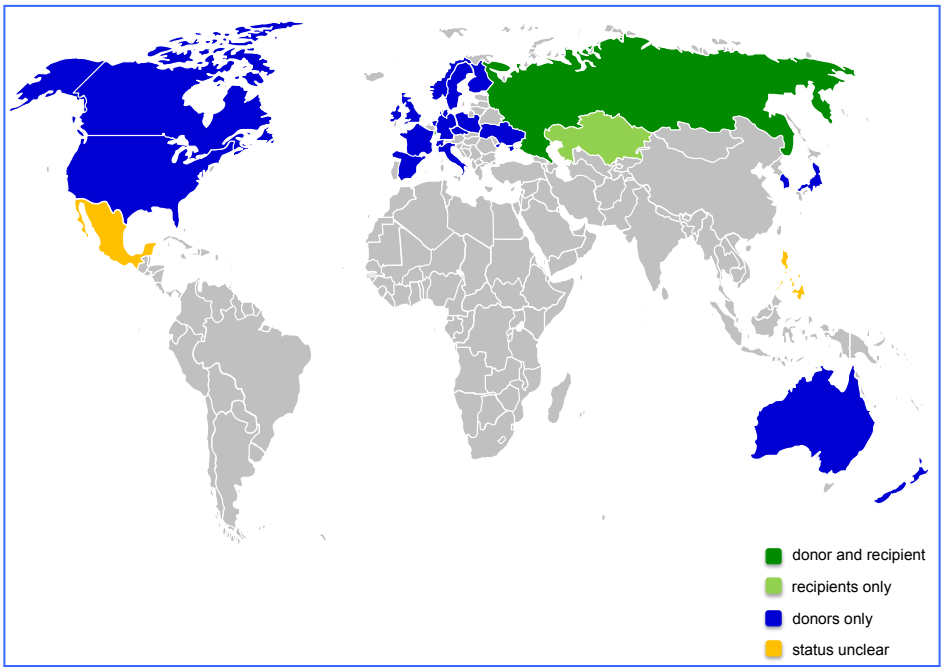

Figure 4: GP participants (source: MF)

3.1.3. Decision-Making Structure

Decisions within the GPWG are reached by consensus. No formal procedure is in place with regard to which countries can join the initiative (as donors or recipients). Overall, the decision-making process has been described as "fairly flexible and nonbureaucratic" (Applegarth 2004). Non-G8 participants, however, have "little real opportunity […] to influence priorities, despite the significant sums of money and expertise that some have committed to projects" (Heyes et al. 2011, p. 60). Not being a member of the G8 also means not being a member of the Senior Group on WMD or the GPWG. Apparently, it was only upon the US taking over the chair of the GPWG in 2012 that non-G8 participants were invited to all meetings (Akbulut 2013). Five working groups were established under the 2012 US presidency on biosecurity, chemical security, nuclear security, membership extension, and centers of excellence (Cesim 2013, p. 2).

The GP is purely based on cooperation projects. Only donors and recipients are affected by decisions. There are no externalities affecting third parties (apart from the positive common goods effects of enhancing global security against WMD terrorism).

3.1.4. Outreach

From the beginning, the G8 was eager to expand the group of donor countries beyond the original core group. Already at the 2002 Kananaskis summit, the G8 agreed to invite other countries willing to contribute and to adopt the GP principles and guidelines. It also expressed the intention to widen the geographical scope of projects beyond Russia and to enter into negotiations

with other potential recipient countries (Heyes et al. 2011, p. 26). As a US official put it:

> *"we are happy to partner with just about anybody who shares our goals and is able to bring money and expertise to the table. Or even just money. We look at the countries that have demonstrated an interest, and an expertise, and a willingness to spend some money to work cooperatively to reduce global threats" (Davenport et al. 2012).*

Approaching other countries and citing the common goal of increasing security of WMD material and know-how proved to be quite successful in the beginning, but has since stalled. Within the first two years, the GP could secure an influx of new donors (see above). Because it allowed for 'piggybacking',[41] the GP became attractive for countries interested in threat reduction work but unable to provide the expertise or funds necessary to conduct such projects on their own (Heyes et al. 2011, p. 76). A US official in 2011 indicated that potential new participants would most likely come from the group of states that participated in the 2010 Nuclear Security Summit (Crail 2011). The most recent additions to the GP were Kazakhstan, Mexico (both 2012), and the Philippines (2013).

The GPWG serves as an important outreach mechanism. It is the forum in which G8 and non-G8 members meet about the latter's participation in the initiative. Equally important, the GPWG engages in public outreach. Each year, it conducts a progress review and produces a detailed report. This guarantees public access to information about G8GP commitments and implementation, increases transparency (which is comparably high anyway), and awareness of the initiative and the important goal of threat reduction (Einhorn and Flournoy 2006).

3.1.5. Confrontational versus Cooperative Instruments

The main instrument of the GP is the provision of funding for cooperation projects in the fields of WMD non-proliferation, disarmament, and threat reduction. The projects cover a wide range of activities. In the nuclear field, they range from border security workshops, the creation of centers of excellence, physical security upgrades, the replacement of highly radioactive power sources, the re-training and re-employment in commercial fields of former weapons scientists and engineers, to major initiatives such as aiding the dismantlement of decommissioned Russian submarines or the US-Russian HEU purchase ('Megatons to Megawatts') program. Some of these projects date back to the 1990s and already existed under the US-Russian CTR program.

[41] 'Piggybacking' entails a low-cost entry method. New Zealand, for example, contributed to a Canadian project in Russia that aimed at improving nuclear material security. Also the recipient benefits from piggybacking since no additional bilateral agreements have to be negotiated or implemented (Akbulut 2013, p. 9).

3.2. Assessment

3.2.1. Internal and External Evaluation

The self-evaluation of the GP is mostly positive. The donors are pleased about their achievements. Already at a 2007 mid-term evaluation, the GPWG stated that "[m]ost programmes and projects are well on track." But it also acknowledged that "[p]rogress and project implementation should speed up in the second half"[42]. In its last assessment of the GP in May 2011, the G8 asserted that "[p]artners will have achieved *significant success* in such areas as the destruction of Russia's chemical weapons, dismantlement of Russian decommissioned nuclear submarines, re-employment of former WMD-related scientists, the reinforcement of security surrounding nuclear materials and radiological sources, as well as improvement of physical protection of nuclear facilities".[43]

The G8 is confident that during the first ten years, it achieved a "true 'partnership'" that guaranteed the implementation of projects otherwise not possible.[44] Officials from donors seem to agree that

> *"the very fact that non-proliferation issues are addressed within several established international frameworks makes the partnership relevant as a forum to enhance coordination and collaboration among partnership countries and between the countries and international organizations" (Heyes 2013).*

The major lesson learned from GP implementation, according to the 2007 assessment, is that "the G8 together with other partners have proved and demonstrated their ability to work successfully together to address the topical issues of international security and safety".[45] As all G8 documents, the assessments of the GP are consensus-based documents and a critical self-evaluation is missing. Reading between the lines, however, there seem to be disputes over accounting mechanisms for funding. Moreover, the GPWG apparently sees potential for better project coordination, cohesion, and funding morale.

Overall, the GP has thus far been a success. During its first ten years of existence, its participants provided enormous financial and technical assistance for threat reduction in the former Soviet Republics. During the 1990s, the US "paid for the lion's share of threat reduction work" (Einhorn and

---

[42] See Global Partnership Review, G8 Summit Heiligendamm, Germany, 2007, available at http://www.auswaertiges-amt.de/cae/servlet/contentblob/350676/publicationFile/4178/GP-Heiligendamm.pdf.

[43] G8 Global Partnership, Assessment and Options for Future Programming, G8 Summit Deauville, France, 2011, available at http://www.state.gov/t/isn/gp2013/rls/docs/184761.htm, author's emphasis.

[44] G8 Global Partnership, Assessment and Options for Future Programming, G8 Summit Deauville, France, 2011, available at http://www.state.gov/t/isn/gp2013/rls/docs/184761.htm, author's emphasis.

[45] See Global Partnership Review, G8 Summit Heiligendamm, Germany, 2007, available at http://www.auswaertiges-amt.de/cae/servlet/contentblob/350676/publicationFile/4178/GP-Heiligendamm.pdf.

Flournoy 2006). The GP represents the will of the G8 partners to support the US and to commit to more equitable burden sharing. With the help of the GP, 192 decommissioned Russian submarines have been dismantled, and the bigger part of the chemical weapons stocks destroyed; the security of large quantities of nuclear and radiological material across the former Soviet Union has been increased; and parts of the Soviet nuclear weapons complex have been transformed, including the re-training and employment of about 90,000 former weapons scientists (Heyes 2013).

Further major accomplishments of the initiative are the

> *"establishment of a strong network of officials and technical experts drawn from across the GP community of states and organizations responsible for implementing threat reduction programs; the development of trust and good working relations between FSU and GP donor countries at the working level; and the sharing of best practice related to project management and risk assessment" (Heyes et al. 2011).*

A spin-off is the increased transparency of the formerly very secretive WMD or civil CBRN uses in the former Soviet Republics.

A "key weakness" (Heyes et al. 2011, p. 33) of the GP has been the failure of most participants to live up to their financial commitments. The G8 partners in 2002 pledged to match the US commitment of $10 billion over 10 years. This pledge was hardly met at first: Russia committed $2 billion, Germany $1.35 billion, Italy $0.9 billion, the UK $750 million, France $675 million, Canada $0.65 billion, Japan $200 million, and the EU $0.9 billion, totaling around $7.5 billion.[46] With the intake of the non-G8 countries, which by 2010 had spent $375 million, the total of non-US commitments increased to around $8 billion (Heyes et al. 2011, p. 1; Akbulut 2013).[47] Over the years, the G8 partners made additional contributions. According to the US State Department, close to $19 billion was assigned to projects by May 2011 (NTI on the G8 Global Partnership 2013). US Assistant Secretary of State Countryman in 2012 stated that $22 billion had been spent under the GP (Davenport et al. 2012). Yet, Heyes et al. (2011, p. 31) calculated that only the US and Russia had met their pledges by early 2010. The EU had met 70 percent, Canada and the UK 65 percent, Germany 62 percent, and Japan 52 percent of their initial pledges. The numbers looked particularly bleak with Italy (14 percent) and France (18 percent). A major Russian increase in threat reduction spending accounts for the discrepancy between the high number that Countryman provided and the rather disappointing pledge/spending-ratios of most GP participants: at the 2006 G8 summit in St Petersburg, President Putin had announced that Russia would raise its initial pledge to $6 billion. By 2010, Russia had spent $5.6 billion or 280 percent of its initial pledge (Heyes et al. 2011, p. 31).

[46] See G8 Senior Officials Group Annual Report 2003, available at http://www.partnershipforglobalsecurity-archive.org/PDFFrameset.asp?PDF=gpsogannualreport.pdf.

[47] Some countries made their pledges in local currencies. The calculation here is based on 2002 exchange rates. With the strengthening of the Euro against the $US over the years, the total non-US pledge is actually closer to $10 billion.

There are various reasons for this mixed record: bilateral agreements had to be negotiated and working routines developed; unexpected bureaucratic hurdles and liability questions delayed a number of projects,[48] for others, for example plutonium disposition work, Russia no longer sought assistance; and Russia was initially suspicious about the motives behind the GP. A bigger part of the explanation, however, has to do with a reluctance in some countries to deliver on their pledges, either due to the fact that, after the recovery of Russia's economy, they no longer saw the need to assist Russia with the level of funding that was agreed upon in 2002, or because of domestic constraints that prevented countries from reallocating funds (Heyes et al. 2011; Walker 2007).

Another weakness was the strong focus on Russia during the first decade of the GP (Heyes et al. 2011, p. 7). As Akbulut (2013) points out, Russia for some time opposed attempts within the GPWG to admit additional recipients and a broadening of the projects' focus. With the intake of new participants (Kazakhstan, Mexico, and the Philippines) and the expressed will to shift the focus to new areas, the G8 has tackled this weakness in the course of the GP extension decision.

3.2.2. The Outliers' Criticism

In contrast to other 'clubs', there is no real contestation of the GP's aims, methods, or implementation. The biggest potential source of outliers' criticism is the ownership of the G8 although many non-G8 countries are among the donors:

> *"It is unlikely that countries like China, India, or Brazil would be content with a second-class membership. Thus, expansion will most likely intensify debates about the question as to whether the GP should be taken out of the G8 format" (Akbulut 2013, p. 16; Heyes et al. 2011).*

3.3. What's next?

The challenges of securing loose WMD material and better protecting CBRN facilities in many places in the world remain significant. With the extension of the GP for another 10-year period, the initiative managed to sustain momentum in order to tackle these challenges.

In order to overcome the shortcomings of the first decade, the GP should be further expanded. The GP working group on membership extension apparently has already identified up to 18 candidates (Cesim 2013, p. 2). Global and regional heavyweights, e.g. China, India, South Africa, Turkey, and Brazil, would lend the initiative more "financing, political weight, and technical and managerial capacities" (Akbulut 2013, p. 16). It is unlikely, though, that these countries will participate unless the GP is moved "beyond the G8 context" (Heyes et al. 2011, p. 5). Most importantly, the coordinating committee, the GPWG, needs to give voice to non-G8 participants as well.

[48] Only by early 2006, bilateral agreements between Russia and the major GP donors had been established (Einhorn and Flournoy 2006, p. 5).

Another challenge for the second decade is shifting the focus away from Russia to other countries and regions without leaving Russia with the burden of taking care of the Soviet WMD and CBRN heritage completely on its own.

Lastly, donor countries need to keep in mind the importance of their commitments for their own national security and deliver on their financial pledges accordingly. It is understandable that, in the aftermath of the financial crisis and in tough budgetary situations, most GP participants have not made public commitments for the second decade. Yet, it is important for the momentum of the GP that the goal of reaching another $20 billion in financial assistance will be met by 2022.

4. GTRI Global Threat Reduction Initiative

4.1. Description

In 2004, the USA National Nuclear Security Administration (NNSA) established the Global Threat Reduction Initiative (GTRI) in the Office of Defense Nuclear Nonproliferation.[49] In February 2005, the US and Russia signed the bilateral Bratislava Agreement, which codified joint work on nuclear weapons and fissile material security. The practical work had already started much earlier. GTRI is a combination of three previous initiatives centered on three elements, some of which had been founded earlier at different times: conversion, removal and protection.

The *conversion* of research reactors and isotope production facilities from the use of highly enriched uranium (HEU) to low enriched uranium (LEU) or the verification of their shutdown was initiated by the US in 1978. At first, the *Reduced Enrichment for Research and Test Reactor* (RERTR) program focused on reactors only. Research efforts on the conversion of isotope production facilities were added in the 1980s.[50]

A second component focuses on the *removal* of excess nuclear and radiological materials from third countries. This element incorporated the Foreign Research Reactor Spent Nuclear Fuel (FRRSNF) Acceptance Program that was launched in 1996. There is also a Russian counterpart, the Russian Research Reactor Fuel Return (RRRFR) Program, launched in 2001 (Tozser et al. 2001).

The *protection* of sensitive nuclear and radiological materials from theft is a complement of the Cooperative Threat Reduction (CTR) Program that was founded in 1992 (also known as Nunn–Lugar program). An agreement between the US and Russia enables operations. While CTR assists Russia in securing nuclear and sensitive materials, the protection component of GTRI aims at similar activities in other countries. Various subprograms have been established at different times: protection of nuclear material from BN-350 reactors in 1996, international material protection in 2000, and US material protection in 2007.[51] A predecessor of this subprogram is the International Materials Protection and Cooperation Program (IMPC) that began in 1994 as cooperation between the US and Russia and that gradually involved more and more countries.

[49] NNSA Fact Sheet, GTRI: Reducing Nuclear Threats, April 12, 2013, available at http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats.

[50] RERTR publishes information and conference proceedings on its website, available at http://www.rertr.anl.gov/.

[51] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.

4.1.1. Mission

GTRI aims at preventing weapons-usable material from falling fall into the hands of terrorists, that is to identify, secure, remove and/or facilitate the disposition of high risk vulnerable nuclear and radiological materials around the world that pose a threat to the United States and the international community.

The key to a terrorist nuclear bomb is the acquisition of nuclear materials. Weapons-usable nuclear materials are highly enriched uranium (HEU), which is fabricated by enrichment, or plutonium which is fabricated by reprocessing spent fuel elements. A unique production line is beyond the technical capabilities of terrorists. They would seek such materials by criminal means, among them theft from insecure sites and smuggling. GTRI also seeks to minimize risks by radiological material. At many sites all over the world, radiological materials are used for various civilian security purposes, e.g. research, remote electricity generation or medicine. They can be abused by terrorists for the fabrication of a radiological dispersal device (RDD) or 'dirty bomb' that could cause contamination. GTRI seeks to prevent such scenarios through minimizing the civilian use and trade of weapons-usable materials by the *conversion* program, minimizing the number of their storage sites by the *removal* program, and minimizing diversion risks by the *protection* program. Since the sub-programs have different histories and origins, GTRI also seeks to consolidate them under one administrative umbrella and to create synergies. GTRI is a response to former criticism of the slow pace of progress of the RERTR program, one of the reasons being low funding.[52]

The goals of the *conversion* component are the conversion of civilian facilities from HEU use to use of other materials, and thus the elimination all uses of HEU in civilian applications. However, GTRI does not cover the elimination of military uses of HEU such as in naval fuel. The largest civilian uses are certain research reactors with fuel containing highly enriched uranium. This fuel can be replaced by low enriched uranium (LEU) fuel. HEU is also used in the production of isotopes used in medical diagnostics, which involves the irradiation of HEU targets by neutrons. The HEU targets can be replaced by LEU targets.[53] LEU must be re-enriched before it can be used for nuclear weapons, and thus the quantities of direct use materials are being reduced. The long term goal is the minimization of any HEU use. This part of the initiative includes the verification of shut-downs of HEU using reactors and the promotion of the goal not to construct new ones.

Both the conversion of civilian research reactors and the conversion of medical targets need technical and financial input. Within the RERTR program, experts developed new fuels with a different chemical composition. With these new fuels, it became possible for most reactors to be operated without any loss in reactor performance. RERTR also created a taboo against the

[52] NTI, Past and Current Efforts to Reduce Civilian HEU use, updated November 15, 2012, available at http://www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/.

[53] NAS Study 2009, Medical Isotope Production Without Highly Enriched Uranium, Committee on Medical Isotope Production Without Highly Enriched Uranium, Nuclear and Radiation Studies Board, Division on Earth and Life Studies, National Research Council, National Academies Press, 27.05.2009, available at http://www.nap.edu/openbook.php?record_id=12569&page=149.

construction of new HEU reactors. Thus, when the remaining HEU using reactors have come at the end of their life time, the use of HEU for civilian research reactors would have been phased out. Several research groups are developing new targets for isotope production. The hope is to completely replace HEU targets by LEU targets and thus eliminate this civilian HEU use, too. In its 'Strategic Plan', NNSA states as a goal: "By 2018, convert or verify the shutdown prior to conversion of 129 HEU reactors".[54]

GTRI's *removal* subprogram aims at identifying, securing, and removing weapons-usable materials and radiological materials around the world.[55] In case that material cannot be removed, GTRI seeks to promote an accelerated disposition. Materials are being repatriated to the countries of origin, namely the US and Russia. The return of HEU to the countries of origin aims at reducing the storage sites. It is a logical complement of the RERTR efforts. At each storage site, material might be subject to thefts and therefore needs substantial physical protection, which cannot be afforded at several locations. At some locations, adequate physical protection, namely armed guards and fences, is hardly compatible with the nature of the site, such as university campuses. In most cases, the take-back is welcomed by the various owners of the HEU because it solves a disposition problem. The US also allows (under GTRI) for taking care of a small amount of material that is not of US origin

A condition for the take-back is the conversion of the reactor to LEU. The fresh fuel returned to Russia is down-blended to a degree of enrichment below 20 percent. In addition, there are efforts to reduce the number of storage locations of civilian HEU in Russia.[56] In its 'Strategic Plan', NNSA states as a goal: "By 2019, remove or dispose of 4,538 kilograms of vulnerable nuclear material".[57]

GTRI's nuclear and radiological *protection* subprogram aims at improving the protection of nuclear and radiological materials, both in domestic sites in the US and in international sites world-wide. Activities include installations of physical protection technologies such as guards, gates, intrusion alarms, alarm response training for local authorities, support of the creation and strengthening of national regulatory infrastructures, technical support and training, joint reviews with partner countries and industry partnerships. Most activities take place in cooperation between the US NNSA and domestic sites, and between the NNSA and countries that host sensitive materials and sites.[58] In its 'Strategic Plan', NNSA states as a goal: "By 2025, protect an

[54] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.
[55] NNSA Fact Sheet, GTRI: Removing Vulnerable Civilian Nuclear and Radiological Material, April 12, 2013, available at http://nnsa.energy.gov/mediaroom/factsheets/gtri-remove.
[56] NTI, Past and Current Efforts to Reduce Civilian HEU use, updated November 15, 2012, available at http://www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/.
[57] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, p. 16, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.
[58] US Department of Energy, available at http://goals.performance.gov/goal_detail/doe/423/print.

estimated 3,950 high priority nuclear and radiological buildings worldwide".[59]

4.1.2. Membership

There is no official membership in GTRI. Many industrialized countries participate in activities and joined efforts, depending on their domestic facilities, situations, and financial resources. These countries are not named 'members' but 'partners' as long as a project is ongoing. Due to the individual histories of the subcomponents, the partners vary, depending on the activities. As an example, countries with HEU fueled research reactors have been invited and motivated to participate in conversion efforts, and those with radiological sources or spent HEU or plutonium fuel have been motivated for activities in the removal and/or protection subprograms.[60] Due to the Bratislava Agreement, Russia is a major partner. Yet, Russia and the US stand out as partners as they both take back material.

4.1.3. Structure and Organization

All activities are initiated and are dominated by the US. The major actor is the NNSA, a sub-department of the US Department of Energy (DoE). It runs a GTRI directing office with US staff, the "leadership".[61] The leading technical actor has always been the US Argonne Laboratory. The IAEA provides a platform for cooperation in technical research.

Soon after the initiation of RERTR, several countries started similar programs with the goal to convert reactors and isotope production facilities from HEU to LEU use. The IAEA provided a platform for cooperation in technical research.

Those countries that run own activities contribute to and benefit from cooperation that is organized in numerous projects. The approach is pragmatic, depending on the technical, administrative, and political circumstances, and it varies widely. Projects aim at the working instead of the diplomatic level. The IAEA is always involved as far as possible.

The Bratislava Agreement established a bilateral interagency working group that reports on status and progress of activities.

4.1.4. Decision-Making Structure

The role of the partners is defined in individually negotiated contracts between them and the US or Russia, respectively, partly with the participation

[59] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, p. 16, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.

[60] A world map indicating partners and their participation in the three subprograms can be found in the GTRI Strategic Plan from 2009, p. 4, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.

[61] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, p. 30, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.

of the IAEA. Often, international sub-sub-projects are agreed upon, mostly, between a few interested states at the technical level. An example is research and development of new fuels for which industry and scientists are motivated if funds are available. The cooperation with Russia is codified in the Bratislava Agreement.

All partners are affected; there are no 'members'. There is flexibility in adopting new partners. No externalities hurting third parties are observed.

4.1.5. Outreach

NNSA runs a webpage with general information on GTRI.[62] In most cases, the US motivates partners to participate and engage in GTRI projects. Depending on the circumstances, motivated partners assist in persuading additional partners. Some partners also act as sponsors, others more as recipients.[63] Decisions are prepared within the US Administration and then presented to target and partner states.[64]

4.1.6. Confrontational versus Cooperative Instruments

In many cases, partner countries welcome the GTRI ideas and projects, as they are in their interest too, not only for non-proliferation reasons but also because of scientific and commercial interests, or other interests, such as solving disposition problems. The most important instruments therefore are information, persuasion and funding.

Sometimes, reluctant partners are pushed with diplomatic means. An example is the refusal of Germany to design a new HEU fueled research reactor, the FRM-II in Garching, in a different way that would have avoided the high enriched uranium FRM-II fuel. The first attempts to influence this decision were on a technical level, by information and advice provided by the US Argonne National Lab that had pursued detailed studies on a different design. Later, the diplomatic level was involved. Although the diplomatic protests were joined by a coalition of many other Western countries, including friends, Germany could not be persuaded: The reactor was actually built and taken into operation (2004). This decision was later regretted as the German policy shifted towards full support of the phase out of civilian HEU use. In domestic German debates on the matter, resentments of US dominance played a role, including memories of US pressure during the Carter Administration to phase out plutonium use. However, there are limits to the enforcement of the US will. Several important countries with civilian plutoni-

[62] See NNSA's webpage on GTRI, available at http://nnsa.energy.gov/aboutus/ourprograms/dnn/gtri.

[63] An example for sponsorship is the Netherlands' engagement in securing and removing radiological material via financial assistance, see NNSA Press Release, US, Netherlands Expand Partnership to Secure Radiological Materials Worldwide, March 22, 2013, available at http://nnsa.energy.gov/mediaroom/pressreleases/gtrinetherlands032213.

[64] See as an example the report of the US Government Accounting Office on "Comprehensive US Planning and Better Foreign Cooperation Needed to Secure Vulnerable Nuclear Materials Worldwide", which lists recommendations for various US Agencies on how to promote the US goals, available at http://www.gao.gov/assets/320/313961.pdf.

um use resist the US preference for phasing out civil plutonium use, including Russia. For this reason, plutonium take-back actions are rare and take place only with partners that are committed to a plutonium phase out, like Sweden.[65]

4.2. Assessment

4.2.1. Internal Evaluation

GTRI has the overall goal to minimize the risks that weapons-usable and radiological materials may fall into the hands of terrorists. This implies the objective to reduce the quantities, availability and needs of these materials, and to optimize their protection. This sub-chapter checks success in the light of US governmental sources.

In the history of the *conversion* efforts, two periods can be distinguished: The initial period from 1978 to 2004, and the GTRI period since 2004.[66] Progress during the first period was rather slow: Only US-designed research reactors were converted, and no Russian-designed reactor. Many more HEU fueled reactors were shut down, for various reasons. Nevertheless, the number of new HEU using facilities was very low: there were only the research reactor FRM-II in Garching, and a few Chinese Miniature Neutron Source Reactors with small cores.[67] The FRM-II caused international outrage, which demonstrates that a taboo against new reactors using HEU was gaining ground (Schaper forthcoming).

The conversion of targets for isotope production was also a goal already during the initial period. However, progress was even more modest. There are four large producers of medical isotopes that all use HEU up to today.[68] Successes are the development of new LEU targets by the US Argonne Laboratory, as well as the conversion of a facility of an important producer in Argentina in 2002 in cooperation with the Argonne Laboratories. An Australian institution is also engaging in LEU target production. These successes are a result of the RERTR efforts.[69] However, the operators of the Garching

[65] NNSA 2012: Plutonium Removal from Sweden, Fact Sheet, March 27, 2012, available at http://nnsa.energy.gov/mediaroom/factsheets/sweden.

[66] NAS Study 2009, Medical Isotope Production Without Highly Enriched Uranium, Committee on Medical Isotope Production Without Highly Enriched Uranium, Nuclear and Radiation Studies Board, Division on Earth and Life Studies, National Research Council, National Academies Press, 27.05.2009, available at http://www.nap.edu/openbook.php?record_id=12569&page=149.

[67] The reactor cores contain less than 1 kg of HEU that is enriched in U-235 to 90 percent or greater. According to IAEA's current research reactor database, there are four MNSRs in China and one each in Ghana, Iran, Nigeria, Pakistan, and Syria.

[68] For a list of the producers see NAS Study 2009, p. 151, available at http://www.nap.edu/openbook.php?record_id=12569&page=149.The producers are based in Canada, Belgium, France, and South Africa.

[69] NAS Study 2009, Medical Isotope Production Without Highly Enriched Uranium, Committee on Medical Isotope Production Without Highly Enriched Uranium, Nuclear and Radiation Studies Board, Division on Earth and Life Studies, National Research Council, National Academies Press, 27.05.2009, available at http://www.nap.edu/openbook.php?record_id=12569&page=149.

FRM-II reactors envision engaging in medical isotope production with HEU targets.

When RERTR became part of GTRI, progress occurred faster. More reactors have been converted, and more are scheduled for conversion. New fuels are under development that will allow even faster conversion.

Furthermore, GTRI has successfully supported the first large scale production of the medical isotope molybdenum-99 (Mo-99) using LEU targets.[70] GTRI has also promoted the common goal of eliminating HEU in targets for isotope production.[71]

The incorporation of the project into GTRI has resulted in some more benefits, namely in direct coordination between RERTR and the HEU fuel return programs for the US-origin and Russian-origin HEU, the FRRSNF, and in collaboration with IAEA to develop several research projects.

The commitment towards conversion of research reactors has repeatedly been stated at various high ranking diplomatic fora, most prominently at the NPT Review and Extension Conference 1995.

Although elements of the *removal* subprogram had been established earlier, most successes were boosted since GTRI's establishment in 2004.[72] HEU, plutonium and radiological materials have been removed and repatriated either to the US or to Russia from 24 countries, including Austria, Brazil, Bulgaria, Chile, Colombia, Czech Republic, Denmark, Germany, Greece, Latvia, Libya, Mexico, Philippines, Portugal, Romania, Serbia, Slovenia, South Korea, Spain, Sweden, Taiwan, Thailand, Turkey, and Ukraine. While most of the accomplishments affected HEU, there also had been some plutonium take-backs like the shipment of plutonium from Sweden to the US. Only a fraction of this plutonium was of US origin.[73] The nuclear weapons-usable materials secured would have been sufficient for more than hundred nuclear explosives, and the radiological materials for several thousand dirty bombs. More than 10,000 radiological sources at-risk have been removed, many of them located and abandoned on the territory of the former Soviet Union. Progress has accelerated after 2004.[74]

In a fact sheet from April 2013, NNSA describes various improvements of physical security at both its own and international sites. They include physical *protection* upgrades at over 1000 sites with radiological sources and

---

[70] South Africa's NTP Radioisotopes.

[71] One example, there is the Four Party Joint Statement signed at the 2012 Nuclear Security Summit by Belgium, France, the Netherlands, and the United States stating "their determination to support conversion of European production industries to non-HEU-based processes by 2015", available at https://nnsa.energy.gov/mediaroom/factsheets/gtri-convert.

[72] NNSA Fact Sheet: GTRI: Removing Vulnerable Civilian Nuclear and Radiological Material, April 12, 2013, http://nnsa.energy.gov/mediaroom/factsheets/gtri-remove.

[73] NNSA Fact Sheet, GTRI: Reducing Nuclear Threats, April 12, 2013, available at http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats.

[74] For an overview of the number of actions, countries, and material quantities involved see "The Removal of Soviet Origin Research Reactor HEU Fuel", available at http://www.nti.org/media/pdfs/removal_of_soviet_origin_research_reactor_heu_fuel.pdf?_=1344278553&_=1344278553.

weapons-usable materials in many countries.[75] The target goal of implementing protection at almost 4000 buildings in the US has been met by 14 percent, and internationally by 30 percent for 1750 buildings.[76] In Kazakhstan, where BN-350 fuel (plutonium) is located at many sites, 83 percent has been completed by the end of 2008.[77]

4.2.2. External Evaluation

In principle, we share the assessment made in the fact sheets published by NNSA. A problem is the future of the programs in Russia, because its commitment to work with the US on nuclear security is declining. The success is therefore behind plans.

However, there are shortcomings regarding *conversion*: there are still facilities in Russia that use HEU, mainly critical assemblies and pulse reactors, and Russia has not yet started any conversion or shut-down (Bunn et al., 2012). Also the US Government Accounting Office (GAO) criticizes that the conversion of Russian HEU using reactors has been much slower than planned. The conversion part of GTRI contains a major flaw: Naval reactors for defense missions are omitted from the conversion efforts, which focus exclusively on civilian uses. This is reflected by the goal of "Minimizing the Use of Highly Enriched Uranium" but not 'eliminating it, which was part of the original RERTR mission.[78] Instead of eliminating US and Russian HEU reservoirs obtained from nuclear disarmament after the end of the Cold War, stocks are reserved for military naval fuel.[79] Moreover, the US and some other NWS reserve the right to produce new HEU for naval fuel. This becomes apparent in exchanges of views on a future Fissile Material (Cutoff) Treaty.

Regarding the *removal* subprogram, it is criticized that the consolidation efforts within Russia are much slower than anticipated which raises doubts on the future Russian commitments (GAO 2011). In Russia, there are still various stocks of HEU and plutonium on hundreds of sites (Bunn et al. 2012). Furthermore, there are countries with weapons-usable materials that are not partner in the initiative and that do not offer to send their materials back to the US or Russia (GAO 2011).

With regard to *protection*, though many locations all over the world have received significant security improvements, shortcomings remain: An evaluation conducted by the Belfer Center misses evidence that most partner countries have made "significant changes in their nuclear security rules or procedures" (Bunn et al. 2012, p. 14). Furthermore, the Belfer study de-

[75] NNSA Fact Sheet, GTRI: Reducing Nuclear Threats, April 12, 2013, available at http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats.

[76] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, p. 30, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.

[77] GTRI Strategic Plan 2009, US DoE, NNSA, GTRI Strategic Plan, January 2009, p. 30, available at http://pbadupws.nrc.gov/docs/ML0907/ML090790171.pdf.

[78] NNSA Fact Sheet, GTRI: GTRI's Convert Program: Minimizing the Use of Highly Enriched Uranium, April 12, 2013, available at http://nnsa.energy.gov/mediaroom/factsheets/gtri-convert.

[79] See NTI 2013: Civilian HEU Reduction and Elimination Resource Collection, available at: http://www.nti.org/analysis/reports/civilian-heu-reduction-and-elimination/

mands the US reactors that are not converted from HEU to LEU fuel to be protected according to more stringent criteria.

Furthermore, the IAEA has published recommendations on nuclear security and the Code of Conduct on the Safety and Security of Radioactive Sources, which are not legally binding but are supported by a range of countries.[80] The adherence to these recommendations should be accelerated. Legally binding instruments, namely the Convention on the Physical Protection of Nuclear Materials and its Amendment and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT)[81] from 2007 are far less specific (Bunn et al., 2012). Several states have failed to even ratify these conventions, including nuclear weapon holders, France, Israel, North Korea, Pakistan, and the US. These instruments could play an important role for meeting GTRI's goal to improve the security culture.

Russia claims that its nuclear security is appropriate and all materials are well protected.[82] For Russia, it is important that cooperation takes place at an equal level. Due to resentment of US dominance, Russia has not extended the bilateral CTR agreement that has expired in June 2013. While Russia's commitment to many goals of nuclear security are similar to those of GTRI and appear to be serious, it seems uncertain how smooth and close future US-Russian cooperation will be.

Has the IAEA made any statement on the usefulness of GTRI? The IAEA is participating in several repatriations of nuclear material. There is an ongoing cooperation between GTRI and the IAEA, which is participating in several repatriations of nuclear material and stressed the usefulness of GTRI on various occasions.[83]

4.2.3. Reasons for Success and Shortcomings

The major reasons for the accelerated pace of world-wide reactor *conversions* and research and developing activities are increased funding, increased attention by the US government, and increased global visibility.

GTRI has a prominent part in the US National Security Strategy from 2006. In contrast to the initial period, the US government engaged in converting

[80] IAEA, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5), Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5); 2011; IAEA, Code of Conduct on the Safety and Security of Radioactive Sources, January 2004, available at http://www-pub.iaea.org/MTCD/publications/PDF/Code-2004_web.pdf.

[81] Convention on the Physical Protection of Nuclear Materials and its Amendment and the International Convention on the Suppression of Acts of Nuclear Terrorism, available at http://www.nti.org/treaties-and-regimes/international-convention-suppression-acts-nuclear-terrorism/.

[82] Memorandum of the Russian Federation for the 2012 NSS, March 27, 2012, available at http://eng.news.kremlin.ru/ref_notes/80/print.

[83] See, e.g., the IAEA statement on the occasion of the founding of the GTRI in 2004 http://www.iaea.org/newscenter/news/2004/gtri_initiative.html. In its annual nuclear technology reports, the IAEA reports on activities in collaboration with GTRI; see e.g. http://www.iaea.org/About/Policy/GC/GC57/GC57InfDocuments/English/gc57inf-2_en.pdf.

American reactors for which it was technically feasible. This neutralized previous concerns by operators elsewhere (which were caused by the slow conversion rate in the US) that Washington applied double standards in RERTR.

In addition, the high-level Nuclear Security Summits in 2010 and 2012 motivated several countries to participate in HEU reduction efforts. The IAEA has engaged in technical education and joint studies. The 1997 tripartite initiative involving the US, Russia, and IAEA, known as the Russian Research Reactor Fuel Return (RRRFR) program also provided further motivation. Finally, synergies with the Global Initiative to Combat Nuclear Terrorism, which also addresses HEU minimization, have contributed to success. As has been noted above, there is a growing taboo against civilian HEU use, visible at the protests against the Garching reactor. The strong reactions have further promoted the taboo.

Also accounting for its success is the fact that GTRI makes the conversion of a reactor a condition for fuel take-back, and thus creates a strong incentive: the disposition of this special fuel is a prerequisite for a license of the operation of a reactor.[84] The development of new fuels may also have impacted on GTRI's success.

Accordingly, the slower pace of the initial period can be explained by the lead time needed to develop, test, and qualify new high-density reactor fuel, and by the comparably low funding for RERTR, the perceived double standard with conversion efforts and the lower strength of the taboo against civilian HEU use that was only beginning to develop. Some more reactors, especially the FRM-II in Garching, could be converted, if certain other fuels (especially U-Mo dispersion fuel) were available. But its development still faces difficulties.

The slow pace of Russian conversion may be due to frictions in US-Russian cooperation. Further nuclear disarmament and compliance with US-dominated activities are affected by Russian concerns about US missile defense plans. There is also a principle resentment of US dominance in various nuclear security related projects.

The major reasons for the success of this *removal* subprogram are funding, the motivation of sponsoring partners, the elevation of the problem of nuclear security to an international level, and the actions by many additional countries who have fulfilled their security commitments.

Some countries refuse compliance because they want to keep open a nuclear option (e.g. Iran). Occasionally, there were protests against the shipment of spent HEU fuel to Russia for environmental reasons.[85] Sometimes, operators

[84] NAS Study 2009: Medical Isotope Production Without Highly Enriched Uranium, Committee on Medical Isotope Production Without Highly Enriched Uranium, Nuclear and Radiation Studies Board, Division on Earth and Life Studies, National Research Council, National Academies Press, 27.05.2009, available at http://www.nap.edu/openbook.php?record_id=12569&page=149.

[85] One example of this is a shipment of fuel from Rossendorf in Germany 2006, unleashing a protest by Greenpeace.

perceive any threat in civilian uses of sensitive material as extremely unlikely.

Progress in the *protection* subprogram has similar reasons: additional funding, high-level attention, motivation by the security summits and IAEA studies and recommendations to which many states contributed. Some stagnation in US-Russian cooperation can be explained by the Russian desire to curtail American initiatives in the region, motivated by concern on US missile defenses. Russian embarrassment to rely on foreign assistance may also play a role (Bresolin 2013). Russia wants to be seen as an equal partner and not as a recipient of benefits. NTI quotes a Russian Foreign Ministry insider on the CTR-Agreement: "The agreement is thoroughly discriminating. It fails to take into account the changes that took place in the world after its signing in the 1990s".[86] A problem for the Russians was the CTR requirement for US inspections to ascertain whether equipment in Russia has been properly installed.[87]

4.3. What's next?

GTRI therefore should continue to employ, and strengthen, its attractive instruments of high-level attention, international commitment and growing norms on nuclear security. Up until now, funding and commitment have depended on the motivation of current governments. It is unclear whether they will be sustained in the future. Therefore, it is advisable to codify the goals and means into a more binding form, including strengthening the various agreements and recommendations that exist already. In the new agreement, or agreements, GTRI should strive for setting agreed standards and define rights and duties of participants.

Shortcomings can often be traced to frictions between the US and Russia, or frictions between the US and other countries. These frictions reflect resentment of US dominance and of perceived discrimination. GTRI's goals and design have been determined by the US, and although they are internationally perceived as useful and worth supporting, certain inequalities cause irritation. NNWS dislike the exclusion of naval HEU fuel from any GTRI activities due to US naval fuel policy. There is also inequality with regard to transparency and inspection rights. The US and Russia should be more transparent regarding the future uses of their huge civilian and military stocks of weapons-usable materials. In the long term, international IAEA safeguards in these countries would create transparency and reduce discrimination. It is therefore advisable to strive for cooperation and agreements that eliminate discrimination as much as possible.

Furthermore, GTRI should involve China. China is a producer of HEU and runs and exports the Miniature Neutron Source reactor (MNSR), which is a small and compact research reactor. It has exported the MNSR together with

[86] NTI, Past and Current Efforts to Reduce Civilian HEU use, updated November 15, 2012, available at http://www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/.

[87] The Removal of Soviet Origin Research Reactor HEU Fuel, available at http://www.nti.org/media/pdfs/removal_of_soviet_origin_research_reactor_heu_fuel.pdf?_=1344278553&_=.

HEU fuel to several developing countries, such as Ghana, Iran, Pakistan, Nigeria and Syria. Efforts of the IAEA to engage China within GTRI have started and should be accelerated.[88] China indicated that it is open to taking back spent fuel.

[88] IAEA, Research Reactor Section, available at http://www.iaea.org/OurWork/ST/NE/NEFW/Technical_Areas/RRS/conversion-mnsr.html.

5. Global Initiative to Combat Nuclear Terrorism

5.1. Description

The foundation of GICNT was jointly put into motion by US President George W. Bush and Russian Federation President Vladimir Putin on 15 July 2006, at the G8 Summit in St. Petersburg. It counts as one among the initiatives in the aftermath of the terrorist attacks of 9/11.

5.1.1. Mission

GICNT gives a self-description on its homepage:

> *"The Global Initiative to Combat Nuclear Terrorism (GICNT) is a voluntary international partnership of nations and international organizations that are committed to strengthening global capacity to prevent, detect, and respond to nuclear terrorism. The GICNT works toward this goal by conducting multilateral activities that strengthen the plans, policies, procedures, and interoperability of partner nations."*[89]

The initiative is based on several international legal instruments, namely the Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment, and United Nations Security Council Resolutions 1373 and 1540 that complement the NPT regime in order to provide for measures against nuclear proliferation to non-state actors and the ensuing threat of nuclear terrorism. Partners endorse a "Statement of Principles" that describes the goals of the GICNT as follows:

> *"1. Develop, if necessary, and improve accounting, control and physical protection systems for nuclear and other radioactive materials and substances;*
>
> *2. Enhance security of civilian nuclear facilities;*
>
> *3. Improve the ability to detect nuclear and other radioactive materials and substances in order to prevent illicit trafficking in such materials and substances, to include cooperation in the research and development of national detection capabilities that would be interoperable;*
>
> *4. Improve capabilities of participants to search for, confiscate, and establish safe control over unlawfully held nuclear or other radioactive materials and substances or devices using them;*
>
> *5. Prevent the provision of safe haven to terrorists and financial or economic resources to terrorists seeking to acquire or use nuclear and other radioactive materials and substances;*
>
> *6. Ensure adequate respective national legal and regulatory frameworks sufficient to provide for the implementation of appropriate criminal and,*

[89] See http://www.gicnt.org.

if applicable, civil liability for terrorists and those who facilitate acts of nuclear terrorism;

7. Improve capabilities of participants for response, mitigation, and investigation, in cases of terrorist attacks involving the use of nuclear and other radioactive materials and substances, including the development of technical means to identify nuclear and other radioactive materials and substances that are, or may be, involved in the incident; and

8. Promote information sharing pertaining to the suppression of acts of nuclear terrorism and their facilitation, taking appropriate measures consistent with their national law and international obligations to protect the confidentiality of any information which they exchange in confidence."[90]

Members promise to appreciate the IAEA and strengthen its role. In contrast to GTRI, GICNT does not assist in upgrading security measures and it does not provide funds for this purpose. The purpose of GICNT is to

"[bring] together experience and expertise from the nonproliferation, counterproliferation, and counter-terrorism disciplines, integrating collective capabilities and resources to strengthen the overall global architecture to combat nuclear terrorism, and providing the opportunity for nations to share information and expertise in a legally non-binding environment."[91]

In the context of the initiative, multilateral exercises are conducted and guidelines are drafted. The P-5 nuclear weapon facilities are exempted from those exercises, as are those of Pakistan, and presumably also those of India and Israel.

5.1.2. Membership

At GICNT's first meeting in Morocco in October 2006, representatives from 13 countries took part, namely the United States, the Russian Federation, Australia, Canada, China, France, Germany, Italy, Japan, Kazakhstan, Morocco, Turkey, and the United Kingdom. It was directed by the US and Russia. Since then, the membership has steadily grown to 85 member states[92] and four official observers (IAEA, EU, INTERPOL, and United Nations Office on Drugs and Crime) in 2013.

---

[90] GICNT, Statement of Principles, available at http://www.state.gov/documents/organization/141995.pdf.

[91] Cable from the US State Department to the US Embassy in Berlin, GICNT and the G8 Global Partnership: Different but Mutually Reinforcing, 6 November 2009, available at https://www.cabledrum.net/cables/09STATE114601.

[92] 22 States joined the GICNT in 2008. In 2009, membership rose to 75, to 82 in 2010, and to 85 in 2013: Argentina, Afghanistan, Albania, Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Belarus, Belgium, Bosnia, Bulgaria, Cambodia, Canada, Cape Verde, Chile, China, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, India, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Kyrgyzstan, Latvia, Libya, Lithuania, Luxembourg, Macedonia, Madagascar, Malaysia, Malta, Mauritius, Mexico, Montenegro, Morocco, Nepal, Netherlands, New Zealand, Norway, Pakistan, Palau, Panama, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia, Seychelles, Singapore, Slovakia, Slovenia, Spain, Sri Lanka, South Korea, Sweden, Switzerland, Tajikistan, Thailand, Turkey, Turkmenistan, Ukraine, United Arab Emirates, United Kingdom, United States, Uzbekistan, Vietnam, and Zambia.

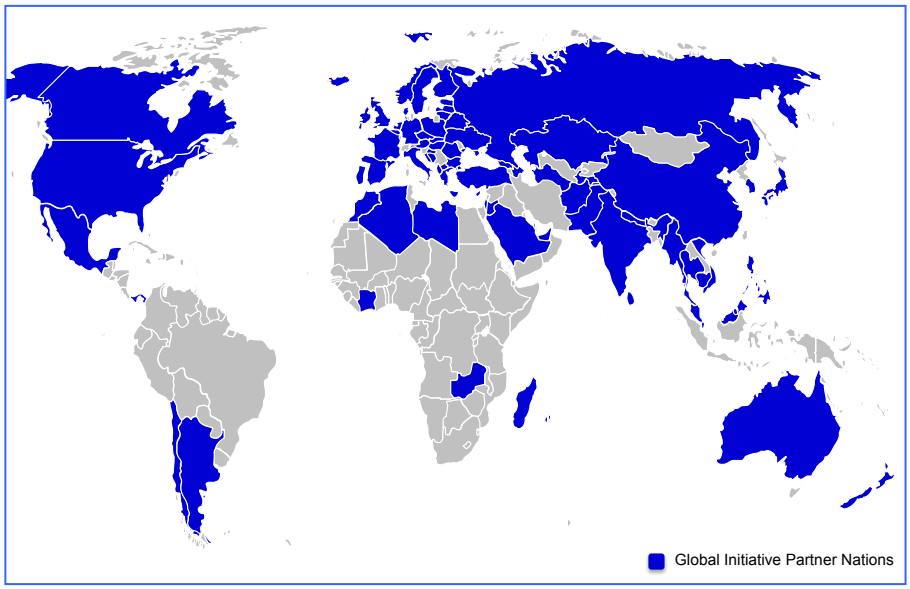

Figure 5: Global Initiative Partner Nations (source: AS)

The group thus represents a mixture of great and small powers, industrialized and developing countries from all parts of the world.

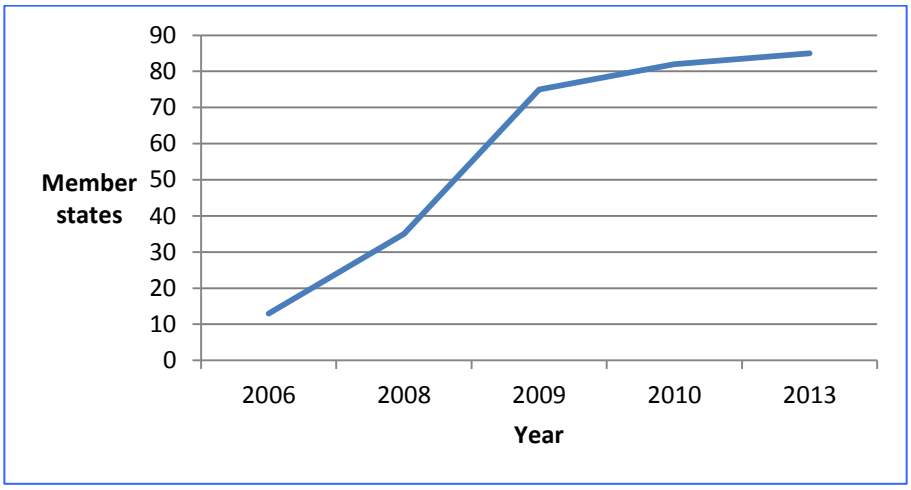

Figure 6: Development of GICNT membership (source: AS)

5.1.3. Structure and Organization

The co-chairs of GICNT are the US and Russia. A state acquires membership by declaring its adherence to the "Statement of Principles". It is admitted as a partner by agreement of the co-chairs. The two nuclear superpowers thus dominate the grouping.

GICNT holds regular plenary meetings at the senior level, at which progress is evaluated and future goals identified. From 2006 to 2013, 8 plenary meetings have been convened. The IAEA participates as an observer, and partners are committed to strengthening its role in prevention of nuclear terrorism.

Procedures are described in a document on "Terms of Reference", which defines the participants' roles and duties and establishes concrete mechanisms for GICNT implementation.[93] It was revised in 2010 and, unfortunately, is not publically available. US diplomatic cables describing background diplomacy indicate that decision-making has been more clearly defined, and that it gives more clarity on the organization, purposes, and principles. As an example, China asked for more institutionalization and structure of the initiative. It criticized that there was no permanent agency to conduct its work.

In 2010, the plenary meeting established the Implementation and Assessment Group (IAG). Its task is to take action on decisions taken by the plenary and to coordinate GICNT activities among the members and with other international projects.[94] It is open to all members. The chairs and vice-chairs of GICNT are rotating and the IAG has a coordinator function. Until 2011, IAG created three working groups: the IAG Nuclear Detection Group, chaired by the Netherlands, is developing a guidance document on nuclear and radiological detection.[95] The IAG Nuclear Forensics Working Group, chaired by Australia, is working on documentation, assistance, and collaboration on nuclear forensics. The IAG Response and Mitigation Group, chaired by Morocco, will coordinate activities as a response to a radiological/nuclear terrorist incident.

5.1.4. Decision-Making Structure

The plenary decides by consensus on documents produced by the working groups to become official products.[96] Originally, there was no mechanism to endorse collaboratively developed documents.[97] This has evidently been changed after the amendment of the Terms of Reference in 2010. All partners have voluntarily committed to the "Statement of Principles". The documents produced by the working groups apparently serve as recommendations and create a certain pressure for compliance. Other individual activities and contributions are voluntary and not bound by consensus, thus allowing for flexibility.[98]

---

[93] U.S. Department of State: Joint Co-Chair Statement regarding the 2010 GICNT Plenary Meeting, June 29, 2010, available at http://m.state.gov/md143754.htm; The National Archive, Text of Terms of Reference for Implementation and Assessment, 2008, available at http://collections.europarchive.org/tna/20080205132101/http://fco.gov.uk/files/kfile/terms%20of%20reference%20for%20implementation%20and%20assessment.pdf.

[94] GICNT: Fact sheet on GCINT, available at http://www.state.gov/documents/organization/145499.pdf.

[95] Media Note, U.S. Department of State: Joint Statement on the Contributions of the Global Initiative to Combat Nuclear Terrorism (GICNT) to Enhancing Nuclear Security, Washington, DC, March 21, 2012, available at http://www.state.gov/r/pa/prs/ps/2012/03/186611.htm; GICNT: GICNT Implementation and Assessment Group (IAG), available at http://www.gicnt.org/implement.htm.

[96] GICNT, Plenary Meeting, Joint Co-chair Statement, May 28, 2013, available at http://www.mid.ru/bdomp/brp_4.nsf/e78a48070f128a7b43256999005bcbb3/60a4aee71b2c572444257b7900478c03!OpenDocument.

[97] U.S. Department of Homeland Security, Domestic Nuclear Detection Office, Foreword, Model Guidelines Document for Nuclear Detection Architectures, December 2009, available at http://paxpartnership.org/Knowledgebase/Attach/GICNT%20Model%20Guidelines%20Document%20-%20FINAL%20-Don%20Parman.pdf.

[98] U.S. Department of State: GCINT, Frequently Asked Questions, question 15, available at http://www.state.gov/t/isn/c37072.htm.

At the first meeting, it was understood as necessary to co-opt new members by consensus decisions. This, however, was not always upheld later on. Decisions affect partners, but no outsiders. There are no negative externalities to be suffered by third parties.

5.1.5. Outreach

GICNT maintains a website that summarizes the activities and publishes official statements and press releases on plenary meetings. The website is not very detailed and does not give details on activities.[99]

The information that is available to the general public is scarce. Documents produced in the IAG Working Groups, for example, are not published on the GICNT website, or made available as printed matter to be purchased.[100]

There are outreach activities to new partners on diplomatic levels, and several members lobby other states to encourage their participation.

The limited transparency might be somehow mitigated through the relative large membership of this 'club' that includes about 40 percent of the United Nations membership, and almost all countries that harbor nuclear activities or might be targeted by a terrorist group planning to use nuclear or radiological means of attack.

5.1.6. Confrontational versus Cooperative Instruments

The major instruments that GICNT uses are multilateral conferences, workshops, and exercises that aim at promoting the goals and setting standards. They are coordinated by the IAG, in order "to ensure they align with the Statement of Principles, are complementary to existing international efforts, and advance priorities identified by GICNT partner nations".[101] In some cases, financial and logistical support is available to partner nations interested in organizing or hosting events.

Background diplomacy contributes to the IAG's 'ensuring' compliance and activism. It is also a tool to recruit more members and to urge them to participate (such as sending out joint demarches).

As this overview documents, GICNT's activities help to familiarize the officials of member states concerned with risks of nuclear and radiological terrorism with information about threat assessment and ways and means to counter the potential threat. Capacity building is clearly in the foreground. Beyond enhancing coping capacity in the membership, joint exercises in

[99] GICNT, Key Multilateral Workshops and Exercises, available at http://www.state.gov/documents/organization/145498.pdf.

[100] E.g. several documents are quoted in the Joint Co-chair Statement of May 28, 2013 available at http://www.mid.ru/bdomp/brp_4.nsf/e78a48070f128a7b43256999005bcbb3/60a4aee71b2c572444257b7900478c03!OpenDocument, but not available at the GICNT homepage.

[101] U.S. Department of State: GICNT Workshops and Exercises, available at http://www.state.gov/t/isn/c37078.htm.

which elements of the counter-terrorism institutions of various countries work together enhance the joint capacities of the international community, as well.

5.2. Assessment

5.2.1. Internal and External Evaluation

Ultimately, GICNT activities amount to creating more binding commitments, more common standards, more cooperation, more counterterrorism capacity, and to strengthen the role of the IAEA. Participants are encouraged to align their domestic legislation. The working groups are more practically oriented: They aim to establish practicable output that is useful for both technical and administrative officials and other stakeholders and that would also raise awareness and provide useful knowledge, thus mainly focusing on education.

All recommendations in favour of nuclear security beyond the existing legal instruments up until 2006 had only been voluntary and varied greatly between states.

The group points in particular to its practical achievements: "To date, the GICNT has conducted nearly 50 multilateral activities and seven senior-level meetings. It has produced practical guidance documents and has organized exercises and seminars."[102] The publications are not available to the general public.

There are no more successes than the documents, exercises and seminar. During the last decade, the international security culture and awareness of the dangers of nuclear terrorism have been strengthened. But it is unclear as to what extent this can be explained by GICNT. There are similar activities by various research institutions and by the IAEA that also may have contributed to the effect. The extent to which there has been duplication of efforts and the extent which GICNT has really created something new are elements that still must be investigated. But even if GICNT has not produced anything new, the duplication has a reinforcement effect and the potential to strengthen security norms.

Furthermore, it must be investigated whether new countries that were formerly not very interested have strengthened their security culture, or whether only the same countries that have been active all along are the ones that contribute. A large majority of the events have been hosted in developed states, the only hosts from less developed states being Morocco, Turkey, and Kazakhstan. Between 2009 and 2013, the membership has not grown very much, only 10 additional members have joined the initiative.

[102] See GICNT homepage, available at www.gicnt.org. An overview on all activities is available at http://www.gicnt.org/download/iag/Running_List_of_All_GICNT_Events_-_December_2013.pdf.

Which other collaboration projects have been motivated specifically by GICNT is also a remaining question.

On the policy level, President Obama has announced the transformation of GICNT into a "durable institution" (Obama 2009). But no activities toward this end have followed. All activities and the GICNT participation are still voluntary.

5.2.2. Reasons for Success and Shortcomings

Factors that have contributed to the success are the high level attention and commitment by the US. At the Nuclear Security Summits 2010 and 2012, GICNT was explicitly promoted by the US government. The funding of the meetings, seminars and exercises are a precondition for their materialization.

The synergies and overlaps with other initiatives such as GTRI or CTR certainly also contribute to the motivation, although to a certain extent there is also duplication. For example, nuclear forensics has been pursued by individual institutes without much supporting policy. Their activities sometimes resulted in frictions in the international context because they implicitly accused institutions in other countries of being the origin of smuggled nuclear samples. International collaboration appeases such frictions and concerns. The fairly representative composition of the group was certainly helpful in that regard. The activities by the IAEA create more synergies.

In contrast to GTRI, GICNT has not the potential to provide large sums for funding. With GTRI, much of the success and motivation can be explained by the funding. A similar incentive is lacking with GICNT. Advantages for poorer participants are rather in the realm of obtaining useful information, familiarizing themselves with proven practices, and receiving training by experienced coaches. Once countries look at the terrorist threat as a real, practical concern, they are likely to appreciate this sort of intangible, non-financial assistance.

5.2.3. The Outliers' Criticism

The GICNT, so far, appears to be completely isolated from the criticism that other initiatives have been facing from the global South. In our inquiry, there were no findings that non-member states of the GICNT had criticized the initiative. This is all the more surprising as the two great powers dominate the initiative unambiguously.

5.3. What's next?

Up until now, all activities are voluntary and commitments are general. GICNT should strive for more binding commitments. As the activities and topics are diverse, these commitments should focus on specific sub elements, such as the creation of a common database for nuclear forensics. Several national databases exist already. The IAEA maintains its Illicit Trafficking

Database, but several states are still reluctant to exchange information, especially the nuclear weapon states (including the US) (Oswald 2009). It may be questioned whether GICNT could be able to promote more information sharing. GICNT should also become more transparent to non-members and the public. All studies and detailed report on joint exercises should be published. Similarly, GICNT should invest in the IAG to create transparent structures and transparent decision-making procedures. The impact on counter-terrorism capacity of non-partners is in the interest of the group and would thus provide value added. In addition, it might attract new countries that would be accepted as new partners. These measures would facilitate attracting new partners and would also mitigate whatever residual concerns may exist about the dominant role of the two nuclear superpowers, especially the US, in this initiative.

6. The Nuclear Security Summits

6.1. Description

The Nuclear Security Summit (NSS) process was initiated by US president Barack Obama following his 2009 Prague speech, in which he identified nuclear terrorism as one of the greatest threats to international security and called for holding a global nuclear security summit in 2010 as part of an effort *"to secure all vulnerable nuclear material around the world within your years"*.[103] The first NSS, hosted by the United States in Washington (April 12-13 2010), was followed by a second summit in Seoul[104] (March 26-27 2012). A third one is scheduled for March 24-25, 2014 in The Hague and a fourth one will take place in Washington in 2016.

6.1.1. Mission

Preventing nuclear terrorism and the illicit acquisition of nuclear and radiological material by non-state actors remains the overarching objective of the NSS process. Initially, the focus was only on civilian material security, but was later expanded to cover military fissile material security, radiological security and the overlap of nuclear security and safety. Currently, the existing nuclear security governance regime is a complex potpourri of loosely connected, legally binding and voluntary instruments with widely varying membership and degrees of inclusiveness that address various aspects of the perceived threat. The US acknowledged the need to raise awareness and a high-level political endorsement of the urgency of political action in launching the NSS process (Bowen et al. 2012, p. 363).

Accordingly, the 2010 summit in Washington primarily aimed at achieving consensus on the nature of the threat and agreeing on concrete measures in order to enhance the security of nuclear material within the national borders of the participants. The focus was on increasing support for existing initiatives[105], enhancing transnational cooperation in preventing the illicit acquisition of nuclear material by non-state actors by improving the physical security of nuclear material and reducing the amount of nuclear material worldwide. The Washington summit resulted in the adoption of a non-binding communiqué which maintained that "nuclear security is one of the most challenging threats to international security"[106] that must be addressed by

[103] For the full text of Obama's Prague speech, see http://www.huffingtonpost.com/2009/04/05/obama-prague-speech-on-nu_n_183219.html.

[104] The choice of South Korea came as a surprise given the fact that the country neither possessed nuclear weapons nor weapons-grade materials. But Seoul volunteered after Russia had declined Obama's invitation to host the follow-up summit (Pomper and Dover 2012).

[105] Among the most prominent legal frameworks in the realm of nuclear security is the Convention on the Physical Protection of Nuclear Material (CPPNM), pledging member states to secure nuclear material during transport. A 2005 Amendment of the CPPNM enhances the convention's scope to domestic storage but has yet to enter into force. The International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) was drafted in order to fill gaps in the CPPNM regarding radiological sources and combating illegal trafficking. Additionally, there are a range of voluntary measures such as codes of conduct and ad hoc initiatives.

[106] See the text of the communiqué at http://www.whitehouse.gov/the-press-office/communiqu-washington-nuclear-security-summit.

securing the world's vulnerable nuclear material within four years. The summit laid out a broad set of goals toward this end. More detailed voluntary objectives and measures were spelled out in a work plan.[107] States agree to maintaining and ensuring the physical security of weapons-usable nuclear material within their borders through domestic legislation; to consolidating and eventually removing highly-enriched uranium (HEU) and plutonium; to reaffirming the role of the IAEA and emphasizing the need for capacity building with the aim of promoting a nuclear security culture; and endorsing full implementation and work towards the universalization of existing instruments in the realm of nuclear security (such as the Convention for the Suppression of Acts of Nuclear Terrorism and the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment that has yet to enter into force). 30 countries entered into national commitments ("house gifts", 67 specific measures in total) ranging from the pledge to join related instruments such as the G8 or GICNT, to eliminating or reducing their stockpiles of highly-enriched uranium (HEU), to converting research reactors from using HEU to light-enriched uranium (LEU), to maintaining effective nuclear security regulations and to working towards establishing a national security culture, e.g. by creating nuclear security training centers. Some countries pledged to increase their financial contributions to the IAEA nuclear security fund.

The 2012 summit in Seoul evaluated progress made in implementing the national commitments and outlined future measures: "If the 2010 Washington Summit was the conceptualization summit, then the 2012 Seoul Summit was hoped for by experts and observers to be the implementation summit" (Kim 2012). The scope of the agenda was extended to include security of radiological material, and greater emphasis was put on the nexus between nuclear safety and security following the Fukushima accident. Both modifications instigated controversy in the run-up to the summit, with some countries expressing their fears that an expanded scope might dilute the focus on nuclear security (Kim 2012). Controversies also arose between the US and South Korea as to whether the summit's main goal was to review implementation of the 2010 commitments (US) or to expand the scope and achieve goal-oriented, actionable commitments (South Korea). Overall, the Seoul communiqué built on 2010 agreements and suggested specific actions in eleven "areas of priority": the global nuclear security architecture, the role of the IAEA, nuclear materials, radioactive sources, nuclear security and safety, transportation security, combating illicit trafficking, nuclear forensics, nuclear security culture, information security, and international cooperation[108]. According to Kim (2012), the overall aim was to ensure continuity with the 2010 summit while at the same time making progress, keeping the voluntary nature of national commitments and opting against the establishment of a new regime. A novelty was the "joint statements" or "gift basket", joint pledges among like-minded participants "willing to move faster than others" (Pomper 2012, p. 4) on topics such as information security, transport security, radioactive security, prevention of nuclear smuggling, minimizing the use

[107] See the text of the Work Plan at http://www.whitehouse.gov/the-press-office/work-plan-washington-nuclear-security-summit.

[108] For the text of the Seoul communiqué see http://www.auswaertiges-amt.de/cae/servlet/contentblob/613088/publicationFile/166261/Seoul_Communique.pdf.

of HEU in research reactor fuel, establishing nuclear training centers and improving national legislation. Beyond that, the Seoul communiqué set two timelines: "states in a position to do so"[109] pledged to accelerate ratification of the amended CPPNM in order to have it enter into force by 2014 and to announce voluntary actions on reducing the use of HEU by the end of 2013.

The upcoming NSS in 2014 will build on and evaluate the progress regarding the results achieved and outline future steps, including strengthening the institutional framework, presumably by bringing the NSS under an IAEA umbrella.[110]

6.1.2. Membership

Participation is restricted to invitation by the conveners, based on a regional balance and taking into account the existence of nuclear materials in a country.[111] Nikitin (2012b, p. 2) also mentions countries that may become "potential transshipment points for illicit trafficking". The US was determined to maintain high-level political participation in order to raise awareness as and thus to send a political signal (Pomper 2012, p. 2).

The 2010 Washington summit was attended by national delegations or heads of states (38 in total) from 47 countries,[112] as well as by the heads of the UN, the IAEA and the EU. With the exception of North Korea, all states possessing nuclear weapons or significant stocks of HEU were invited. In 2012, the list of participants increased by six countries[113] and also included INTERPOL.

The membership was, however, criticized of constituting a "coalition of the willing" (Pomper 2010). While the limited focus is justified by the organizers as indispensable in order to achieve consensus (Bowen et al. 2012; Kim 2012)114, resentment is uttered by countries intentionally left out and materializes in form of counter-summits such as the one launched by Iran in 2010 (see p. 84f). Some countries with former nuclear weapons activities (Belarus, Serbia, Libya, see Müller and Schmidt 2010) or countries holding huge uranium reserves (Niger, Namibia, Mongolia, Uganda and Senegal) were not invited (Young and Dalnoki-Veress 2010; Kim 2012). The aim of regional balance seems misleading with more than half of the participants being

[109] For the text of the Seoul communiqué see http://www.auswaertiges-amt.de/cae/servlet/contentblob/613088/publicationFile/166261/Seoul_Communique.pdf.

[110] See Nuclear Security Summit 2014, available at https://www.nss2014.com/en/nss-2014.

[111] See 'Frequently Asked Questions' on the homepage of the NSS 2014, available at https://www.nss2014.com/en/nss-2014/faq.

[112] These countries were Algeria, Argentina, Armenia, Australia, Belgium, Brazil, Canada, Chile, China, the Czech Republic, Egypt, Finland, France, Georgia, Germany, India, Indonesia, Israel, Italy, Japan, Jordan, Kazakhstan, Malaysia, Mexico, Morocco, the Netherlands, New Zealand, Nigeria, Norway, Pakistan, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, Ukraine, the United Arab Emirate, the United Kingdom, the United States of America, and Vietnam.

[113] Azerbaijan, Denmark, Gabon, Hungary, Lithuania and Romania

[114] "The choice to keep the numbers somewhat limited reflects in part recognition that more participants would make achieving consensus more difficult". The intended exclusion of North Korea and Iran was due to the fact that "they are regarded as spoilers of summit objectives as well as distractions to the main focus of nuclear security" (Kim 2012).

Western countries or their allies and only around one-third of the countries being members of NAM.

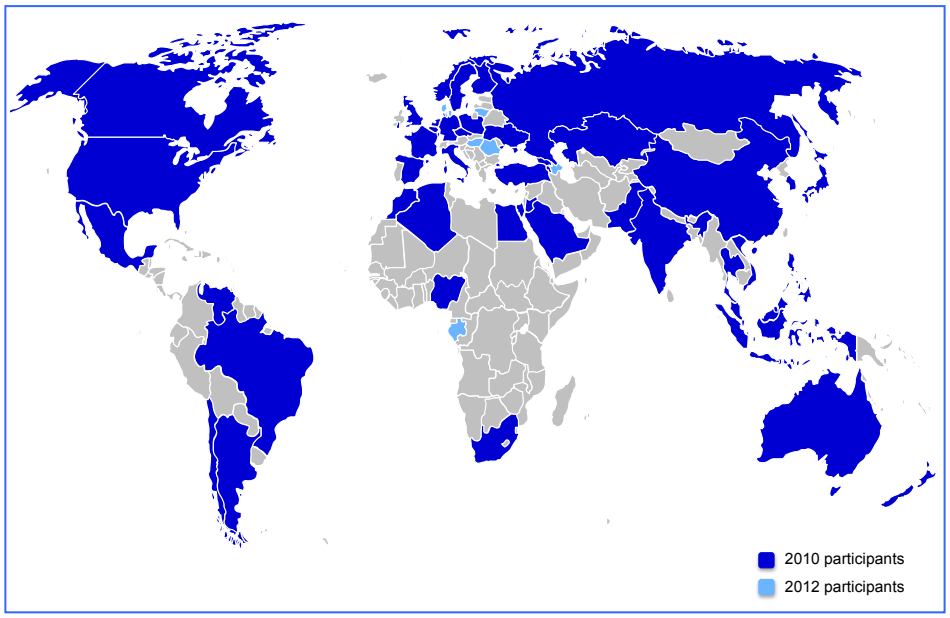

Figure 7: NSS participants, original 2010 participants (source: CW)

Exclusive membership and limited outreach activities (see 6.1.5.) are at odds with the objective of the NSS process to "create a norm of behavior that convinces those that were not invited […] of the need to take similar actions" (Young and Dalnoki-Veress 2010).

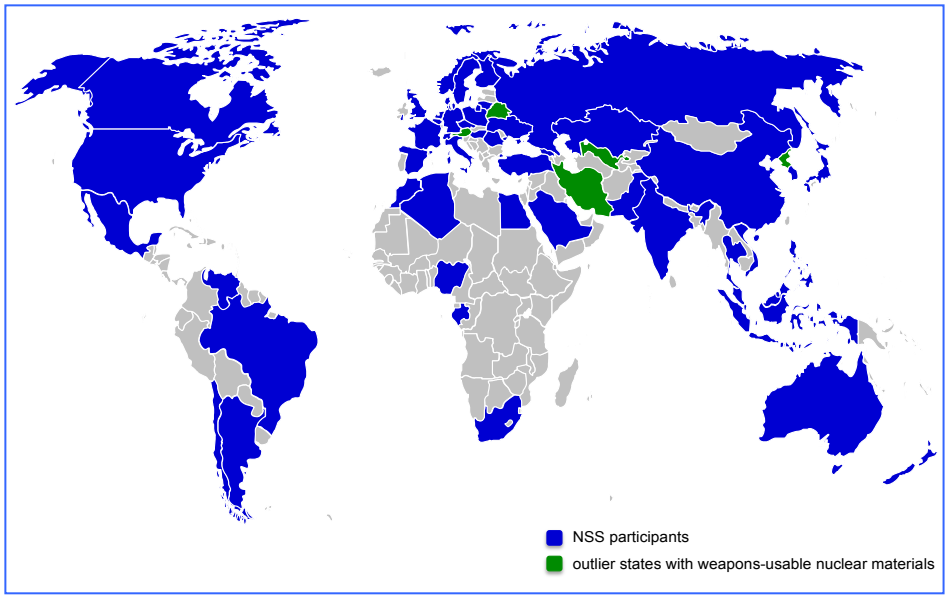

Figure 8: NSS participants and outlier states with weapons-usable nuclear materials[115] (source: CW)

[115] These countries are Austria, Belarus, Uzbekistan, Iran and North Korea, see NTI Nuclear Material Security Index 2012.

6.1.3. Structure and Organization

The NSS constitute an ongoing process. Summits consist of plenary meetings, working dinners and bilateral meetings. In the meantime, preparatory meetings and consultations between high-level national coordinators ("sherpas" and "sous-sherpas")[116] are convened on a regular basis in order to discuss progress and coordinate the run-up process to the following summit. The preparatory meetings draft the agenda and work plan, which will eventually be affirmed at the upcoming summit and outlined in a communiqué. Usually, meetings are held in closed session with no recordings (NSS 2014; Kim 2012), but selected statements of the Seoul Summit are available via internet.[117] Before the 2012 summit, Seoul organized several separate meetings for industry and policy experts. Moreover, there are a number of think tanks that hosted workshops prior to the summits, providing progress assessments and policy recommendations.[118]

The process was originally not designed as an institutionalized process. The further institutionalization of the NSS has been an issue of contention and will be discussed during the upcoming summit in The Hague.[119]

6.1.4. Decision-Making Structure

Neither the summit communiqués nor the work plan adopted at the Washington summit entails legally binding measures. Even the national commitments are nothing more than declarations of intent. Countries that aim to lead by example might offer extra initiatives, either on a national basis ("house gifts" as put forward at the 2010 NSS) or as joint initiatives ("gift baskets" agreed to at the 2012 NSS). These measures are not outlined in the communiqués or in the Washington work plan because they apply only to specific countries. There is no mechanism for ensuring and enforcing countries to abide by their commitments.

In principle, announced measures and objectives apply to NSS participants only. The national and joint commitments are, by nature, even more limited in scope. All measures are of a voluntary nature. However, the ultimate goal of President Obama might have been to establish a nuclear security norm that also binds those countries that are not part of the NSS (Young and Dalnoki-Veress 2010).

6.1.5. Outreach

Due to restricted membership, outreach activities for enhancing the number of NSS supporters remained scarce. There was only one instance of mem-

[116] While the title 'sherpa' is attributed the head delegate of a country, 'sous sherpa' denotes deputy delegates of each country's NSS team that are in charge of drafting the agenda and the communiqué of the summits.

[117] See NSS Reference Documents, available at https://www.nss2014.com/en/nss-2014/reference-documents.

[118] See, e.g. http://uskoreainstitute.org/programs/nss2012/workshops/; http://www.armscontrol.org/factsheets/NuclearSecuritySummit; http://cns.miis.edu/stories/120316_nuclear_security_summit.htm.

[119] See information on the NSS 2014 website available at https://www.nss2014.com/en.

bership expansion, the admission of 7 new participants at the Seoul summit. However, NSS participants pledged to work towards the universalization of existing conventions.

There have been some regional outreach meetings hosted by Chile, Poland, Nigeria, Thailand and Morocco "as a forum to collaboratively discuss nuclear security challenges in […] their particular regions"[120]. The US and South Korea, in their functions as hosts of the previous summits, convened meetings at the IAEA and at the UN. A joint initiative by the United States, Chile, Poland, Nigeria, Morocco, Thailand and South Korea on outreach efforts at the 2012 Seoul summit emphasized an unspecified continuation of outreach activities.

Considerable effort has been put in reaching out to the broader public: there is a website that provides comprehensive coverage of official documents and statements, fact sheet and news coverage of ongoing sherpa meetings and press documentation.[121] Journalists are invited to attend the summit, as are representatives of the nuclear industry and scholars working in related fields. Individual summit participants provide information for NGOs on the websites of their respective ministries.[122] The summit communiqués and the Washington work plan and national and joint commitments lay out measures on enhancing education in nuclear security through capacity building and assistance.

6.1.6. Confrontational versus Cooperative Instruments

Cooperative capacity building measures (bilateral, regional, multilateral) have been the primary means of the summits. Voluntary national commitments and pledges are at the center state. Regarding transnational cooperation, summit participants agreed to increase transparency of global nuclear material holdings through information-sharing and exchange of best practices; to hold workshops on a regular basis; to provide for assistance when requested; and to hold joint exercises among law enforcement and customs officials to enhance nuclear detection capabilities. Moreover, participants pledged to enhance or maintain funding of nuclear security related measures and to strengthen the already existing nuclear security architecture by promoting the universalization of legal conventions. Participants have shown reluctance or even opposition towards agreeing on common standards such as e.g., HEU management guidelines.

[120] Joint Statement by the US, Chile, Poland, Nigeria, Morocco, Thailand, and the Republic of Korea on the NSS, Outreach Efforts, available at https://www.nss2014.com/sites/default/files/documents/outreach_efforts.pdf.

[121] For the Seoul Summit see http://uskoreainstitute.org/programs/nss2012/; for the upcoming summit in The Hague see https://www.nss2014.com.

[122] See, e.g. a 'NGO outreach' section provided for on the website of the US State Department: http://www.state.gov/.

6.1.7. Relationship to the NPT

The NSS process is an initiative that was conceptualized to run outside of the NPT process and has no formal connection to it. Nevertheless, it was certainly not without strategic consideration that the Obama Administration scheduled the first summit almost immediately before the 2010 NPT Review Conference. This was a gamble, as the relationship between the subject of nuclear security and the NPT is contested and not appreciated by a relevant segment of the NAM, where few would agree that NSS constitute *"one step in the ascent towards a nuclear-free world"* (Diehl 2010).

> *"Organizers have also questioned the legitimacy and life span of the security-summit process as opposed to other, more established multinational institutions such as the Nuclear Non-Proliferation Treaty review process or the IAEA. Although these bodies tend to give short shrift to nuclear security, they are strongholds in developing countries, which generally view nuclear security as a lower priority than other nuclear-policy goals. Some countries have also questioned the legitimacy of any global attempt to address the issue of nuclear security, seeing it as a potential violation of their sovereignty and something that would allow other countries to discover their security vulnerabilities" (Pomper and Dover 2012).*

It is all the more surprising that a sample drawn from the statement of 21 major NPT parties, including 12 from the developing world, found only one delegation criticizing the Washington Nuclear Security Summit, namely Iran. Seven delegations did not mention it at all (including, surprisingly, France). The rest (the majority in the sample) made positive reference to the event, including not only Russia and China, NWS otherwise critical of US policy, but also Argentina, Brazil, Chile, Mexico, and South Africa, all delegations very vocal at the Conference and thus among the dozen leaders of the global South. When Iran uttered its condemnation of the "exclusive" NSS on the floor, it was the Brazilian delegate who led a wave of a dozen (obviously orchestrated) non-aligned countries' statements in defense and praise of NSS (Müller 2011, pp. 227, 231).

6.2. Assessment

6.2.1. Internal and External Evaluation

With the initiation of the NSS process in 2009, President Obama primarily wanted to strengthen the commitment to nuclear security. The website of the NSS names four interrelated objectives of the process:

- Reducing the stocks of weapons-usable nuclear material and radioactive sources;
- Increasing the physical security of existing nuclear materials and radioactive sources;
- Combating the illegal trafficking of nuclear materials and related criminal activities and

- Enhancing and consolidating a nuclear security culture.[123]

President Obama's remarks at the Seoul summit presented an authoritative self-assessment of the initiative:

> *"We are fulfilling the commitments we made in Washington. We are improving security at our nuclear facilities. We are forging new partnerships. We are removing nuclear materials, and in some cases, getting rid of these materials entirely. And as a result, more of the world's nuclear materials will never fall into the hands of terrorists who would gladly use them against us".*[124]

NSS participants emphasize the importance of the commitments that were made in Washington and confirmed in Seoul. The NSS website highlights that participants agreed on the urgency of the threat posed by nuclear terrorism and the need to collaborate in securing all vulnerable nuclear and radiological material worldwide and, to this end, the need to acknowledge the national responsibilities of nuclear energy holders.[125]

Scholars agree that the NSS process was quite successful in raising public awareness, and creating momentum to strive to secure weapons-usable material on the ground (Bowen et al. 2012, p. 365): "The summit has helped globalize this issue and narrow the threat perception gap between countries in the developed and developing world" (ACA 2013, p. 49). There was talk about "an important milestone in strengthening the international nuclear security regime" (Podvig 2011, p. vii) as well as having defined nuclear security as a "global public good" (Twomey 2012).

On a more practical level, however, the enthusiastic assessment is dampened. Pomper (2010) sees "modest but significant progress", Hibbs (2012) talks about "incremental improvement". While there has been a general consensus on the existence of a threat posed by nuclear terrorism, the summits disclosed diverging national threat perceptions. The developing states do not share the same sense of urgency like the West (Young and Dalnoki-Veress 2010, Tobey 2011; Nikitin 2012b)[126]. They fear that nuclear security measures might impinge on their right to the peaceful uses of nuclear energy. Bowen et al. (2012) note that developed nuclear energy holders also raised similar concerns some 35 years ago. NAM states are also wary that a focus on nuclear security might divert attention from nuclear disarmament and safety issues.

Furthermore, the track record of implementing national commitments is uneven. According to an NGO progress report, approximately 80 percent of the

---

[123] See 'Frequently Asked Questions' on the website of the NSS 2014, available at https://www.nss2014.com/en/nss-2014/faq.

[124] Remarks by President Obama at Opening Plenary Session of the Nuclear Security Summit, available at http://www.whitehouse.gov/photos-and-video/video/2012/03/27/president-obama-speaks-nuclear-security-summit#transcript.

[125] See 'About the NSS' on the website of the NSS 2014, available at https://www.nss2014.com/en/nss-2014/about-the-nss.

[126] Nikitin (2012b, p. 5) states that "many developing countries […] do not view nuclear terrorism as a threat to their country, see its occurrence as unlikely, or simply are occupied with other priorities".

national commitments from the 2010 NSS were implemented by 2012 (Cann et al. 2012). An update released in July 2013 assesses "a culture of continuous improvement" (Cann et al. 2013, p. 5) and summarizes some of the recent improvements as follows:

> *"Since the March 2012 NSS, approximately 24 countries have enhanced the security of nuclear material and facilities; 42 countries have taken steps to improve their national nuclear governance structures, 22 have focused on countering nuclear smuggling; and 49 countries have taken specific steps to advance nuclear security culture" (ACA 2013, p. 5).*

In line with national or joint commitments, some countries have repatriated their US or Soviet-origin nuclear materials, some converted their civilian HEU reactors to low enriched uranium, others ratified key instruments pertaining to nuclear security (Ferguson and Herzog 2011; Cann et al. 2012, 2013). Nevertheless, some criticism remains.

First of all, the language of the communiqués (particularly of the Washington summit) has been intentionally weak, and measures were accordingly "so non-committal as to provide all signatory states with a get-out clause should they need or want one" (Kearns 2010, p. 50; see also Pomper 2012, p. 3).

Such an unambitious approach is assumed to have been chosen intentionally in order to provide "deliverables" (Pomper 2010). Also, contentious issues relating to nuclear security have deliberately been left out of the agenda, such as the FMCT, CTBT ratification or compliance with NSG guidelines (Diehl 2010; Kearns 2010). Not only did participants miss defining important elements of the communiqués, such as "vulnerable" or "secure", but they also shied away from setting a concrete timeline and end goals other than the vague commitment to *"secure all vulnerable nuclear material in four years"*[127]. Nor did the participants adopt a binding standard for how well nuclear material must be secured (Pomper 2010; Cann et al. 2012, 2013; Towney 2012). Similarly, an independent nuclear security index prepared by the Nuclear Threat Initiative found a *"deliberate lack of transparency"* regarding national holdings of vulnerable fissile material that *"makes it impossible to hold states accountable for their security responsibilities"*.[128] Furthermore, the commitments and goals were strictly voluntary and not overly ambitious, and concentrated on endorsing already existing instruments rather than establishing new ones (Pomper and Dover 2012).

A suggestion for establishing HEU Management Guidelines by France as a more specific and measurable standard faced severe opposition from developing countries, particularly South Africa, *""who preferred to see the issue discussed within the IAEA, not the summit or other outside process where they hold less sway"* (Pomper 2012, p. 4). Another challenge is posed by the double standard applied by the US and some other countries who have continued exporting weapons-usable HEU (e.g. to France, Canada, Belgium)

[127] See the text of the communiqué at http://www.whitehouse.gov/the-press-office/communiqu-washington-nuclear-security-summit.

[128] NTI, Past and Current Efforts to Reduce Civilian HEU use, updated November 15, 2012, p. 9, available at http://www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/.

while simultaneously encouraging others to limit their HEU-stockpiles and control trafficking (Young and Dalnoki-Veress 2010).

Finally, it is unlikely that the goal of securing all vulnerable fissile material within the announced four-year deadline will be met (Pomper 2012, p. 1; Schneidmiller 2013).

6.2.2. The Outliers' Criticism

According to Pomper and Dover (2012), North Korea was invited to attend the 2012 summit in Seoul on the condition that it gives up its nuclear weapons programs. However, the wish to be recognized as a nuclear weapon state is strong for the leadership in Pyongyang – Luongo (2010) cites a memorandum that was issued shortly after the 2010 summit in which North Korea expressed "a willingness to join the international efforts for nuclear non-proliferation and on nuclear material security on an equal footing with other nuclear weapon states" (Luongo 2011, p. 11).

Iran, which was not invited to participate in the NSS process, launched a counter-summit only a few days after the Washington summit and is known for criticizing US hypocrisy when it comes to pledging nuclear non-proliferation versus its own disarmament obligation. The Tehran International Conference on Disarmament and Non-Proliferation, coined "Nuclear Energy For All, Nuclear Weapons for None", was broader in scope by comprising nuclear disarmament, non-proliferation and the use of nuclear technology for peaceful purposes.

As shown earlier, and different from the NSG, this criticism did not capture the NAM as a whole. On the contrary, significant NAM states endorsed NSS activities not only during the 2010 NPT RevCon, but also at the IAEA General Assembly. Indonesia and Nigeria referred affirmatively to the 2012 Nuclear Security Summit Conference, pointing to their own security activities in that context.[129] It appears that the NSS are seen by NAM participants as a useful and legitimate part of a wider network of nuclear security activities that obtains its legitimacy eventually through the participation of and integration of activities with the IAEA.

6.3. What's next?

The greatest challenge appears to be maintaining the momentum and sustaining political will - observers fear a *"summit fatigue"* (Kim 2012). In The Hague, several landmarks will be decided upon. The need to move the current voluntary *"ineffective, overlapping, and diffuse"* (Kearns 2010, p. 50) patchwork nature towards a more coherent system of governance seems to meet general agreement. Accordingly, the upcoming summit will probably

[129] Statement by Mr. As Natio Lasman at the 56th Annual Regular Session of the General Conference of the International Atomic Energy Agency, Vienna, September 2012; Nigeria's Country Statement, delivered by F.Erepamo Osaisai Chairman/Chief Executive, Nigeria Atomic Energy Commission, Federal Republic of Nigeria to the 56th Regular Session of the IAEA General Conference at Vienna, Austria, September 18, 2012.

discuss whether, and if so, how, to integrate the NSS process into the organizational structure of the IAEA, which is deemed appropriate in terms of its mandate, legitimacy and instruments.[130] A crucial task might be to agree upon a single umbrella covering all existing legal and informal ad hoc mechanisms geared towards tackling the issue of nuclear security and to delete the current institutional overlap. The prospects of arriving at such a consensus are, however, rather low (Bowen et al. 2012, p. 356; Hibbs 2012; Scheidmiller 2013). Pomper (2012, p. 5) cites US officials describing efforts to achieve universal standards on nuclear security as *"chasing rainbows"*, since current efforts to universalize existing conventions have not yet yielded any success.

Apart from the greater question of the institutional framework, there are some minor but not less important recommendations: participants should further work to fulfill the commitments made – either national or joint ones. Moreover, they should strive to agree on standardized reporting and evaluation mechanisms in order to increase transparency and accountability (Nikitin 2012b, p. 7; Pomper 2012). NSS participants should aim towards greater inclusion of and cooperation with the nuclear industry and the private sector. On a similar note, states should further strengthen efforts geared towards establishing ethical codes of conduct for nuclear security professionals and improve outreach activities with the ultimate aim of establishing a comprehensive nuclear security culture (Ferguson and Herzog 2011; Santoro 2012). Finally, countries should increase their financial contributions to the IAEA Nuclear Security Office.

[130] Pomper (2012) reiterates some models: a. develop a rigorous treaty among like-minded countries and then advocate for signature; b. have supplying countries make supply conditional upon safety standards and peer review for nuclear trade; c. permit IAEA safeguards inspectors to report nuclear safety back to IAEA.

Chapter III: Comparison

In this chapter, we compare the six 'club' initiatives under scrutiny and try to explain the different performance they show. Performance is assessed in three dimensions: success in terms of whether the objectives set for the respective initiative has been achieved, and if so to what degree; acceptance; and impact on the NPT regime. Among the explanatory factors, we look at context (date of foundation), the relation to the NPT, the inclusiveness, indicated by the type of membership and the entry barriers, the degree of binding force, the impact on non-members, and the instruments applied, and outreach activities (which also provide a means of measuring the degree of transparency).

1. Performance

In terms of success, acceptance, and impact on the NPT regime, the performance balances of the 'clubs' differ considerably. NSG prevented the much feared "export policy race to the bottom" and developed reasonable rules for export policy. Rule-setting happened often belatedly due to insufficient surveillance of technological developments and procurement activities as well as resistance from more commercial-minded members inside the group. As a consequence, the NSG could not prevent, or delay for a long time while diplomatic means were applied to the targets, nuclear weapon programs in India, Pakistan and North Korea. It worked better on Libya, Iraq and Iran. While these countries could make progress in their clandestine programs, and have profited from imports and the assistance by the Khan network, this progress would probably have been much more speedy without the internationally agreed export controls in industrialized countries. Diplomacy (Libya, Iran) or the use of force (Iraq 1991) could thus be employed to prevent the emergence of new nuclear-armed states (though in the Iranian case, the jury is still out).

The most serious shortcoming over time, however, was that the NSG did not gain universal or at least widespread acceptance, but instead provoked a lasting negative image among many non-members from the developing world. Until today, it is seen as an illegitimate cartel of industrialized states with a few fig leaves from the "global South" that aims to deprive developing countries of their entitlement to peaceful uses of nuclear energy. Too few export or transit capable developing countries have joined the group, to the detriment of both legitimacy and effectiveness (such as the activities of the Khan network, with actors in Malaysia and the UAE participating in the document). The misgivings about the discrimination inherent in decision-making and the ensuing action of the NSG have contributed to the lacking consensus inside the NPT for strengthening other non-proliferation measures as well. These misgivings relate to the potentially universal impact of NSG decisions: the group is setting rules for global nuclear-related trade.

PSI has fared somehow better, though it has initially provoked a lot of concern and is still looked at with some suspicion by leading non-aligned countries (e.g. Indonesia, Mexico) and not only by its ostensible targets (North

Korea, Iran, Syria). Coming on the high wave of Bush's unilateralism and the attack on Iraq not covered by the UN Charter or other international law, PSI was initially seen as another attempt at legitimating the unilateral (naval) use of force by the US. This indeed was exactly what the "father" of PSI, then Under Secretary of State for Arms Control and International Security Affairs John Bolton, one of the most unilaterally minded members of the George W. Bush administration, initially had in mind (Bolton 2007, pp.117ff). The influence of America's allies, however, prevented PSI from ridding itself of the constraints of the International Law of the Sea; the fears of what the initiative would do on the high seas were thereby "disappointed", and nerves of critical outsiders calmed down a bit to the point that skeptical governments such as China or Indonesia participated in individual exercises. They did not, however, drop their concerns altogether. The extraordinary broad support that PSI attracted, not the least from developing countries, mitigated the 'club' problem of exclusivity, while the two-tier structure that privileged a core part of the industrialized membership prevented these concerns from coming to rest for good. PSI was also moderately successful with some spectacular and some less spectacular but still important intercepts. It did not, however, make it into the realm of universally legitimate activities.

Regarding acceptance, the Nuclear Security Summits have proven themselves to be an outstanding success. They even attracted applause within the NPT Review Process and the IAEA, that is, in settings seen as quintessentially legitimate by the vast majority of regime members (Müller 2011, pp. 227, 131). The significant participation of developing countries at the highest level led to an unusual appreciation of the summits in public utterances by leading NAM countries This success is all the more impressive since it overcame the explicit challenge of a very engaged opponent, namely the Islamic Republic of Iran. The NSS process thus evoked not just silent tolerance, but audible praise. The high level of transparency of the Summits might also have been conducive to increasing its acceptance. For example, journalists and civil society representatives were invited to the meetings from the start. The summits serve, on the one hand, as a kind of umbrella for the manifold activities addressing the risks of nuclear and radiological terrorism and, on the other hand, link up with related activities of the IAEA, which is visibly present and active during the summits and in the implementation of some of their programs.

The remaining three 'clubs', in turn, namely G8GP, GICNT and GTRI, feature a more limited membership compared to the NSS process, but one that always includes a significant number of developing countries. As NSS and PSI, all rely on voluntary commitments, different from PSI, however, they do not entail coercive actions against third parties. Their instruments are, exclusively, assistance, information, persuasion and capacity building in practical, technical terms. Together with the NSS, they build an interlocking framework of partially overlapping activities that all serve the objective of "nuclear security" (see below). Nuclear security, in turn, is largely framed as an anti-terrorist concept (to such a degree that, at one point, South Africa complained about a too narrow understanding of the term[131]), even though

[131] Statement by the Head of the South African Delegation, Ambassador Abdul Samad Minty, to the 54th Regular Session of the IAEA General Conference, 21 September 2010, p. 5.

the idea to secure nuclear materials and technology has a tangible and useful non-proliferation side effect.

In fact, the degree to which NSS, G8GP, GICNT and GTRI have succeeded in establishing "nuclear security" as an accepted concept designating a cherished common good that is in the interest of all is striking, compared to the acerbic debates about non-proliferation, as striking as it is welcome. The smoothness of the acceptance can be gauged from national statements from the 2012 IAEA General Conference, where developing country after developing country – parties or not to the NPT – prided itself by elaborating on its nuclear security activities, including, most significantly, the termination of HEU use in research reactors in favor of lower enriched dense fuels.[132]

The Thakur and Evans (2013) report, a comprehensive review of progress in nuclear disarmament, non-proliferation, nuclear security, and peaceful uses of nuclear energy lists a lot of progress across the various nuclear security initiatives. But it ends in a rather harsh verdict. The authors deplore the lack of a comprehensive, legally binding nuclear security regime, the "lack of universality, binding standards, transparency and accountability mechanisms, compulsory (sic!) IAEA oversight" (Thakur and Evans 2013, p.193). It even asks for IAEA "authority to establish mandatory baseline standards for nuclear security and to monitor and enforce compliance with the standards" (Thakur and Evans 2013, p. 171). We have a hard time thinking of an international organization which is tasked to make and enforce law for its nation states. In nuclear politics, this is completely out of the question and any attempt to introduce such a draconic regime would probably mean the end of the incremental improvement in the nuclear security situation, which the US has wisely initiated and which has made remarkable progress. As Bowen et al. have rightly summarized:

> *"Achieving progress in this area is going to require a much more pragmatic approach to international cooperation and not the pursuit of grandiose visions. Effective multilateral action will depend first and foremost on pushing forward existing areas of cooperation, both formal and informal, and potentially developing new, albeit modest, inititatives to fill policy gaps as these are identified. An incremental approach is the only realistic way to move the agenda forward." (Bowen et al. 2021, p. 349).*

On the basis of our findings, we concur fully with this assessment.

[132] E.g. 57th Regular Session of the IAEA General Conference, Vienna, 18 September 2013, Statement by Dr. Ratan Kumar Sinha, Chairman of the Atomic Energy Commission and Leader of the Indian Delegation; 57th IAEA General Conference, 16-20 September 2013, Statement by the Leader of the Pakistani Delegation; Statement by H.E. Rachmat Budinan (Head of the Delegation of the Republic of Indonesia). At the 57th Annual Regular Session of the IAEA General Conference; Statement by the Head of the Algerian Delegation, Ambassador S.E. Mohamed Benhoncine, to the 57th Regular Session of the IAEA General Conference, Vienna, September 2013; Statement by South Africa, Ambassadeur Représentant Permanent, delivered by the Minister of Energy, Mr. Dikobe Benedict Martins on the occasion of the 57th Regular Session of IAEA General Conference, Vienna, 16-20 September 2013; Nigeria's Country Statement, delivered by His Excelleny Dr. F. Erepamo Osaisai, Chairman/Chief Executive, Nigeria Atomic Energy Commission, to the 57th Regular Session of the IAEA General Conference, Vienna, September 17 2013; Statement by Brazil at the 56thIAEA General Conference delivered by H.E. Ambassador Laercio Antonio Vinhas; Statement by Dr. Muhammad Lebal Juri, Director General of Malaysian Nuclear Agency, Head of Delegation of Malaysia to the 65th Regular Session of the IAEA General Conference, Vienna, 17-21 September 2012.

2. Explanation

The 'club' initiatives studied can be distinguished according to their time of foundation. The NSG has been clearly a child of the Cold War, and one of the few institutions where East and West worked together for a common good. Its mission concerns nuclear related export controls. All the other initiatives fall in the category "post 9/11 response", though some aspects of the Global Partnership and GTRI build on elements that were installed after the end of the Cold War, but before 2001. Their present shape, however, was established only after 9/11. Among these newer initiatives, PSI clearly has aspects that relate to export controls, since PSI activities start when export controls have run their course. The context in which PSI was founded was a post 9/11 one and it was framed, first and foremost, as an anti-terrorist activity serving nuclear security. It was carefully held outside of the NPT context, not the least due to the generic aversion of its founders against traditional, treaty based multilateralism (Bolton 2007, pp. 117ff).

It can thus be inferred that the important differences between NSG – which has attracted widespread rejection – and the PSI – which has attracted grudging tolerance by most critics and participation by many – are connected with the subject matter with which they are concerned and the way they have been framed and contextualized. The NSG deals with nuclear trade, which is seen by developing countries as an "inalienable right" granted by Art. IV of the NPT. As the subject matter enshrined in this Treaty, it is principally removed from unilateral or oligarchic rule-making, and the fact that rule-making was arrogated by a small group (in which, initially, a non-party to the NPT, France, was participating), was seen as an illegitimate and even illegal intrusion in what was the fiefdom of the treaty community as a whole or, alternatively, the realm for rule-making by the whole membership of the United Nations. This reflects the basic dedication of the NAM to law-based, inclusive multilateralism:

> *"The Movement reiterated its strong concern at the growing resort to unilateralism and unilaterally imposed measures that undermine the UN Charter and international law, and further reiterated its commitment to promoting, preserving and strengthening multilateralism and the multilateral decision making process through the UN, by strictly adhering to its Charter and international law, with the aim of creating a just and equitable world order and global democratic governance, and not one based on monopoly by the powerful few."*[133]

Attempts by good faith suppliers like the ones cooperating in the "Vienna Group of Ten" since 1980, to insert positive language on the NSG in final declarations of NPT Review Conferences, not only regularly failed but backfired due to the fact that they confirmed the perception of the NAM that the NSG was asserting rule-making rights in the treaty context. PSI, in contrast, even though complementary in its function to export controls, was perceived in the context of anti-terrorist nuclear security and thereby framed in a more

[133] NAM 2012/Doc.1/Rev.2, 16th Summit of Heads of State or Government of the Non-Aligned Movement, Tehran, Islamic Republic of Iran, 26-31 August 2012, Final Document, §25.4.

acceptable manner since it was not seen as contradicting key stipulations of an existing treaty.

So far, we have visited two aspects that affect the legitimacy of the initiatives and influence the direction of their impact on the non-proliferation regime: the composition of the membership and their relationship to 'true' universally negotiated and law-based multilateralism. Both features have an easy-to-trace impact on the 'clubs'' performance.

There are four other characteristics that appear to be essential for acceptance: first, the character of the instruments that the initiatives feature. Are they imposing/coercive or are they cooperative and wanted (assistance, advice, information, capacity building)? Second, the impact on non-participating actors (do they affect them, positively/negatively, or do they exclusively affect participants?). Thirdly, the degree of binding force: are the activities voluntary with a permanent exit option for participants, or are they binding with a ratchet-effect once participation had begun? Finally, who is the target? The NSG and, to a degree, the PSI target proliferating states where the ultimate proof of wrongdoing (to be certified by the IAEA) has not yet been delivered. The other initiatives want to prevent nuclear or radiological terrorism. Al Qaida is not a member of the NAM, but is the Movement's declared enemy.

Initiative	NSG	PSI	NSS	G8GP	GICNT	GTRI
Founding Date	1975/77	2003	2010	2002	2006	2005
Relation to NPT	strong	weak	remote	remote	remote	Remote
Success	medium	medium	good	good	good	Good
Impact on NPT regime	negative	mildly negative	good	neutral	neutral	Neutral
Acceptance	contested	mildly, decreasingly contested	very good	neutral - good	neutral - good	neutral - good
Membership	predominantly 'Northern'	mixed, two tiered	mixed	mixed, two tiered	mixed, two tiered	mixed
Entry barriers	high	medium	medium	low	low	low
Binding force	strong politically binding	politically binding	voluntary	voluntary	voluntary	Voluntary
Third party externalities	strong perceived impact	decreasing perceived impact	none	none	none	none
Type of measures	control, denial, sanctioning	control, interception capacity building	persuasion, information, assistance, capacity building	persuasion, information, assistance, capacity building	persuasion, information, assistance, capacity building	persuasion, information, assistance, capacity building
Outreach	low to medium	medium	strong	medium to strong	medium to strong	medium to strong

Figure 9: Comparison of the initiatives along various categories (source: HM/CW)

If we look at the six 'clubs' under these auspices their effects become more understandable. The NSG is the most exclusive and features the lowest share of non-aligned participants with the highest entry barriers and uses coercive/sanctioning instruments. It is not well integrated into "true" multilateralism but impacts on a central multilateral treaty, the NPT, and its membership, thereby exerts a potentially negative effect on outsider countries from the South. It has a strong political binding effect as members stand under heavy pressure to justify their actions if they fail to meet the guidelines.

3. Non-Proliferation and Counter-Terrorism: Varying Acceptance

As noted, the relation to the NPT as an international legal instrument that establishes or confirms the rights of states influences the perception of the 'club' initiatives. Of the six 'clubs', only the NSG has an indirect relation to Articles III and IV of the NPT. All the others have been presented as initiatives outside of the NPT framework that serve the common good of nuclear security. To understand the different effects, it is therefore necessary to understand how nuclear security relates to the subject matter of the NPT in the political discourse.

While resting on the three pillars of nuclear disarmament, non-proliferation and cooperation in peaceful uses of nuclear energy, the NPT itself was not designed to address the issue of nuclear security. Since the late 1990s, the frontlines within the NPT have hardened, with the NAM blocking measures to strengthen non-proliferation as they see an unfortunate imbalance in favor of this pillar to the advantage of nuclear disarmament and peaceful uses (Becker-Jakob et al. 2013). As Bowen et al. (2012, p. 357) note,

> *"many NAM states view the nuclear security agenda through this NPT lens, so the prospects of developing a stronger normative foundation in this realm – through a new single legal instrument, for example – are unavoidable tied, and ultimately hostage, to NPT politics. Specifically, nuclear security cooperation is complicated by the lack of appetite on the part of many developing countries for new instruments that impose additional obligations related to the use of nuclear energy".*

Efforts by the US and UK to establish nuclear security as a fourth pillar of the NPT failed due to opposition by developing countries that sensed a risk of one more tool designed to deprive them of their inalienable right to peaceful nuclear cooperation (Bowen et al. 2012, p. 355). The Bush Administration was thereby happy to have the bulk of the initiatives run outside of the cumbersome multilateralism of the NPT, and even the much more multilaterally-minded Obama Administration was careful not to link the NSS process too closely with the NPT.[134]

Analysts seem to be divided as to the advantage of tackling nuclear security separate from the NPT context. While some stress the benefits of including non-NPT members India, Israel and Pakistan (Luongo 2010; Kim 2012; Twomey 2012), others acknowledge the challenge of "how to place this set of issues and joint actions in the context of the wider nuclear nonproliferation regime" (Nikitin 2012, p. 8). Lungo even emphasizes that

> *"the treaty has broad international legitimacy, which is critical, and is tied to the IAEA, an institution on which many countries rely heavily for support and information on best nuclear security practices. Neither, however, was designed to deal with nuclear terrorism"(Luongo 2010).*

[134] The emphasis that securing sensitive fissile material ultimately remains a national responsibility and the fact that the IAEA ought to provide assistance only when requested to do so by governments pays tribute to these NAM concerns (Bowen et al. 2011, p. 357).

This might, however, fall hostage to NAM concerns: "Some developing countries have resisted anything that may be perceived as an additional commitment under the NPT until further disarmament steps are taken" (Nikitin 2012, p. 9).

But this is due to the concern about the balance of the "pillars" and obviously does not apply to the issue as such: while NAM is reluctant to admit nuclear security as a "fourth pillar" into the NPT context (which, in their view, is already heavily tilted towards non-proliferation) at the cost of disarmament and peaceful uses, they share the concerns about the threat of WMD terrorism. After all, a considerable number of NAM states, leaders included, have fallen victim to terrorist attacks. In the final documents of NAM summits, this concern is regularly expressed by the following formula:

> *"The Heads of State or Government expressed their satisfaction with the consensus among States on measures to prevent terrorists from acquiring weapons of mass destruction. They (...) underlined the need for this threat to humanity to be addressed within the UN framework and through international co-operation. They called upon all Member States to support international efforts to prevent terrorists from acquiring weapons of mass destruction and their means of delivery. They also urged all Member States to take and strengthen national measures, as appropriate, to prevent terrorists from acquiring weapons of mass destruction, their means of delivery and materials and technologies related to their manufacture."*[135]

While the NAM is expressing its preference for UN-related WMD counterterrorism, it also supports other international efforts and national measures, thereby endorsing the various activities in which NAM members participate, and giving the whole issue a remarkable priority. While NAM does not explicitly endorse particular initiatives, the limiting condition for toleration or tacit support is that related activities do not impinge on the right to enjoy the peaceful uses of nuclear energy and on funding for technical assistance in the IAEA (Potter and Mukhatzhanova 2012, 158/9). A recent NAM working paper formulated the related concern as follows:

> *"The Group emphasizes that measures and initiatives aimed at strengthening nuclear safety and nuclear security must not be used as a pretext or lever to violate, deny or restrict the inalienable right of developing countries to develop research, production and use of nuclear energy for peaceful purposes without discrimination."*[136]

The difference in tone to NAM statements addressed in direction of the NSG is striking. As far as export controls are concerned, the group expresses "concern about the continued imposition and/or maintaining of limitations

[135] 14th Summit Conference of Heads of State or Government of the Non-Aligned Movement. Havana, Cuba 11-16 September 2006 Final Document – Disarmament and International Security, §105; ditto NAM2009/FD/Doc.1, XV Summit of Heads of State and Government of the NAM, Sharm el Sheikh, Egypt 11 to 16 July 2009 Final Document, §147.

[136] NPT/CONF.2015/PC.I/WP.24, Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 24 April 2012, First session, Vienna, 30 April to 11 May 2012, The inalienable right to develop research, production and uses of nuclear energy for peaceful purposes, Working paper submitted by the Group of Non-Aligned States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, §19.

and restrictions on exports to developing countries"[137], that is, a strong condemnation of the allegedly existing practice, while the statement quoted in the last paragraph does not go beyond a mild warning for the future. The NAM obviously does not perceive any practical "use of pretext" so far.

[137] NPT/CONF.2015/PC.I/WP.24, Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 24 April 2012, First session, Vienna, 30 April to 11 May 2012, The inalienable right to develop research, production and uses of nuclear energy for peaceful purposes, Working paper submitted by the Group of Non-Aligned States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, §12.

4. Additional Evidence

Is there additional evidence for our explanatory scheme for the different reactions evoked by the NSG, the PSI, and the four other 'clubs'? An interesting case is the renewed attempts, emerging in the middle of the last decade, to install multilateral fuel assurances and multilateral fuel cycle arrangements as a means of dealing with the proliferation problem, largely in response to the emergence of national fuel cycle activities in Iran. These initiatives revived previous abortive efforts under the Baruch Plan (1946), the inconclusive International Fuel Cycle Evaluation (1977-1981) and the moribund United Nations Conference on the Promotion of the International Cooperation in the Peaceful Uses of Nuclear Energy (UNCPICPUNE). Like the NSG, the multilateralization of the fuel cycle was part of a new, more determined and prohibitive, US non-proliferation policy after the Indian nuclear explosion of 1974. This event intruded into the realm of perceived entitlements of non-nuclear weapon states under the NPT and thus met strong resistance both in industrialized countries and in the developing world. Like the NSG, the multilateral approach to fuel assurances and to "sensitive" fuel cycle activities got tainted with the frame "denial", that is, prohibiting activities that were rightfully within the sovereign rights of all NPT member states. The NSG has not so far escaped this early image.

Multilateral nuclear arrangements were revived in the last decade under exactly the same auspices. Potter and Mukhatzhanova 2012 rightly call the period of the Bush Administration the "decade of estrangement" in the nuclear non-proliferation regime. According to them, the Bush policy provoked

> *"increasing fixation and energy spent by NAM states on resisting new non-proliferation measures and (perceived) restrictions on peaceful uses (…) At least until very recently, this view was reinforced by the deep and widespread disenchantment within NAM about the seriousness of NWS toward the disarmament commitments they undertook in 1995 and 2000. (Potter and Mukhatzhanova 2012, pp. 61, 62).*

On Feb. 4, 2004, President George W. Bush spoke on US non-proliferation policy after 9/11 and announced that the US opposed the spread of sensitive facilities and technology beyond the current circle of technology holders. US proposals for fuel assurances were squarely put in this context, since Bush conditioned US fuel assurances on the renouncement of fuel cycle activities by the recipients, a condition that was also applied to the most prominent proposal made later by a group of technology holders (US, UK, Germany, Netherlands, France, Russia).

The new approach was immediately criticized by developing countries as contrary to the letter and spirit of Art. IV of the NPT (Potter and Mukhatzhanova 2012, p. 94). Like the NSG in the 1970s, all MFA projects that were offered in the following few years fell under the same perception, justified or not. Unfortunately, all of them emerged either from single industrialized countries or of 'club'-like groupings without any prior consultation with the supposed recipients. This once more evoked the impression that MFA was a pet project of "northern" 'clubs', to be imposed on hapless "southern" targets (Potter and Mukhatzhanova 2012, p. 92).

When the IAEA Director General appointed a group of experts to work through the issue and come up with consensual proposals, the atmosphere was already so much filled with distrust and suspicion that the group, though working well and with a reasonable chemistry, could only come up with a fairly low common denominator report.[138] On the basis of experiences from the 1980s, the acceptance failure was predictable.

The most recent example – and a strong confirmation of our interpretation of NSG's tainted image and the ensuing consequences for acceptance and regime impact -- is the NSG effort to make the Additional Protocol a condition of nuclear supply for the export of enrichment and reprocessing technology. Many developing countries have the Additional Protocol in place, or have at least signed it and see it as being a reasonable measure in the regime context. Even NAM statements have recognized this. But NAM as a whole is adamantly opposed to having this measure (which is not enshrined in the Treaty's language (as the measures go clearly beyond Art. III.1.) transformed into a binding obligation without the assent of the states at the receiving end. NAM states also complain about the imbalance between new obligations for NNWS while NWS' record continues to fall short of what is expected from their complying with Art. VI of the NPT. Both examples add evidence to our understanding of the relationship between 'club' activities and the regime.

[138] This summarizes the personal experiences of co-author Harald Müller, who was a member of the expert group. For the report cf. Multilateral Approaches to the Nuclear Fuel Cycle: Expert Group Report submitted to the Director General of the International Atomic Energy Agency, INFCIRC/640, Vienna, 22 February 2005, http://www.iaea.org/Publications/Documents/Infcircs/2005/infcirc640.pdf.

5. Conclusions

The purpose of this chapter was to investigate the impact of various non-proliferation 'club' initiatives on the performance of the NPT regime with regard to four questions (see p. the introduction).

(1) Regarding the question on the *impact of 'club' activities on furthering non-proliferation and preventing nuclear terrorism,* the results are mixed. Performance of the 'clubs' and the acceptance and ensuing legitimacy attributed to them vary greatly. The NSG has developed comprehensive export control regulations which strengthened the non-proliferation toolbox available to the NPT regime and that helped delaying nuclear programs such as in Libya, Iraq and Iran. Yet, the legitimacy of the NSG remains to be highly contested by the NAM. Due to its inclusive membership and the claim of universal validity of its decisions, the NSG is charged to be nothing less than a suppliers' cartel aiming to deprive the developing countries of their entitlement to peaceful uses of nuclear energy. This opposition has at times severely hindered the sharpening of non-proliferation measures and contributed to the hardening of the frontlines within the NPT. All of the other 'club' initiatives fare better regarding the degree of acceptance and their impact in contributing to the establishment and consolidation of the concept of nuclear security. With the aim of securing nuclear and radioactive material and technology, 'nuclear security' has a tangible and useful impact on non-proliferation and in contrast to the latter enjoys widespread acceptance by the developing countries.

(2) Whether 'club' activities *harden or soften the frontlines* within the NPT is closely connected to them being purposely integrated into the regime structures or left outside. The success of initiatives geared towards nuclear security is partly due to the fact that they have been deliberately held outside the NPT context, thus complementing the treaty regime. While the NAM shares the concern about the threat emanating from WMD terrorism, it opposes establishing nuclear security as a 'fourth pillar' in the NPT context at the cost of disarmament and peaceful uses. Initiatives are supported by the developing countries if they are seen as unlikely to impinge on the right to the peaceful uses of nuclear energy and technological cooperation. The NSG, in contrast, relates indirectly to Art. III and IV of the NPT. As such it is perceived by NAM states as an attempt of rule-making in the treaty context without a legal underpinning and thus as an instrument to undermine law-based multilateralism.

(3) The fierce opposition to the NSG is also due to the confrontational *character of the instruments* at the disposal of the NSG such as sanctions. 'Clubs' focusing on confrontational instruments of coercion or pressure are perceived to be less legitimate than initiatives focusing on persuasion and capacity building.

We can thus summarize: 'club' initiatives are unlikely to hurt consensus inside the NPT regime or to provoke widespread opposition, and more likely to attract broad support if the following conditions are met:

- they are not ostensibly exclusively "Northern" and discriminatory;
- they focus on voluntary measures agreed among members or adopted individually as well as measures of assistance, persuasion and capacity building;
- they do not impose 'hard' measures on third parties, and
- they do not affect the balance of the 'pillars' in the NPT.

Strategies to use initiatives of like-minded countries to strengthen the non-proliferation regime are well advised to take these insights into account in order to avoid counter-productive side effects resulting from deficiencies in legitimacy. An example might be the IAEA Additional Protocol, a measure that has proven to be a 'hard case' for universalization in the recent past. While most developing countries adhere to the AP or see it as a reasonable non-proliferation tool, the NAM as a whole strongly opposes the NSG's suggestion to make it a condition for supply. Such a measure clearly goes beyond NPT Art. III.1 and the NAM is wary of any transgression of the letter of the NPT. In the next section we discuss some recommendations, based on the afore mentioned formula on how to re-design the 'club'-NPT interface, which aim at strengthening non-proliferation measures such as the IAEA AP and export controls as well as nuclear disarmament and peaceful uses of nuclear energy in the realm of the NPT.

Chapter IV: Re-Designing the Interface; Strategies for Bridging the Legitimacy Deficit

The relationship between 'club' initiatives and global regimes is not without its own problems. These problems emerge from the coincidence of 'club' building with the North/South divide, where the exclusion problem connected to 'club' activities merges with the resentment stemming from the dark age of colonialism. Additionally, in the NPT context, the inequality of nuclear weapon states and non-nuclear weapon states pairs with this resentment (Becker-Jakob et. al 2013, pp. 51-81).

The ideal state of affairs in the nuclear non-proliferation regime would be consensus among all parties in good standing. This would facilitate keeping the non-proliferation toolbox up to date and confronting rule-breakers with the united front of the rest in support of the NPT. This, however, is definitely not the case. Export controls, an indispensable part of any non-proliferation system, are viewed with distrust by many parties. The strengthening of verification measures has little chance to become a prescriptive standard and reactions of the Treaty community to suspected non-compliance are divided. Furthermore, there is no strong procedure to close the ranks in case of a withdrawal in bad standing. All this does not augur well for the strength of the regime (Müller 2000).

One hint of how to change the playing field can be drawn from the successful establishment of nuclear security as a field of common action outside of the regime. There is no doubt that the related initiatives screened in this field originated in the "North," but did not get tainted by their origin. The previous chapter discussed the reasons. It concluded with a formula that summarized the compositions of the attributes that can be plausibly made responsible for the relative success of the initiatives.

The problem is that one of these attributes was the neutrality of the initiatives as to the balance between the pillars of the NPT. As elaborated, these initiatives were installed consciously outside of and in no visible connection to the NPT. This creates a certain dilemma, as strengthening the NPT means improving its inner fabric, as well. It is fully legitimate to consider possibilities to strengthen the regime at large by complementing the NPT institutions and processes with additional elements that, while being institutionally separate, work toward the same objectives and achieve in this way what could not be achieved internally. At the same time, the availability of options of this kind do not necessarily exclude the existence of options more integrated into the NPT framework, nor does it dispense analysts from the obligation to search for such options.

1. Reform Steps within Existing ‘Clubs’

1.1. Mixed groupings: Removing ‘Northern’ Dominance

The first rule for taking initiatives is the composition of the “likeminded” initiators. The time is certainly over for “pure” Western/Northern groupings or groupings where the West/North has an unambiguous dominance (as in the NSG). The smoother working record of the nuclear security ‘clubs’ is telling. Mixed ‘clubs’ yield better acceptance. Equally telling is the far-reaching neutralization of the two-tier structure of the PSI by its wide “Southern” adherence.

Experience also teaches that compromises in the NPT process have required uniformly representative mixed groups (with the exception of the first NPT Review Conference where the redoubtable Inga Thorsson pushed through the compromise single-handedly as conference president). In 1985, 1995 and 2010, two final declarations and one package of resolutions without vote (1995) were negotiated in informal groups brought together by the conference president. In 2000, a mixed grouping of North/South NNWS, the NAC, negotiated with the NWS under a Norwegian chair. Whatever initiatives are taken to strengthen the non-proliferation regime, the initiative has to come from a group with a balanced membership from the North and the South. Presently, two such groupings exist within the NPT framework, NAC (a bit imbalanced in favor of the South after Swedish withdrawal, and NPDI (still with Northern preponderance, but more balance after accession of Nigeria and the Philippines).

1.2. Enlarging ‘Club Membership’

In our case studies, attracting new members from the developing world or upgrading the status of participation for some of them has been a common theme. The NSG needs to include additional Southern countries with an emerging role in international trade. The PSI is in urgent need of integrating some of the important outsiders, notably China, India, and Indonesia. Taking these important countries in would automatically necessitate the enlargement of the PSI-Original Experts Group (PSI-OEG), since these countries would not restrict themselves to second-tier membership.

The G8GP has already identified a large group of potential members. Again, China and India, together with South Africa, Turkey and Brazil would give the initiative greater weight and more balance. Consequently, the coordinating committee (GPWG) would need enlargement, as well. For functional reasons, China should also become a member of GTRI. GICNT could combine the goals of more balanced participation and persuasive outreach by admitting the participation of non-partners to its meetings.

1.3. Reducing Discrimination

Discrimination – and the perception of it – is common to most of our cases. While it has less negative effects in the various nuclear security initiatives than in the NSG, it is still a hindrance of smoother cooperation. Where possible, steps should be taken to minimize it. For the NSG, this is only incrementally possible in the course of stepwise enlargement. The major alternative, a global nuclear export control regime, will be further discussed below.

For PSI, apart from widening OEG membership beyond its "Western" core, the ratification of all international treaties and conventions that constitute the legal base for PSI's activities by all OEG members is imperative. It presents an unhealthy inequality that some are half-out of this legal framework, notably PSI's founder, the United States. In GTRI, the issue of HEU naval fuel should be addressed, as the risks emerging from large stocks of this material are no less than HEU presents in civil uses. Inequalities in transparency and in inspection burdens should also be equalized. GICNT would profit from a slightly more formal decision-making procedure with enhanced transparency to remove the arcane character of superpower determination of the course of activities.

1.4. Outreach

Outreach activities are an essential measure, but no panacea, to mitigate exclusion problems and ensuing distrust and misgivings that 'club'-like groupings are causing and with which they have to cope in order to gain and maintain some legitimacy and, thereby, efficiency. In all six cases, outreach activities were observed. The NSG experience demonstrates how a lack of such activities can do almost irreversible damage. The NSG did not do any outreach but to publish its outlines for the first seventeen years of existence, and afterwards, with now regular meetings, opened up to the outer world only hesitantly and in small steps. By now it is uncertain whether the image of a "Western cartel" can ever be undone because the field was left too long for the seeds of distrust to bear fruit. This is not to say that outreach activities are not useful for this group or should not be strengthened. It might be useful, for example, to distill measures out of the guidelines and their annexes which could be useful in the nuclear security area and distribute them to participants in the various initiatives there. Publication of studies and reports would make GICNT more popular and could attract new parties interested in its work. A particular direction of outreach recommended to the NSS is an ethical code of conduct for professionals in the nuclear security sector.

1.5. Funding/Capacity Building

One of the basic reasons of success in the formation of the nuclear security field has been the availability of funding and other tangible assistance. The name of the game is capacity building: countries in need are assisted in finding the means to enhance their ability to establish and improve control over a sector important for state security. Since the improvement of the acting capacity of the state apparatus is of vital interest for many developing coun-

tries, this fact is a welcome incentive to cooperate. Capacity building has the triple effect of serving the governance objectives of a country's political elite, enhancing domestic security and, as a common good beyond borders, international security. One interesting specific project aimed at both enhancing security and building capacity would be the erection of a common database for nuclear forensics, led by the IAEA and possibly funded by NSS pledges. Such pledges would be accrued from the contributions of all countries that have fissile material on their territory and with appropriate assistance to developing countries to optimize their contribution.

Investing in nuclear security is a good bet, once one includes into the cost-benefit analysis even a strongly discounted rehabilitation program after a radiological or even nuclear terrorist attack. Taking this consideration into account, the underfunding of most of the 'club' initiatives screened in this study is a serious mistake. G8GP needs the pledges for achieving the target line for 2022. Likewise the IAEA's Nuclear Security Office and the World Institute for Nuclear Security require enhanced funding to fulfill their missions in a reasonable time span. Generally, the question is whether it might make sense for donor governments and NGOs to establish a Nuclear Security Fund (NSF) at the IAEA from which the agency could serve national capacity building projects beyond bilateral cooperation which the 'club' initiatives yield.

2. Beyond Existing 'Clubs'

2.1. Global Export Control Working Group

A mixed grouping of countries with some experiences in nuclear related exports and/or imports, some members of the NSG and some not, but with no participation of any NWS or nuclear weapon possessor, could work together, exploring ways and means to arrive at a universal, jointly negotiated export control agreement. As an informal deliberative group, it would not make any technical or political decisions, but, in the best case, would come up with suggestions and recommendations for the international community at large. The group would discuss the NSG guidelines, policies, and practices in order to look for shortcomings, gaps and elements seen by part of the global South as *ultra vires*. It would also scrutinize experiences from the implementation of UNSC Res. 1540, which has transformed much of the NSG Guidelines into binding international law. The group would also exchange experiences in both export and import practices, trying to identify "best practices" from both a supplier and a recipient perspective.

The group could well report on its work during the NPT Review Conferences. It could even engage in broader outreach activities, notably at the regional level, in order to familiarize additional state actors with the general issue and the opportunity to establish solutions that are acceptable for all. Group members also participating in the NSG would commit to persuading their NSG peers to agree to future global negotiations.

After proper preparation and when the group can count on a critical mass in both the NPT framework and the UN General Assembly, it would move to introduce a resolution in the UNGA First Committee as well as language for the final declaration of the NPT Review Conference calling for global negotiations. With enough support, it could be considered to start such negotiations in a broad-based, majority "coalition of the willing" if there are still states that would object to such an endeavor.

2.2. The Connection Nuclear Security/Export Controls and Capacity Building

The relationship between nuclear security, non-proliferation and export controls is obvious and well reflected in UNSCRes. 1540 and successor resolutions were adopted under the ostensible purpose of counterterrorism, but include as a core element the obligation of all UN members to maintain effective export controls. While the procedure to "legislate" through the UNSC created some misgivings, the success of UNSC Res. 1540 and successors indicates the high value which a decision-making procedure established in international law has for attracting acceptance and supporting legitimacy.

The fact that the broader substance of UNSC Res. 1540 constitutes a deviation from a "laser-like focus … on nuclear security" should not be regarded as weakness, but as an opportunity (Tobey 2013). It might be good to con-

sider introducing this broader focus in appropriate forums in the nuclear security sector, e.g. the Nuclear Security Summit, sub-initiatives related to identifying useful guidelines, best practices, experiences, and assistance for acquiring useful tools for export control processing (such as advanced software) or custom control (such as detection technology). Such capacity building activities are already being conducted in the context of implementation of UNSCRes. 1540 and could be offered in the NSS or G8 Global Partnership context. Cross-referencing these activities by appreciating language in the NPT review process would establish a legitimate linkage without raising the usual objections against laud for the NSG.

This way of proceeding reflects the good experiences with overlapping and mutually reinforcing activities and initiatives in the nuclear security area. It is true that redundancies, overlaps, gaps, voluntarism and the weak binding force of commitments in that sector appear incoherent. In fact, the "lightness" of the proceeding lowers entry barriers for newcomers and encourages states that are usually very zealous about their national sovereignty to participate with fewer concerns than in formal, legal and strict contexts. What counts is the effect, and when a recent assessment notes that 90 percent of NSS commitments have been implemented or are in the course of implementation, this is an impressive result that calls for emulation in other areas (Tobey 2013).

In an activity like the one just proposed, the NSG would obviously not be the center. The NSG, however, could be virtually present by using its guidelines as a source by which one can draw in initiatives to enable willing governments to establish more effective controls. This reference might be explicit or not, depending on the preferences of the partners in the respective cooperative relationship. The strategy would be to keep the NSG in the background to avoid controversies based on established perception patterns without, however, discriminating against the NSG per se. Should the ostensible collective NAM aversion against the NSG evaporate, a more explicit role for the group could also be envisaged.

2.3. Public/Private Partnerships as Part of Capacity Building and Post-Shipment Controls

Several of the case studies mentioned the role of the private sector in enhancing nuclear security and assisting in the prevention of nuclear proliferation. In the NSS context, it might be useful to work for a stronger participation of private industry in the process. Since a considerable part of the security problematic is located in the private realm and not on governmental premises, capacity building does not only mean transferring information and resources to governments but also to the academic sector and industry. This is of particular significance in developing countries where industrial security culture is frequently at best in a nascent phase. It might involve intangibles such as security concepts, internal control arrangements and ethical codes, but also security related hard- and software. Such cooperative endeavors could be announced as a 'gift basket'.

It would make sense to combine security and export related measures, technologies and concepts in a single package which could be worked out between supplier and recipient and integrated in a broader framework of bilateral or plurilateral nuclear cooperation. It might even be possible to agree on a mode of post-shipment control in this context, whereby the supplier conducts a peer review of the supplied item with a view to advise the recipient on safety and security aspects, thereby checking end-use as a side effect.

2.4. Avoid Premature Hardening of Soft Measures

Another lesson to be learned from the growth of the nuclear security sector is the imperative to avoid formalizing informal measures and prematurely using hard as opposed to soft tools. There is a lot of talk about creating a "coherent" nuclear security regime, including a streamlined nuclear security treaty and the like. For the time being, this would probably be counterproductive. The charm of the present setting is the low entry barrier and the opportunity to experiment with various cooperative settings in practice. This practice is very useful, despite whether it is in strictly legal form or not. A typical example for prematurely closing an open ended process was the 2011 decision of the NSG to add the Additional Protocol to the conditions of supply or enrichment- and reprocessing-related items (with the exemptions granted to non-member India and members Argentina and Brazil as an additional provocation to NSG non-members). The Additional Protocol was already making good progress on an informal basis. A majority of developing countries had signed it, and increasing numbers had actually set it into motion.

To move towards the hard tool of conditioning was premature and counterproductive at this point in time. The image of another imposition by a Western-dominated group probably overshadowed the positive effect of incentive-setting. Coming at a time when concerns were rising among developing countries regarding stagnating disarmament and among Arab countries regarding little progress towards the Middle East Nuclear Weapons Free Zone, it helped little to project an image of the Additional Protocol as a project for the common good (which is, in effect, a fact that South Africa does not tire to emphasize)[139].

Looking for strictly binding measures with hard enforcement tools in store is a typical part of Western non-proliferation culture and has its strongest site in the United States, where binding measures with hard enforcement are highly popular as long as they do not apply to the US.[140] The experiences with light and soft measures in nuclear security suggest that the hard/binding pole of cooperative measures should be preferred at the end of a successful process to install new norms, not at its outset. As much as legally shaped

[139] E.g. Statement by South Africa, delivered by the Minister of Energy, Mr. Dikobe Benedict Martins, on the occasion of the 57th session of IAEA General Conference, Vienna, 16-20 September 2013.

[140] The US is not concerned by stipulations in the NSG Guidelines which apply to exports to non-nuclear weapon states, nor by those elements of the Additional Protocol not applicable to nuclear weapon states, nor of PSI. The US does not intend to end the use of HEU in naval reactors, nor to transfer its sensitive civilian facilities to a multilateral fuel cycle arrangement. It has also not yet ratified the Amendment to the CPPNM.

norms are valuable, good practice is valuable as well, and if it is easier to get than a treaty, we should start with it!

2.5. "Friends of the Additional Protocol"

This principle might as well be applied to the Additional Protocol. An informal grouping (a soft 'club') of "friends of the Additional Protocol" could be founded with the objective to popularize the protocol, persuade additional countries to join, offer experience and assistance to facilitate applying it in new adherents without any additional hard measures attached. The new 'club' should cut across the North/South boundary, consisting of a majority of "friends" located in the South. Since there are important, experienced and also nuclear-technology capable parties to the Additional Protocol from the developing world such as South Africa, Mexico or Singapore, it would be advisable to leave the chair of the group to this type of participant for the time coming.

It would be equally essential to restrict the membership of the "friends" to non-nuclear weapon states parties to the NPT. One of the tension-creating features of non-proliferation policies is that the NWS are preaching strengthening the regimes by proposing measure after measure that applies to NNWS but not to themselves (think of the nonchalance by which NWS insist on continued use of HEU in nuclear fuel despite demonstrated technical alternatives, while requesting NNWS to turn to alternative fuel in order to free nuclear research reactors from HEU use.) The extraordinary hypocrisy which NWS betray in the non-proliferation regime is one of the intangible barriers against regime improvement. The token Additional Protocols which NWS have in force are honorable placebos but not really helpful to eliminate the contradictions between preaching and subjecting oneself to truly effective undertakings. For that reason, the 'club'-wise promotion of the Additional Protocol should be exclusively in the hand of NNWS, and the promotional activities should combine persuasion and capacity building incentives rather than 'hard tools'.

The "friends" should operate in both the nuclear security environment and the NPT process. This double engagement creates another link without formalizing it. That nuclear non-proliferation and nuclear security are closely connected common good objectives will be established by practice and become a routine ingredient of the political discourse in either sub-regime, but not as the subject of explicit (and predictably heated and sterile) debates on the floor.

3. Creating Favorable Conditions: Shaping the NPT Context

The proposals so far are sited in a particular strategy to improve the mood in the NPT process by establishing 'club' initiatives around converging interests in the realm for peaceful uses and utilize such joint interests to promote practices that are useful for nuclear security and non-proliferation. The objective is, in other words, to reduce the tension between two of the three pillars of the treaty, namely non-proliferation and peaceful uses, by bringing them together in activities related to a non-pillar, nuclear security.

This strategy is helpful as far as it goes. But it can do little to dissolve the tensions in the NPT community concerning two other elements, namely disarmament, and the situation in the Middle East. Unfortunately, these hard-to-tackle issues represent inevitable and highly influential conditions for the political arena in which non-proliferation tools have to be improved.

3.1. Disarmament

One of the most striking characteristics in the North-South dialogue at NPT PrepComs and RevCons in the last fifteen years was the NAM stance that it was increasingly difficult to accept the strengthening of non-proliferation tools as long as disarmament was not progressing with equal speed, because non-proliferation usually meant new burdens on NNWS while slow progress or even stagnation in disarmament meant that commensurate sacrifice on side of the NNWS were wanting. Brazil, generally one of the moderate voices in the South, makes this point with increasing emphasis.[141]

In principle, this is a valid point. In detail, it can be used as the excuse to leave things as they are while proliferation challenges rise. To break out of this deadlock, what should be tried is an exploration of possible quid pro quos. What disarmament steps would be needed to find consensus on, say, agreeing on measures in case of withdrawal from the Treaty? Or for making the Additional Protocol mandatory – not as a step imposed by a Northern minority, but based on a broad North-Southern consensus?

This quid pro quo exploration could be ideally a joint venture between two established North/South groupings, namely NAC and NPDI. The two groups could get together and try to define quid pro quos that might be acceptable (albeit with difficulties) for either side. Since the NPDI membership includes a couple of states allied to NWS, they might be in a position to exclude steps which would be not be acceptable under any circumstances to NWS. As a next step, the results of this exploration exercise could be discussed with the NWS most open to disarmament considerations, which at the moment are the UK and the US. The consultation circle could later be expanded, maybe in a track 2 setting, before the ideas are inserted into the Review Process.

[141] E.g. Statement by Brazil at the 56th General Conference of the IAEA delivered by H.E. Ambassador Laercio Antonio Vinhas; Vienna 2012.

3.2. Middle East

In the same vein, a group of "friends of a Middle East Zone Free of Weapons of Mass Destruction" could be formed to demonstrate support for this project. One central misgiving of Egypt (and some other Arab states) is the impression that they stand alone in their support of such a zone, while the rest of the world gives lackluster assent to the objective without truly engaging, or, even worse, by underwriting the reluctance of the Israeli government (a suspicion which is held in particular against Washington). The European Union has attempted to provide some tangible support by funding two workshops operated by the EU Consortium for Non-proliferation and Disarmament.[142]

A group of middle powers from the North and the South could promote the zone, support the facilitator, and develop proposals for possible steps as to how the project could move forward (there is by now a long menu of such steps developed by non-governmental experts from which the "friends" could choose their preferred course; see, among others, Kubbig and Fickenscher 2012; Weidlich and Kubbig 2012; Finaud and Melamud 2013).

Contrary to most of the suggestions discussed above, this one has largely symbolic meaning. Symbols, however, count a lot in international politics. The particular effort devoted by ostensibly "neutral" governments in paving the way for a project held dear by an important group in the NPT community and of general interest for fostering peace and disarmament in a conflict-ridden region that has been plagued by WMD proliferation for decades demonstrates that there is genuine interest in the matter and a readiness to engage in fostering it in the Middle East, especially in Egypt. This might open the possibility that Egypt would be less willing than on other previous occasions to block initiatives in which some of the "friends" take an interest as well.

It is quite possible that, despite the ability of these activities to address two major stumbling blocks of the NPT, they could fail to be effective without any decisive breakthroughs at the disarmament or the Middle East frontlines.

But of course, the leeway for NNWS and for regional outsiders is necessarily limited. Within these limits, however, the suggestions made offer room for action that might prove useful.

[142] See EU Non-Proliferation Consortium, available at http://www.nonproliferation.eu

4. Options for Swedish Engagement

Sweden belongs to a small group of middle power arms control proactivists whose policy tradition is marked by a strong commitment attached to the issues of disarmament and non-proliferation and who have worked enthusiastically towards the establishment and further strengthening of multilateral, legally based arms control regimes (see also Becker et al. 2013). It is thus only consistent that Sweden participates in or supports all of the 'club' initiatives under scrutiny here.

Regarding national policy, Sweden would thus be well advised to continue with the path pursued so far: Remaining committed to strengthening NSG guidelines and focus on outreach measures through approaching third countries and promoting compliance with the group's export control guidelines; promoting the issue of nuclear (safety and) security through providing technical expertise and financial contributions e.g. to the IAEA Nuclear Security Fund, in the framework of the G8GP to Central and Eastern Europe and Central Asia (Ek et al.);[143] by serving as a role model when it comes to national legislation and nuclear security measures[144] as well as in light of its commitment to anti-smuggling efforts which even predate the NSS process where Sweden became a major contributor in this field (The Illicit Trafficking Combat Project Group, 2000; Ringbom and Spjuth 2001; Ringbom et al. 2004; Cann et al., pp. 42, 58-61).[145] The current considerations to use the G8GP as "a vehicle for achieving the NSS objectives"[146] seem an idea worth pursuing further. Building on a presentation by Sweden, the Global Working Group introduced a paper on how the G8GP might function as a "trading house" matching projects envisioned within the NSS process with suitable

[143] See also the Annual Reports by the Global Partnership Working Group from 2005-2011, available at http://cns.miis.edu/global_partnership/. These projects date back to 1992 and have been subsumed into the Swedish Nuclear Non-Proliferation Assistance Programme (SNNAP) in 2001. Measures include the establishment of export control systems in the Baltic Sea region, national and regional cooperation systems to fight illicit trafficking of nuclear material, support in establishing national legislation as well as technical and financial support for more efficient safeguard systems. See reports published by SSM summarizing the various activities, e.g. the two most recent ones from 2012 and 2013.

[144] An example might be the successful removal of plutonium from Sweden to the US within the framework of the GTRI which constituted the first shipment ever under this program and catalyzed the announcement by Sweden "to stand ready to support others to eliminate excess separated plutonium" (see Statement by Carl Bildt, Minister for Foreign Affairs at the 2012 Seoul Nuclear Security Summit, available at http://www.regeringen.se/sb/d/15778/a/189507). Bildt also suggested the establishment of guidelines on HEU management that would cover both civilian and military nuclear material. Another example is the proposal "to develop a Nuclear Security Glossary similar to the Nuclear Safety Glossary, to simplify international cooperation and to avoid ambiguous interpretations in this field" (see Statement by H.E. Ambassador Nils Daag, International Atomic Energy Agency General Conference, 56th Session, 2012, Vienna, available at http://www.iaea.org/About/Policy/GC/GC56/Statements/sweden.pdf.).

[145] In 2004, the Swedish Nuclear Power Inspectorate (SKI, in 2008 replaced by the Swedish Radiation Authority, SSM) initiated cooperation projects with Russia to detect and combat illicit trafficking of nuclear and radioactive materials. Initial projects included detection and combating systems established in the Murmansk and Kaliningrad region in 2010-2011 and 2012 respectively. Since July 2013, Sweden also operates in the Tjelyabinsk and Sverdlovsk region with the largest concentration of nuclear plants in Russia. The implementation of these cooperation programs has taken place in the framework of international initiatives such as the G8GP and has fit the objectives of the GICNT. An overview of Sweden's latest activities in combating the illicit trafficking of nuclear and radioactive materials in Russia was given at the IAEA International Conference on Nuclear Security in July 2013, see the presentation by Van Dassen et al. 2013.

[146] We owe this point and the quote to Lars van Dassen.

recipients and donor states.[147] Sweden would be apt to contribute experiences resulting from its work on nuclear non-proliferation and nuclear security in the former Soviet republics that it could bring to bear within the G8GP and promote this idea at the upcoming NSS in The Hague.

Regarding the recommendations given above, Sweden could furthermore follow up on its emphasis on universalization of the NPT and advocate enlargement of the 'club' memberships and signature of the legal conventions pertaining to nuclear security with the objective of removing the 'Northern' dominance and hence the perception of discriminatory structures by the developing world. Sweden's past status as a non-aligned country and its traditionally close ties to the NAM as well as a past (?) appreciation of heterogeneous, cross-border groupings (such as the NAC) might constitute favorable conditions to work towards this aim. Similarly, Sweden might use its nowadays ever closer relationship to the US in order to build bridges between the US and the NAM positions.

Regarding recommendations that go beyond the existing 'clubs', all of the suggested measures would in principle fit into the portfolio of Swedish nuclear disarmament and non-proliferation policies. Three, however, fit particularly well with the policies traditionally pursued by the country:

Firstly, Sweden would be apt to gather a *global export control working group* with the aim to work out a universal, inclusively negotiated agreement due to its commitment to and experience in export controls both on a national and international level. Ever since Sweden began establishing a nuclear energy program in the 1950s, it attached great importance to strict export controls in order to verify non-proliferation of nuclear weapons with national regulations at times even transcending or preceding NSG guidelines and EU export control law (Van Dassen 1995, p. 190): providing for end-use controls; requiring prior authorization by the government for re-export of nuclear materials, even within the EU and reserving the right to post-shipment control in specific cases (Berkol and Moreau 2009, pp. 15, 20)[148]. As a committed member of the NSG since the mid-1970s, Sweden is familiar with internal procedures and guidelines and devotes great attention to enhancing the group's outreach portfolio. In order to identify shortcomings and limitations in NSG policies, Sweden could reactivate its once vivid relationship with members of the NAM and strive towards overcoming perceptions of discrimination and unfair 'club' like structures.

Approaching countries of the South might be eased by turning towards its former NAC colleagues and like-minded countries of the G11 – or by utilizing good bilateral relationships with some of the technologically advanced developing countries with whom Sweden shares an emphasis on the value of

[147] A summary of the developments within the GP in 2013 can be found in the summary report of the UK Chairmanship of the GP in 2013, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269504/UK_2013_GP_Report.pdf.

[148] See also the annual reports on export controls issued by the Swedish Government and presented to parliament. For the latest version see Government Communication 2012/13: 114. Strategic Export Control in 2012 – Military Equipment and Dual-Use Products, 21 March 2013, available at http://www.government.se/content/1/c6/22/07/50/82daf330.pdf.

cooperation in and trade of nuclear materials for peaceful purposes. As a current member of the IAEA Board of Governors, Sweden might use this forum to explore options and to lobby for support of such a global export control working group (as well as for the second recommendation below). Taking the lead on this issue would provide an opportunity to cultivate the image of a well-respected broker and compensate for resentments that might have been triggered by Sweden leaving the NAC only recently.

Secondly, Sweden could consider together with like-minded states to form a group of "*friends of the Additional Protocol*". As the initiation of the Protocol goes back to a Swedish initiative (Jonter 2003, p. 18) and given the country's outspoken promotion of the AP and insisting advocacy of its universalization, Sweden seems to be suited for offering experience with the regulations and could draw on a range of information and capacity building measures developed within the Swedish Agency for Non-Proliferation and Export Controls (Inspektionen för strategiska produkter, ISP) for national companies (see below). In order to overcome the North/South divide, it has been suggested that the group should actively reach out to developing countries located in the South – again Sweden could re-vitalize its former role as interlocutor between the NAM and the Western NWS and the NSG respectively. It might also draw on the experiences gained in the negotiations on strengthening the IAEA safeguard system in the late 1990s. Sweden's expertise is valued high in both parts of the globe and has brought the country respect and authority among various partners (NAM, G10/11, NAC, EU). An acknowledgment of double-standards and the need to take a balanced stance that values substantial progress in nuclear non-proliferation and disarmament rather than shortsighted political affiliation has served Sweden well. The perception of Sweden being a "neutral" interlocutor in combination with an outstanding technical and scientific nuclear weapons expertise has enabled the country to build a reputation and ensuing political leverage far beyond its material resources.

A third sphere of Swedish engagement could be to work *on public/private partnerships* as part of capacity building and post-shipment controls. While Sweden's function as a role model regarding the latter has already been mentioned, Sweden could also strive to promote its outstanding national information policy regarding export controls both on the level of bureaucracy as well as vis-á-vis companies. Capacity building initiatives conducted by the ISP (training, information and support to those responsible for export controls in the companies as well as awareness raising)[149] could be formulated as "best practices" and distributed to interested states and companies. Sweden could also consider drafting an educational tool to be distributed in the framework of the nuclear security summits, the IAEA or the EU, but also make it available for private companies and the broader public interested in these issues. Sweden could build on the achievements of the Swedish Export Control Society, which was established on the initiative of the industry in 1994 with the objective of sensitizing and supporting administrative personnel within companies with export control regulations. The society provides

[149] See the latest Government Communication 2012/13: 114. Strategic Export Control in 2012 – Military Equipment and Dual-Use Products Skr. 2012/13: 114. Stockholm, 21 March 2013, p. 26ff, available at http://www.government.se/content/1/c6/22/07/50/82daf330.pdf

for a range of local educational trainings (as part of which an Export Control Managers Certificate is awarded) as well as outreach activities aiming towards export control capacity building in developing countries.[150]

Within the *NPT context* and the suggestion to start a joint venture by NAC and NPDI in order to explore how the perceived tilt between the three pillars could be overcome, Sweden would – as a very first step – be well advised to consider rejoining the NAC. Especially since Egypt's future policy course remains hard to predict, a renewed Swedish engagement within the NAC might be necessary in order to reshape the group and enable it to live up to successes such as at the NPT RevCon in 2000. This would also enhance the chance to take influence on the future course of Egyptian policy in this area which is, in turn a key to future developments in the Middle East and in the Nonaligned Movement at large where Egypt is one of the main trend setters. Sweden should not forego this chance.

Sweden, of course, is operating as a member of the EU and its Common Foreign and Security Policy which has a strong tradition in non-proliferation. However, this tradition has been built on the narrowest common denominator possible for a large group of states that encompasses nuclear weapon states and non-nuclear weapon states, NATO allies and neutral countries, and proponents and opponents of nuclear electricity production. While not so tainted as the nuclear weapon states per se, the EU bears an image of "Northern", and non-aligned stats are well aware of the presence and influence of two nuclear weapon states in the organization. The more restrictive positions taken by France after 2000 have served to strengthen this aspect of the EU image.

Consequently, it is not easy to integrate bridge-building activities into the EU CFSP portfolio. Options discussed in this study that Sweden could pursue within the EU framework are largely those with a focus on assistance and capacity-building, which are distinct EU strengths. The EU has also proven to be of value in the Middle East issue: it hosted two seminars in 2011 and 2012. These seminars were generally regarded as useful and sufficiently impartial by all parties involved. Sweden could explicitly support further activities in this direction.

Generally, it is unfortunate that the importance attributed to nuclear disarmament by Sweden has lost momentum in recent years. Ultimately, the future of the nuclear non-proliferation regime depends on whether the priority conflict between the three pillars might be overcome by a balance seen as fair by the great majority. Acknowledging the developing countries' call for the fulfillment of the "grand bargain" and thus genuine nuclear disarmament steps will influence the future compliance record. Sweden should thus reconsider taking a more balanced approach and walk its talk that striving for the elimination of nuclear weapons must go hand in hand with non-

[150] For more information see http://www.exportkontrollforeningen.se/in-english/.
For an illustration of an outreach seminar to third countries, see e.g. http://www.eu-outreach.info/eu_outreach/ltp/partner_countries/south_east_asia/malaysia/agendas/2011_november_icp_handbook_seminar_malaysia.pdf.

proliferation.[151] Measured both in terms of symbolic and practical actions, Sweden's non-proliferation track record is quite impressive. Its rhetorical support for a nuclear weapons free world would benefit from similar pro-activism as well. It should be noted that Sweden's status in the international system in general and the non-proliferation regime will not rise with its tilting towards the position of countries allied with Western nuclear weapon states. This position is already very populated by many occupants. Sweden's distinctive profile has been contingent on being a member of the "West", as a democratic, market-economy, human-rights orientated country, while at the same time not bowing to the great powers but giving priority to environmental and humanitarian values. The proposals lined up in this last section try to open the opportunity to continuing with this time-honored tradition in the field discussed in the study. Of course, it is up to Swedish authorities to choose their country's position in the emerging nuclear order.

[151] For the emphasis on a balanced approach to the three pillars, see e.g. the Statement by Sweden at the 2nd Session of the Preparatory Committee for the 2015 RevCon of the Parties to the NPT General Debate, Delivered by Deputy Director-General Anna Maj Hultgård, Acting Head of the Department for Disarmament and Non-Proliferation, Ministry for Foreign Affairs, Geneva, 22 April, 2013, available at http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/npt/prepcom13/statements/23April_Sweden.pdf.

References

Akbulut, Hakan 2013: The G8 Global Partnership. From Kananaskis to Deauville and Beyond, Working Paper, no. 67, Austrian Institute for International Affairs.

Anthony, Ian; Ahlström, Christer and Vitaly Fedchenko 2007: Reforming Nuclear Export Controls. The Future of the Nuclear Suppliers Group, Stockholm, SIPRI, 32/33.

Applegarth, Claire 2004: G8 Global Partnership Selects Ukraine for Nonproliferation Funds, in Arms Control Today, no. 34 December 2004, available at http://www.armscontrol.org/act/2004_12/G8.

Becker-Jacob, Una and Tabea Seidler-Diekmann 2013: Regime Conflicts and Norm Dynamics: Nuclear, Biological, and Chemical Weapons, in Harald Müller and Carmen Wunderlich (Eds.), Norm Dynamics in Multilateral Arms Control. Interests, Conflicts, and Justice, Athens/London, University of Georgia Press, pp. 51-81.

Bunn, Matthew; Harrell, Eben and Martin B. Malin 2012: Progress on Securing Nuclear Weapons and Materials: The Four-Year Effort and Beyond, Project on Managing The Atom, Harvard Belfer Center, March 2012, available at http://belfercenter.ksg.harvard.edu/files/Progress_In_The_Four_Year_Effort_web.pdf.

Boese, Wade and Miles Pomper 2003: Interview With John Bolton, Undersecretary of State for Arms Control and International Security, available at http://www.armscontrol.org/aca/midmonth/2003/November/Bolton.

Bolton, John R. 2004: US Under-Secretary of State for Arms Control and International Security, An All-out War on Proliferation, Op-Ed, Financial Times, September 7, 2004, available at http://2001-2009.state.gov/t/us/rm/36035.htm.

Bowen, Wyn Q.; Cottee, Matthew and Christopher Hobbs 2012: Multilateral Cooperation and the Prevention of Nuclear Terrorism: Pragmatism over Idealism, in International Affairs, Volume 88, Issue 2, pp. 349-368.

Cann, Michelle; Davenport, Kelsey and Margaret Balza 2013: The Nuclear Security Summit: Progress Report, An Arms Control Association and Partnership for Global Security Report, July 2013, available at http://www.armscontrol.org/files/Nuclear_Security_Summit_Report_2013.pdf.

Cann, Michelle; Davenport, Kelsey and Margaret Balza 2012: The Nuclear Security Summit: Assessment of National Commitments, An Arms Control Association and Partnership for Global Security Report, Updated and Revised March 20, 2012, available at http://www.armscontrol.org/files/ACA_NSS_Report_2012.pdf.

Hautecouverture, Benjamin 2013: The G8 Global Partnership: Appraisal and Perspectives, in The Non-Proliferation Monthly, Issue 76, http://www.cesim.fr/observatoire/eng/76/article/91.

Crail, Peter 2011: G-8 Extends WMD Initiative, in Arms Control Today, June, 2011, available at http://www.armscontrol.org/act/2011_06/G8.

Davenport, Kelsey 2013: The Proliferation Security Initiative (PSI) At a Glance, available at http://www.armscontrol.org/factsheets/PSI.

Davenport, Kelsey; Horner, Daniel and Daryl G. Kimball 2012: Controlling Proliferation: An Interview With Assistant Secretary of State Thomas Countryman, in Arms Control Today, May, 2012, available at http://www.armscontrol.org/act/2012_05/Controlling_Proliferation_An_Interview_With_Assistant_Secretary_of_State_Thomas_Countryman.

Davis, Ian; Isenberg, David and Katherine Miller 2007: Present at the Creation: U.S. Perspectives on the Origins and Future Direction of the Proliferation Security Initiative, BASIC Papers, no. 54.

Deltac/Saferworld, Proliferation and Export Controls: An Analysis of Sensitive Technologies and Countries of Concern, London 1995.

Diehl, Sarah 2010: The April 2010 Nuclear Security Summit: One More Step Toward the Mountaintop, NTI, available at http://www.nti.org/analysis/articles/april-2010-nuclear-security-summit/.

Dunne, Aaron 2013: The Proliferation Security Initiative. Legal Considerations and Operational Realities, SIPRI policy paper, no. 36.

Durkalec, Jacek 2012: The Proliferation Security Initiative: Evolution and Future Progress, EU Nonproliferation Consortium, Non-Proliferation Papers.

Einhorn, Robert and Michèle Flournoy 2006: Assessing the G-8 Global Partnership: From Kananaskis to St. Petersburg, Washington, DC, CSIS.

Ferguson, Charles D. and Stephen Herzog 2011: Professional Ethics and Public Awareness: Lessons for the Nuclear Security Community, Federation of American Scientists Presentation for the Panel on 'The Human Dimension of Nuclear Security', Organized by the University of Georgia, Center for International Trade & Security, Hosted by the Carnegie Endowment for International Peace, Washington, D.C., available at http://www.fas.org/pubs/_docs/20110330-Nuclear_Security_Presentation.pdf.

Finaud, Mark and Aviv Melamud 2013: Modest Confidence- and Security-building Measures for the Middle East, Academic Peace Orchestra Middle East Policy Briefs 20, Frankfurt/M, Peace Research Institute Frankfurt.

Foley, Tony 2009: Acting Assistant Secretary of State, Opening Remarks, PSI Regional Operational Experts Group Meeting, Sopot, Poland, 22 June 2009, available at http://dtirp.dtra.mil/pdfs/psi_remarks.pdf.

Goorevich, Richard 2009: Development of the NSG and the Philosophy of Nuclear Export Controls, NSG Transparency Seminar.

Gummett, Philip 1980: From NPT to INFCE: Developments in Thinking about Nuclear Non-proliferation, International Affairs volume 57, no. 4.

Heyes, Alan 2013: The Global Partnership on WMD: A Work in Progress, in Arms Control Today: April, 2013, available at

http://www.armscontrol.org/act/2013_04/The-Global-Partnership-on-WMD-A-Work-in-Progress.

Heyes, Alan; Bowen, Wyn Q. and Hugh Chalmers 2011: The Global Partnership Against WMD. Success and Shortcomings of G8 Threat Reduction Since 9/11, Whitehall Paper, no. 76, Abingdon, RUSI.

Hibbs, Mark 2012: The Legacy of the Nuclear Security Summit, Carnegie Endowment for International Peace, available at http://carnegieendowment.org/2012/03/29/legacy-of-nuclear-security-summit/a5kl.

Hibbs, Mark 2011: The Future of the Nuclear Suppliers Group, Washington, D.C. et al., Carnegie Endowment for International Peace.

Holmes, James R. 2008: India Looks Seaward: The Case of the Proliferation Security Initiative, in Virginia Review of Asian Studies 6, pp. 151-164.

Jonter, Thomas 2003: Making a Historical Survey of a State's Nuclear Ambitions. IAEA task ID: SWE C 01333. Impact of Historical Developments of a State's National Nuclear Non-Proliferation Policy on Additional Protocol, March 2003. SKI Report 2003:18, available at http://www.stralsakerhetsmyndigheten.se/Global/Publikationer/SKI_import/030910/42d6875b68e0f6f07594e32c258735b3/SKI%20Report%202003-18.pdf.

Kearns, Ian 2010: Nuclear Security After the Washington Summit, The RUSI Journal, Volume 155, No. 3, pp. 48-53, available at http://www.rusi.org/downloads/assets/Journal_201006_Kearns.pdf.

Kim, Duyeon 2012: Fact Sheet: 2012 Seoul Nuclear Security Summit, Sheet: 2012 Seoul Nuclear Security Summit.

Koch, Susan J. 2012: Proliferation Security Initiative: Origins and Evolution, Center for the Study of Weapons of Mass Destruction Occasional Paper, 9, Washington, DC: National Defense University Press.

Kubbig, Bernd W. and Sven-Eric Fickenscher (eds.) 2012: Arms Control and Missile Proliferation in the Middle East, London, Routledge.

Luongo, Kenneth N. 2010: Making the Nuclear Security Summit Matter: An Agenda for Action, Arms Control Today, January/February 2010, available at http://www.armscontrol.org/act/2010_01-02/Luongo.

Luongo, Kenneth N. 2011: The Urgent Need for a Seoul Declaration: A Road Map for the 2012 Nuclear Security Summit and Beyond, Arms Control Today, April 2011, available at http://www.armscontrol.org/act/2011_04/Luongo.

Mohan, C. Raja 2010: India and the Nonproliferation Institutions: Addressing the "Expectations Gap", Washington, DC, CSIS.

Müller, Harald and Andreas Schmidt 2010: The Little-Known Story of Deproliferation: Why States Give Up Nuclear Weapons Activities, in Potter, William C. and Gaukhar Mukhatzhanova (Eds.), Forecasting Nuclear Prolif-

eration in the 21st Century. Vol. I: The Role of Theory, Stanford: Stanford University Press, pp. 124-158.

Müller, Harald 2011: A Nuclear Nonproliferation Test: Obama's Nuclear Policy and the 2010 NPT Review Conference, in The Nonproliferation Review 18 (1), pp. 219-236.

Müller, Harald 2000: Compliance Politics: A Critical Analysis of Multilateral Arms Control, in The Nonproliferation Review, 7 (2), pp. 77-90.

Nikitin, Mary Beth 2012a: Proliferation Security Initiative (PSI), Congressional Research Service Report.

Nikitin, Mary Beth 2012b: Securing Nuclear Materials: The 2012 Summit and Issues for Congress, Congressional Research Service Report, available at http://www.fas.org/sgp/crs/nuke/R41169.pdf.

Obama, Barack 2013: Presidential Statement on 10th Anniversary of the Proliferation Security Initiative, May 15, 2013, available at http://www.state.gov/documents/organization/210348.pdf.

Obama, Barack 2009: Remarks by President Barack Obama, April 5, 2009, Prague, available at http://www.whitehouse.gov/the-press-office/remarks-president-barack-obama-prague-delivered.

Oswald, Rachel 2013: U.S.-Led WMD Interdiction Program Could do More, GOP Lawmakers Say, available at http://www.nti.org/gsn/article/us-led-wmd-interdiction-program-could-do-more-gop-critics-say/.

Oswald, Rachel 2009: Distrust Mires Effort to Develop International Nuclear Forensics Database, NTI Global Security Newswire, December 24, 2009, available at http://www.nti.org/gsn/article/distrust-mires-effort-to-develop-international-nuclear-forensics-database/.

Podvig, Pavel 2011: Global Nuclear Security: Building Greater Accountability and Cooperation, UNIDIR, New York and Geneva.

Pomper, Miles and Meghan Warren 2010: Progress Since the 2010 Washington Nuclear Security Summit. Successes, Shortcomings, and Options for the Future, CNS James Martin Center for Nonproliferation Studies, available at http://cns.miis.edu/stories/pdfs/120316_nuclear_security_summit_pomper_warren.pdf.

Pomper, Miles and Michelle E. Dover 2012: The Seoul Nuclear Summit, The National Interest, January-February 2012, available at http://nationalinterest.org/print/article/the-seoul-nuclear-summit-6284.

Pomper, Miles A. 2012: The Seoul Nuclear Security Summit: How Much of a Success? Korea Economic Institute Academic Paper Series, May 23, 2012, available at http://keia.org/publication/seoul-nuclear-security-summit-how-much-success.

Potter, William and Gaukhar Mukhatzhanova 2012: Nuclear Politics and the Non-Aligned Movement, London, IISS, 84.

Proliferation Security Initiative: Statement of Interdiction Principles, available at http://www.psi-online.info/Vertretung/psi/en/07-statement/Interdiction-Principes.html.

Reinfeldt, Frederik and Ewa Björling, 2013: Strategic Export Control in 2012 – Military Equipment and Dual-Use Products, 21 March 2013, available at http://www.government.se/content/1/c6/22/07/50/82daf330.pdf.

Reinfeldt, Frederik and Ewa Björling, 2010: Strategic Export Controls in 2009 – Military Equipment and Dual-Use Products Skr. 2009/10: 114, Stockholm, 11 March 2010, p. 17, available at http://www.government.se/content/1/c6/14/65/62/9ee28ccb.pdf.

Ricke, Klaus-Peter 2005: in Bieneck, Klaus (Hrsg.) Handbuch des Außenwirtschaftsrechts mit Kriegswaffenkontrollrecht, Münster, Köln, 164-165.

Ricke, Klaus-Peter 2004: Proliferation Security Initiative (PSI). Ein neuer Erfolg versprechender Ansatz zur Bekämpfung der Proliferation von Massenvernichtungswaffen?, in AW-Prax: July, 1-3.

Santoro, David 2012: Championing Nuclear Security, Carnegie Endowment for International Peace, September 2012, available at http://carnegieendowment.org/2012/09/10/championing-nuclear-security/dsz1.

Schneidmiller, Chris 2013: Work Remains as Nuclear Security Deadline Arrives, National Journal, NTI, available at http://www.nti.org/gsn/article/nuclear-security-deadline-arrives-work-remaining/.

Su, Jinyuan 2012: The Proliferation Security Initiative (PSI) and Interdiction at Sea: A Chinese Perspective, in Ocean Development & International Law 43, pp. 96-118.

Thakur, Ramesh and Gareth Evans (Eds.) 2013: Nuclear Weapons: The State of Play, Centre for Nuclear Non-Proliferation and Disarmament, Australian National University, Canberra.

Tobey, William 2013: Planning for Success at the 2014 Nuclear Security Summit, Stanley Foundation Policy Analysis Brief, December 2013.

Tobey, William 2011: Planning for success at the 2012 Seoul Nuclear Security Summit, policy analysis brief, Stanley Foundation, June 2011, available at http://www.stanleyfoundation.org/resources.cfm?id=459.

Tozser, Sandor; Adelfang, Pablo and Edward Bradley 2011: Ten Years of IAEA Cooperation with the Russian Research Reactor Fuel Return Programme, 33rd International Meeting on Reduced Enrichment For Research And Test Reactors.

Twomey, Christopher P. 2012: After the Summit: Investing in Nuclear Materials Security, NBR Analysis Brief, available at http://www.nbr.org/publications/element.aspx?id=593.

United States Government Accountability Office 2010: Comprehensive U.S. Planning and Better Foreign Cooperation Needed to Secure Vulnerable Nuclear Materials Worldwide, available at http://www.gao.gov/assets/320/313961.pdf.

US Department of State 2012: Fact Sheet 2012: US Department of State, Global Partnership Outreach Efforts to International Organizations, Fact Sheet, 2012, available at http://www.state.gov/t/isn/184927.htm.

US Department of State 2011: Article on the G8 summit 2011: G8 Global Partnership, Assessment and Options for Future Programming, G8 Summit Deauville, France, 2011, available at http://www.state.gov/t/isn/gp2013/rls/docs/184761.htm.

Van Dassen, Lars; Sandberg Viviana and Vitaly Fedchenko 2013: From North to South: Cooperation between Sweden and Russia on the Establishment of Systems to Combat the Illicit Trade in Nuclear and Radioactive Materials.

Van Dassen, Lars; Andersson, Sarmite; Bejarano, Gabriela; Chirman, Inessa; Delalic, Zlatan; Ekblad, Christer; Karlberg, Olof; Klasén, Håkan; Olsson, Kjell; Sandberg, Vivian; Stenberg, Tor; Turner, Roland and Barbro Wickman 2012: Sweden's Co-operation with Eastern Europe in Radiation Safety 2011, September 2011. SKI Report 2003:18, available at http://www.stralsakerhetsmyndigheten.se/Global/Publikationer/Rapport/Stralskydd/2011/SSM-Rapport-2011-23.pdf.

Van Dassen, Lars 1995: Sweden, in Müller, Harald (ed.): Nuclear Export Controls in Europe, Brussels: European Interuniversity Press, pp. 181-206.

Walker, Paul F. 2007: Kananaskis at Five: Assessing the Global Partnership, in Arms Control Today, September, available at http://www.armscontrol.org/act/2007_09/Lookingback.

Williams, Ian 2013: Proliferation Security Initiative: Ten Years On, available at http://armscontrolnow.org/2013/05/28/proliferation-security-initiative-ten-years-on/.

Weidlich, Christian and Bernd W. Kubbig 2012: The First Two Steps to Cope with Military Asymmetries in the Middle East, Academic Peace Orchestra Middle East Policy Briefs 13/14, Frankfurt/M, Peace Research Institute Frankfurt.

Werner, Walter 1995: Die Exportkontrolle im nuklearen Bereich und die internationalen Exportkontrollregime, AW-Prax.

Wolf, Charles; Chow, Brian G. and Gregory S. Jones, 2008: Enhancement by Enlargement. The Proliferation Security Initiative (Rand Corporation monograph series), Santa Monica, CA: Rand.

Young, Thomas and Ferenc Dalnoki-Veress 2010: The Nuclear Security Summit: Forging Consensus and Building Momentum, CNS James Martin Center for Nonproliferation Studies, April 2010, available at http://cns.miis.edu/stories/100420_nuclear_security_summit.htm.

2014:04

The Swedish Radiation Safety Authority has a comprehensive responsibility to ensure that society is safe from the effects of radiation. The Authority works to achieve radiation safety in a number of areas: nuclear power, medical care as well as commercial products and services. The Authority also works to achieve protection from natural radiation and to increase the level of radiation safety internationally.

The Swedish Radiation Safety Authority works proactively and preventively to protect people and the environment from the harmful effects of radiation, now and in the future. The Authority issues regulations and supervises compliance, while also supporting research, providing training and information, and issuing advice. Often, activities involving radiation require licences issued by the Authority. The Swedish Radiation Safety Authority maintains emergency preparedness around the clock with the aim of limiting the aftermath of radiation accidents and the unintentional spreading of radioactive substances. The Authority participates in international co-operation in order to promote radiation safety and finances projects aiming to raise the level of radiation safety in certain Eastern European countries.

The Authority reports to the Ministry of the Environment and has around 270 employees with competencies in the fields of engineering, natural and behavioural sciences, law, economics and communications. We have received quality, environmental and working environment certification.

Strålsäkerhetsmyndigheten
Swedish Radiation Safety Authority

SE-171 16 Stockholm
Solna strandväg 96

Tel: +46 8 799 40 00
Fax: +46 8 799 40 10

E-mail: registrator@ssm.se
Web: stralsakerhetsmyndigheten.se