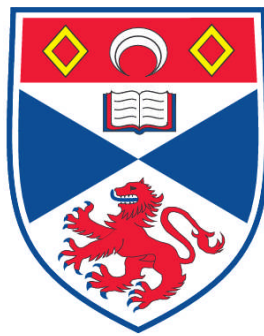# LEGITIMACY AND INTERNATIONAL PUBLIC AUTHORITY: THE EVOLUTION OF IAEA SAFEGUARDS

## Alexa Royden

## A Thesis Submitted for the Degree of PhD
## at the
## University of St. Andrews

## 2010

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UNIVERSITY OF ST. ANDREWS

**LEGITIMACY AND INTERNATIONAL PUBLIC AUTHORITY:
THE EVOLUTION OF IAEA SAFEGUARDS**

A DISSERTATION SUBMITTED
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

SCHOOL OF INTERANTIONAL RELATIONS

BY
ALEXA ROYDEN

NOVEMBER 2008

I, Alexa Royden, hereby certify that this thesis, which is approximately 70,552 words in length, has been written by me, that it is the record of work carried out by me and that it has not been submitted in any previous application for a higher degree.

I was admitted as a research student in September, 2002 and as a candidate for the degree of PhD in May, 2003, the higher study for which this is a record was carried out in the University of St Andrews between 2002 and 2008.

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# Abstract

Using the IAEA as a case for focused study, this thesis argues that the construction and reconstruction of the Secretariat's legitimacy has been dependant upon several different legitimating influences at different stages in the IAEA's evolution. In brief, it will be demonstrated that early on, in the absence of clear non-proliferation norms, power wielded by critical and self-interested actors functioned as the primary legitimator – promoting early development and insulating the organization from outside pressures. However, based upon this particular case, I will also argue that state power alone is insufficient to guarantee legitimacy and the exercise of international public authority, especially in light of the degree to which these institutions are increasingly expected to challenge the territorial sovereignty of member states. In order for an organization to acquire adequate legitimacy to exercise public authority over the long term, it must develop beyond the point at which state power is instrumental, and assume a degree of organizational autonomy. This happened with the evolution of organizational expertise recognizing the IAEA's bureaucracy as *an* authority, development of specific nonproliferation rules and norms that placed the IAEA *in* authority, and "right" processes within the bureaucracy that reinforced these and other substantive norms, positioning the Secretariat as a trusted agent within international society. Thus, the development of a professional identity, successful norms and rules, and the elaboration of a "right" process were key to the creation of legitimacy, and as a consequence, the Secretariat's exercise of public authority in support of the safeguards regime.

# CONTENTS

ACKNOWLEDGEMENTS

## Acronyms

CIA – Central Intelligence Agency
CTBT – Comprehensive Test Ban Treaty
DG – Director General (of the IAEA)
DPRK – Democratic People's Republic of Korea
EMIS – Electromagnetic Isotopic Separation
ENEA (NEA) – European Nuclear Energy Agency
EURATOM – European Atomic Energy Community
EU – European Union
HEU – Highly Enriched Uranium
HUMINT – Human Intelligence
IAEA – International Atomic Energy Agency
IAU – Imagery Analysis Unit
IO – International Organization
IMINT – Imagery Intelligence
INFCE – International Fuel Cycle Evaluation
INFCIRC – Information Circular
ISG – Iraq Survey Group
LEU – Low Enriched Uranium
LTBT – Limited Test Ban Treaty
NEA – Nuclear Energy Agency
NNWS – Non-Nuclear Weapon State
NPT – Treaty on the Non-Proliferation of Nuclear Weapons
NSG – Nuclear Suppliers Group
NTM – National Technical Means
NWFZ – Nuclear Weapon Free Zone
NWS – Nuclear Weapon State
OPANAL – Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean
OSI – On Site Inspection
OTS – Off the Shelf
PTBT – Partial Test Ban Treaty
SAGSI – Standing Advisory Group on Safeguards Implementation
SALT – Strategic Arms Limitation Treaty
SGIT -  Safeguards Information Technology
SIAU – Satellite Imagery Analysis Unit
SIGINT – Signals Intelligence
START – Strategic Arms Reduction Talks
UNDC – United Nations Disarmament Commission
UNMOVIC – United Nations Monitoring, Verification and Inspection Commission
UNSC – United Nations Security Council
UNSCR – United Nations Security Council Resolution
UNSCOM – United Nations Special Commission
WAES – Wide Area Environmental Sampling
WMD – Weapons of Mass Destruction

**Introduction**

The genesis of this research project, ironically, can be traced to a false assumption on the part of the author. Having initially become acquainted with the nuclear non-proliferation regime while working on various nonproliferation policy projects for the U.S. government, I found myself observing an international system of nuclear safeguards in transition. After the first Gulf War revealed a secret nuclear weapons program in Iraq, the international community confronted the inarguable inadequacies of the existing system of nuclear safeguards established under the Nuclear Nonproliferation Treaty, which came into force in 1970. These safeguards consisted of inspections, monitoring and verification of member state nuclear activities by the International Atomic Energy Agency (IAEA), an international organization created in 1957 to support the development of peaceful nuclear technology, while simultaneously safeguarding against the proliferation of nuclear weapons.

With the revelation of the Iraqi nuclear weapons program, the IAEA's Secretariat radically re-thought its approach to inspection and monitoring, fundamentally revising its safeguards regime, creating a system of information collection that greatly expanded the scope of its authority, using less transparent and to some extent, controversial methods to determine treaty compliance. Unlike generally observed trends in which international organizations practiced greater transparency in order to increase legitimacy, the IAEA bureaucracy was becoming less transparent. Surely, this would result in a loss of legitimacy for the IAEA's inspectorate and their safeguards regime?

After several months of research, I came to the conclusion that my initial assumptions had been wrong. The inspectorate, despite the radical changes to its

safeguards process, had not forfeited its legitimacy or undermined its ability to exercise public authority. If anything, the revision of IAEA safeguards began to rebuild the legitimacy of the organization previously compromised with the revelation of the Iraqi secret nuclear weapons program. This presented an intriguing puzzle: much of the literature on international organizations concluded that organizational legitimacy depended on increasing democratic practices, specifically through transparency and accountability. And yet, on the surface, it would seem that the IAEA's bureaucracy was moving away from that model, becoming more subjective in its assessments, utilizing information collection and analysis techniques more common to the intelligence community, and information supplied directly by national intelligence providers. How could this incongruity be explained? What had the Secretariat done to sustain its legitimacy in the face of such significant change?

These questions don't simply reflect an attempt on the part of the author to salvage several months of work. In fact, the Secretariat's experience as it relates to the construction and reconstruction of legitimacy and the exercise of public authority at the international level provides an excellent opportunity to better understand how one international organization, the IAEA, sustained its viability in the face of significant change over the long-term. This is an important question, and certainly worthy of sustained inquiry. Hence, the very premise of the thesis changed, resulting in a research project that not only examines the remarkable evolution of nuclear safeguards over half a century, but the evolution of the IAEA bureaucracy as a legitimate international public authority.

*Legitimacy and the Exercise of International Public Authority*

The effective exercise of international public authority is an issue of vital import and ever-increasing relevance to both practitioners and scholars of international relations. Over the past fifty years, the growth of intergovernmental organizations (IGOs) has fundamentally altered the playing field upon which the conduct of international politics is carried out. The growing complexity of the international system, due in part to an increasingly intense globalization that gives rise to both transnational actors and transnational problems, requires, in some cases, a response beyond the practical reach of the state. It is not surprising then, that there has been a veritable proliferation of both governmental and non-governmental institutions at the international level. While the extent to which IGOs actually influence the international environment continues to be debated, the impulse to organize and develop institutions at the international level seems well established. In fact, some have argued that this robust institutionalism heralds the demise of the Westphalian system. While this is likely an overstatement of fact, it does reflect a reluctant, if growing recognition, that transnational problems may require solutions that challenge fundamental assumptions regarding state sovereignty.[1] The fact that powerful states continue to participate in the construction and support of international institutions, despite repeated protestations questioning their efficacy and desirability, would seem to corroborate this assertion.

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[1] See Krasner, Steven, "Sovereignty" *Foreign Policy*, No. 122 (Jan/Feb 2001), pp. 20-29.

However, after a period of exponential growth, IGOs declined in number, albeit slightly, during the 1990s.[2] A number of explanations exist for this reversal, including the demise of the Soviet Union and its associated institutions. At the same time, it seems likely that some organizations failed due to their inability to effectively execute the mission with which they were tasked. This problem, specifically the maintenance of viable organizations over the long term, has been the subject of considerable study by both liberal institutionalists and regime theorists. However, one area that has received comparatively little attention is the role legitimacy plays in the long-term viability of international organizations.[3] It is not entirely obvious why this is the case, but it is likely due to the fact that the principal theories in international relations have not readily lent themselves to such an exploration. This idea will be explored further in the following chapter; nevertheless, the lack of focused study into the role played by legitimacy and legitimation practices in the production and maintenance of international public authority would appear to be a serious gap in our understanding of international institutions.

This is an important acknowledgement to make. If, as it would seem, international institutions and the organizations that support them will continue to play an important role in the conduct of international politics, it is critical that we better understand the processes of legitimation that endow these institutions with the public authority requisite to act. What is the source of this legitimacy? How can it be expanded? Under what circumstances is it compromised? And how can it be

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[2] Jordan, Robert S., *International Organizations: A Comparative Approach to the Management of Cooperation*, 4th ed. (London: Praeger Publishers, 2001) pp. 17-18.
[3] Two notable new works on this particular aspect of legitimacy include Ian Clark's *Legitimacy in International Society* (Oxford: Oxford University Press, 2005), which will be explored in greater detail in the following chapter, and Ian Hurd's recently published work, *After Anarchy: Legitimacy and Power in the United Nations Security Council* (Princeton, Princeton University Press, 2008).

reconstructed when it is lost?  These questions will shape this thesis, and its examination

of the legitimation processes and practices of the case study organization, the

International Atomic Energy Agency.

It is important at this point to make a distinction, however, and recognize that the

IAEA is a complex organization made up of three main bodies.  While each of these

bodies will be considered within the context of the development of IAEA safeguards, it is

the IAEA's bureaucracy, led by the Secretariat, that is the executor of the nuclear

safeguards regime, and thus, the primary focus of this research.

*The Argument*

In this thesis, I will argue that the construction and reconstruction of the

Secretariat's legitimacy has been dependant upon several different legitimating

influences at different stages in the IAEA's evolution.  In brief, I will show that early on,

in the absence of clear non-proliferation norms, power wielded by critical and self-

interested actors functioned as the primary legitimator – promoting early development

and insulating the organization from outside pressures.  This aligns neatly with Stephen

Krasner's observation that organization at the international level takes place when

"actors' expectations converge".[4]  It also demonstrates how power can be a necessary

pre-cursor to the development of normative institutions.  However, based upon this

particular case, I will also argue that state power alone is insufficient to guarantee

legitimacy and the exercise of international public authority, especially in light of the

degree to which these institutions are increasingly expected to challenge the sovereignty

of member states.  In order for an organization to acquire adequate legitimacy to exercise

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[4] Krasner, Stephen, *International Regimes* (Ithaca:  Cornell University Press, 1983) p. 12.

public authority over the long term, it must develop beyond the point at which state power is instrumental, and assume a degree of organizational autonomy. In this particular case, this happened with the evolution of organizational expertise recognizing the IAEA's bureaucracy as *an* authority, development of specific nonproliferation rules and norms that placed the IAEA *in* authority, and "right" processes within the bureaucracy that reinforced these and other substantive norms, positioning the Secretariat as a trusted agent within international society. Thus, the development of a professional identity, successful norms and rules, and the elaboration of a "right" process were key to the creation of legitimacy, and as a consequence, the Secretariat's exercise of public authority in support of the safeguards regime.

## Case Study Analysis as a Research Strategy

The use of case study analysis as a research strategy occurs across a number of disciplines in the social sciences and the humanities. As such, it is important to define precisely what is meant by case study, and the research strategy that it implies. For the purposes of this project, a case study is "an exploration of a 'bounded system' or a case (or multiple cases) over time through detailed, in depth data collection involving multiple sources of information rich in context."[5]

The literature in support of case study research is substantial[6], and case studies are routinely utilized as a central feature in research design and analysis. For instance,

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[5] Creswell, John W., *Qualitative Inquiry and Research Design: Choosing Among Five Traditions* (London: Sage Publications, 1998) p. 61.
[6] For example, see: Crabtree, Benjamin F., *Doing Qualitative Research, 2nd ed.* (Thousand Oaks: Sage Publications, 1999); Gerring, John, *Case Study Research: Principles and Practices* (Cambridge: Cambridge University Press, 2006); Hamel, Jacques, *Case Study Methods* (London: Sage Publications, 1993); Stake, Robert, *The Art of Case Study Research* (London: Sage Publications, 1995).

frequently investigators will use case studies in the "exploratory phase of an investigation"[7]. Unfortunately, for too many in the social sciences, the case study's value is limited to the initial descriptive piece at the beginning of a research project, with a decided preference for experimentation as the means to address issues of causality and explanation. While this is certainly one way in which to approach a research project, it is not the only way, nor is it ideal, for some questions simply don't lend themselves to this particular strategy. Robert K. Yin, in his authoritative account of case study as a stand alone research methodology, recognizes this reality, and clearly defines the conditions under which case study analysis as a comprehensive research strategy are appropriate and desirable.

The first condition identified by Yin involves "the type of research question posed."[8] Yin argues that from the panoply of questions a researcher might seek to answer, "how and why" questions lend themselves most readily to case study analysis. The rationale behind this assertion is based upon the contention that "how and why" questions are more explanatory as "such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidents."[9] As noted earlier, the questions guiding this research project ask precisely this type of question, thereby meeting Yin's first condition.

Secondly, Yin contends that case study analysis is most appropriate when the investigator has limited control over behavioral events, i.e., when research is limited largely to observation and not experimentation. Unlike a social experiment, in which the

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[7] Yin, Robert K., *Case Study Research: Design and Methods, 3rd ed.* (London: Sage Publications, 2003), p. 3.
[8] Yin, p.5.
[9] Yin, pp. 5-6.

investigator directly attempts to manipulate behavior either under laboratory conditions or in a field setting, the case study addresses subjects that are beyond the direct control of the researcher.  Once again, this condition aligns with the nature of this study, which focuses upon the long-term legitimation processes that established, enhanced and expanded the public authority necessary for the IAEA to execute its nuclear safeguards mission.  Such a study is in no way experimental, relying instead upon the analysis of both historical and contemporary events to examine certain theoretical assumptions.

This leads to Yin's third condition, which asserts that case study analysis is more suited to the examination of contemporary versus historical events.  This is largely due to a definitional distinction Yin makes based upon the spectrum of data available to the researcher.  According to Yin, the historical method focuses upon the "dead past" while case study analysis incorporates "direct observation of the events being studied and interviews of the persons involved in the events."[10]  While I remain unconvinced that such a distinction is useful, this research project draws upon the entire spectrum of data sources identified by Yin[11], thereby meeting his final criterion.  That said, this particular case does involve extensive historical analysis, and Yin himself notes that the boundaries he has drawn between research strategies are not always sharp.  Further, he observes, "case studies and histories can overlap."[12]  Using Yin's definition, this project most certainly falls into that category.

Most importantly, however, Yin clearly articulates the advantages associated with case study research – specifically as it allows the investigator to explore complex

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[10] Yin, p. 8.
[11] Case study analysis assumes extensive data collection, including the use of observations, interviews, primary documents and transcripts, reports, and audio/visual material (when available).
[12] Yin, p. 8.

situations in which context is not simply desirable, but critical for fully coherent answers to the questions posed. Thus, a case study analysis:

- copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
- relies on multiple sources of evidence…and
- benefits from the prior development of theoretical propositions to guide data collection and analysis.[13]

This final point is particularly noteworthy, as it situates theory neatly within the framework of case study development. Theory, and the determination of its appropriate place within a research strategy, can be complex. Yin explores the value of theory in the execution of a research project, and he arrives at a straightforward and extremely practical approach to its conception and treatment. Yin notes that the "role of theory development, prior to the conduct of any data collection, is one point of difference between case studies and related methods" and situates the articulation of theoretical propositions at the beginning of the process, as a tool by which the researcher will be guided in the pursuit of answering the research question(s). He elaborates: "This theory should by no means be considered with the formality of grand theory in social science…Rather the simple goal is to have a sufficient blueprint for your study, and this requires theoretical propositions." Thus, Yin conceptualizes theory as a means to guide the conduct of the research project, acting as a compass in the selection of data and its analysis, keeping the investigator on a specific path, leading to an holistic analysis of the case, or cases, under consideration.

This leads to a final consideration: the choice of single versus multiple cases in the research design. As has been the case with case study research writ large, single case study research has come under particular criticism, largely from disciplines within the

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[13] Yin, p. 13.

social sciences that emphasize quantitative over qualitative methodologies. The assumption is that single case analysis is inherently less desirable as results are difficult to generalize, thereby rendering the study's final conclusions of limited value. This aligns with a certain bias towards qualitative research more generally, nonetheless, it is not a viewpoint shared by all. As John Creswell observes:

> I am reminded how the study of more than one case dilutes the overall analysis; the more cases an individual studies, the greater the lack of depth in any single case. What motivates the researcher to consider a large number of cases is the idea of *generalizability*, a term that holds little meaning for most qualitative researchers.[14]

That said, questions concerning the utility of single case analysis cannot be dismissed entirely out of hand. It is true that the focus upon a single case produces certain limitations, and therefore it is important to consider the conditions under which such a strategy would not only be acceptable, but attractive. Once again, Yin offers clear guidance on this question. He sets out five "rationales" for single case design, and these include: the critical case, the unique case, the typical case, the revelatory case and the longitudinal case. Simply put, Yin argues that when a case is singularly critical in the execution of an argument, or it is truly exceptional and rare, or (conversely) it is entirely typical and commonplace, or accessible for the very first time, it is suitable for single case study analysis. While the case of the IAEA partially meets some of these rationales, I would argue that it does so imperfectly, and thus, it is to the fifth rationale that we must turn: the longitudinal case. Yin's final category recognizes the scenario under which it would be valuable to study "the same single case at two or more different points in time"

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[14] Creswell, p. 63.

in order to "specify how certain conditions change over time".[15] This precisely fits the

purpose of this research project: to analyze the construction and maintenance of the

IAEA's legitimacy as an international public authority, using the safeguards regime as a

point of reference and comparison over time.

*The IAEA As A Case for Focused Study*

The nature of the safeguards mission, the longevity of the IAEA's tenure, the

Secretariat's demonstrated success in both constructing and reconstructing legitimacy,

and the extent to which its internal programs can be compared consistently over time,

make the IAEA a particularly appealing case to study. Thus, while there are drawbacks

associated with single case study research design, this thesis will emphasize detail, in the

hopes that an in-depth understanding of the IAEA and its legitimation practices will be

both valuable and revealing.

The IAEA is a distinctive organization. In the first place, its mission is, in many

ways, a contradiction. On the one hand, the Secretariat is tasked "to accelerate and

enlarge the contribution of atomic energy to peace, health and prosperity throughout the

world".[16] On the other hand, it is entrusted with the burden of monitoring and verifying

member state commitments to the Treaty on the Nonproliferation of Nuclear Weapons

(NPT). Therefore, they both advocate in support of and regulate in order to control

nuclear development. This task is greatly complicated by the fact that the knowledge and

technology necessary to produce peaceful nuclear power is in many ways

indistinguishable from the knowledge and technology required to produce materials for a

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[15] Yin, p. 42.
[16] *Statute of the IAEA* (July 29, 1957; amended December 28, 1989).

nuclear bomb. It is certainly fair to say that throughout its history, the Secretariat has walked a complicated path in a field that is dominated by the high politics of competing member states' and their unique national security interests.

Secondly, the problem of proliferation, and its institutionalized response, nuclear safeguarding, are perfect examples of a global issue that requires the exercise of public authority at the international level beyond the practical reach of the state. This reality was brought home when the U.S. lost its nuclear monopoly in 1949 to the Soviets, a mere four years after the U.S. had exploded its first atomic weapon. It is simply not possible, even when holding a monopoly on nuclear technology, to prevent the spread of nuclear know how. At the same time, it *is* possible to domestically develop a nuclear weapons program without relying upon the direct support of an existing nuclear weapons state, as demonstrated by the Iraqi nuclear program revealed in the early 1990s.

Further, the unfortunate nature of the proliferation problem is such that in most cases, it is necessary to have physical access to the nuclear site in order to adequately determine compliance with treaty obligations. While it is unlikely that any state would invite another, possibly competing, state into its territory to oversee its most sensitive technology programs, it is viable to devolve such a responsibility to a legitimate international organization. Thus, it is can be argued that the legitimacy of the Secretariat and its ability to exercise adequate authority is a critical aspect of the nonproliferation regime.

Finally, as alluded to above, the IAEA's bureaucracy has consistently been expected to intrude upon the sovereignty of member states. In order to adequately verify the commitments of treaty signatories, the inspectorate has been required to establish a

physical presence within the most sensitive areas of a state's territory: its nuclear production facilities. Once inside these facilities, it has been necessary to monitor the operation of these nuclear programs without compromising the integrity of the work being conducted, while at the same time adequately verifying the peaceful nature of the activities therein. The Secretariat must be thorough and produce reliable assessments in which its member states can trust; without these assessments, confidence in the treaty itself would be undermined. Nonetheless, it must also respect the sovereign right of the inspected state to develop peaceful nuclear technology, and it must do this without compromising the working relationship between itself and the inspected state. Without adequate legitimacy, the inspectorate would have been hard pressed to succeed at these tasks.

Thus, in 1957, the IAEA began an experiment in international verification and monitoring that has lasted approximately half a century. Over that period, the IAEA system of safeguards grew both in scope and application. At the same time, the IAEA's bureaucracy has been subject to intense criticism, weathered well-publicized failures, and recently, received international approbation in the form of the Nobel Peace Prize.[17] In terms of legitimacy and legitimation practice, this makes the Agency an intriguing case to study. Despite profound shifts in the political and security landscape, the bureaucracy has both persisted and adapted. It has successfully exercised public authority in an arena defined by high politics, and it has re-legitimated those same activities when challenged.

Perhaps most importantly, however, the IAEA system of safeguards is an ideal candidate for longitudinal analysis. Since its inception, the Secretariat has executed four separate approaches to safeguarding (and in the example of the United Nations Special

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[17] The Nobel Prize was awarded jointly to the IAEA and its Director General, Mohammed El Baradei.

Commission, disarmament),[18] either independently or in conjunction with the United

Nations. Because these separate programs have evolved over time as the Secretariat's

mission has expanded and changed, it is possible to track the evolution of legitimacy and

the exercise of public authority as the international environment has changed and as

member state interests have diverged. This is very unusual. There are comparatively

few comparable international institutions that have consistently carried out, over half a

century, a single task that requires this level of intrusiveness, and thus, this level of public

authority. The IAEA case provides sufficient data that it is possible to draw meaningful

comparisons and useful conclusions regarding the role legitimacy has played in the

maintenance of IAEA safeguards operations over the long term. Alternative cases, be

they in the area of arms control, the environment, or human rights, are not nearly as rich

in historical data or operational consistency.

The IAEA also has practical features to recommend it as a case for focused study.

Because the Agency has been in operation since 1957, there is a rich and well-

documented historical record to mine. Proceedings from both the IAEA General

Conference and the public portion of the Board of Governors meetings are archived in the

library located at the main Agency facility in Vienna, Austria. Further, routine and

specialized reports, documents, legal agreements and communications with member

states (INFCIRCs) are also available at this site. Many of these documents are now

housed online, and available through the Agency's website, greatly facilitating their

access. Moreover, transcripts of all negotiations related to the IAEA's conception, as

well as the various treaties that would later alter and expand its mission, are archived at

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[18] Five, if you consider the UNSCOM and UNMOVIC (United Nations Monitoring, Verifications and Inspection Commission) programs separately.

the U.S. State Department in their *Documents on Disarmament* collection.  Finally,

countless publications related to the issue of nuclear safeguards can be found in most

major university libraries, as well as through electronic collections now routinely

accessed via online academic journals. Simply stated, significant amounts of information

are available in the public domain upon which the thesis can be founded.

In addition to these various sources of data, the author was able to conduct a

series of interviews with safeguards experts at both the IAEA headquarters in Vienna and

UNMOVIC (formerly UNSCOM) at UN headquarters in New York.  The interviews took

place in February (IAEA) and October (UNMOVIC) of 2004, and it is important to note

that the focus of these interviews specifically targeted the processes of nuclear

safeguarding.  Thus, the purpose of the interviews was to gain a better understanding of

the operation and culture of the IAEA system of safeguards, the inspections regime

operated under the UNSCOM mandate, the changes institutionalized through the 93 + 2

revisions and the extent to which those revisions were being successfully implemented.

Finally, it is important to emphasize the limitations and scope of this research

project, or specifically what *won't* be covered over the course of this thesis.  First of all,

the period to be studied begins with the Acheson Lilienthal Report, and concludes at the

end of the 20th century, and the initial implementation of the Additional Protocols to

Nuclear Safeguards Agreements.  Thus, while it is tempting to consider recent events,

including developments in both India and Iran, these cases will not be addressed in any

significant detail due to time and resource constraints.  Secondly, this thesis is

specifically focused upon the IAEA and its role in the safeguards regime, and therefore

will not address relations with the United Nations Security Council, and the issue of

responding to noncompliance. As the enforcement of compliance with NPT obligations is beyond the purview of the IAEA, as a substantive issue it has been excluded from analysis. As a final point, this thesis will not concern itself with safeguarding in nuclear weapon states which will not become a central responsibility for the IAEA until the Fissile Material Cut-off Treaty has been negotiated, for which reason the verification issues connected with this Treaty will also be left aside.

*Outline of the Thesis*

This thesis will be organized into six chapters. The first chapter will frame the problem of legitimacy, writ large, at the international level. It will make an assessment of two different bodies of international relations theory and use the literature on international society and international organizations to consider the concept of international legitimacy and its relationship to authority from within the framework of each.

The following four substantive "case" chapters will examine four separate periods in IAEA history, specifically as they relate to the four separate safeguarding arrangements executed by the Agency. The second chapter will investigate the period of the IAEA's foundation in which the "problem" of nuclear control was internationalized, a limited system of safeguards came into being and professional legitimacy, as an expression of expertise, was initially established within the bureaucracy. Key to this discussion will be an appraisal of the role power plays in the initial establishment of organizational legitimacy, as well as the extent to which apolitical technical expertise enhances the exercise of authority.

The third chapter will explore the expansion of legitimacy through the evolution of a nonproliferation norm and the institutionalization of the nonproliferation treaty. This chapter will focus on the manner in which societally constructed norms and rules both enhanced and limited the Secretariat's acquisition and execution of public authority in relation to its safeguards program. Additionally, the relationship between norm construction and the acquisition of organizational autonomy at the Secretariat will be considered.

The fourth chapter will consider the problem of cheating within the system, specifically the case of Iraq following the Persian Gulf War. This particular case significantly challenged the international community's trust in IAEA safeguards, and subsequently the legitimacy and authority of the Secretariat as a trusted agent. The lessons learned by the inspectorate through their participation with the United Nations Special Commission will be examined as a pre-cursor to the revision of the NPT system of safeguards.

Finally, in the fifth chapter, the revised safeguards regime (the 93+2 process) will be analyzed as a response to the problem of cheating. In addition to the Iraqi revelations, IAEA experiences with both North Korea and South Africa would motivate the Secretariat to dramatically revamp its safeguarding process. This new process would be a dramatic departure from the comparatively non-intrusive system formulated under the NPT. Instead, the bureaucracy would gain significantly more leeway in the acquisition of information, particularly intelligence, in order to execute its mission more effectively. The extent to which the Secretariat was able to implement its own agenda during this revision period will be explored as a corollary to the acquisition of autonomy. Finally,

the implementation of the 93 + 2 Additional Protocol will be discussed, and its impact assessed.

A concluding chapter will summarize results and consider future implications for the maintenance and further development of the IAEA as an international public authority.

*In Conclusion*

Ultimately, it is hoped that this thesis will provide an effective mechanism from within which it will be possible to produce useful observations regarding the IAEA's legitimacy practices, as well as the relationship between legitimacy and the long-term exercise of public authority at the international level. This will make an important contribution to the current literature on international organizations, as little has been written on the question of legitimacy and the exercise of public authority by international organizations. Of particular note, it will show that organizational autonomy is an important, and positive, aspect of legitimation, and a necessary condition for the successful exercise of international public authority. In addition, this work contributes valuable new information regarding the processes and practices of nuclear safeguarding acquired during field research at the IAEA and the United Nations. And while these observations do not aspire to the construction of a universal theory of legitimacy, it is hoped that this work will be a positive contribution to the literature on international legitimacy to date, and bring us closer to understanding the conditions under which international organizations can construct, exercise and maintain public authority at the international level.

## Chapter 1:  Legitimacy and Authority in International Society

The exercise of public authority, at any level of analysis, is dependent upon legitimacy, or that quality that bestows upon an institution the right to "enact rules" and "issue commands"[1].  The acquisition of legitimacy, therefore, is crucial to the long-term success of international organizations, especially those organizations that are highly integrated[2], or endowed with substantive responsibilities for decision-making and policy implementation.  These organizations are expected to carry out governance at the international level,[3] with activities that range along a political continuum, from economic and social policy, "low politics", to political and security policy, "high politics".[4]  The International Atomic Energy Agency (IAEA) and its bureaucracy can be characterized as a comparatively well-integrated institution, with a significant institutional infrastructure and substantive legal authority to carry out its mandate.  It is also an organization involved predominantly in the realm of high politics, its mission instrumental to the maintenance and oversight of the nonproliferation regime.  Thus, the ability of the IAEA

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[1] Weber, Max, *Economy and Society: An Outline of Interpretive Sociology*, (New York: Bedminster Press, 1968), p. 215.

[2] Jordan, Robert S., *International Organizations: A Comparative Approach to the Management of Cooperation* (London: Praeger Publishers, 2001), pp. 21-26.

[3] It is important, up front, to make a distinction between governance and government.  Governing activities do not necessarily imply government.  James Rosenau has characterized the difference as follows: "Both refer to purposive behavior, to goal-oriented activities, to systems of rule; but government suggests activities that are backed by formal authority, by police powers to insure the implementation of duly constituted policies, whereas governance refers to activities backed by shared goals that may or may not derive from legal and formally prescribed responsibilities and that do not necessarily rely on police powers to overcome defiance and attain compliance."(p. 4). For a complete discussion of global governance, see James N. Rosenau, "Governance, Order and Change in World Politics" in James N. Rosenau and E. O. Czempiel, *Governance Without Government: Order and Change in World Politics* (Cambridge: Cambridge University Press, 1992).

[4] Jordan, p. 25.

and its Secretariat to acquire legitimacy has been critical to its long-term success as an international public authority.

Legitimacy, however, is a quality that is difficult to define. It is strongly associated with legality, morality and consensus, and yet it is none of these. It is assumed to be a pre-condition for successful rulemaking, and yet it is difficult to specify the precise conditions under which legitimacy is achieved. It can be understood both normatively and positively – for instance, moral philosophy equates the idea of legitimacy with reasoned justification, while social science is more concerned with the empirical fact of legitimacy, in which the relationship between approval and authority is isolated and observed.

Further, the relationship between legitimacy and public authority, in both theory and practice, remains comparatively under-explored in the field of international relations.[5] On the one hand, legitimacy, or the lack thereof, is a persistent theme that surfaces again and again in the actual conduct of international politics. On the other hand, legitimacy and the practices of legitimation have received comparatively little focused study by international institutionalists. This oversight seems curious, for legitimacy is a central concept in the field of politics, broadly understood. Certainly, the question of legitimacy has received significant attention at the state level, and legitimacy is considered to be a basic requirement for successful domestic governance. The lack of focused study on this issue at the international level would appear to be a gap in our understanding of international institutions.

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[5] See Ian Clark, *Legitimacy in International Society* (Oxford: Oxford University Press, 2005), pp. 1-2.

In order to better investigate the question of legitimation and its relationship to public authority at the international level, this chapter will examine two different bodies of contemporary International Relations literature. The first perspective explores the idea of an international society, and situates the concept of legitimacy within a framework that emphasizes the social, and historically variable, nature of legitimacy. The second perspective draws upon the international organizations literature, and explores the evolution of norms within an international society, as well as international organizations as independent agents, and the extent to which autonomous action within an international bureaucracy can influence the creation of legitimacy and the exercise of public authority at the international level.

## Situating Legitimacy within the IR Debate

In one of my first interviews at the United Nations Monitoring, Verification and Inspection Commission, I asked the Acting Executive Chairman, Demetrios Perricos, about the issue of legitimacy, and how legitimacy is acquired by organizations at the international level. To paraphrase his reply: legitimacy is anything the great powers decide is legitimate.[6] This, in many ways, sums up the state-power perspective that is a central component of many contemporary, and predominantly realist, international relations theories. In this conception of international politics, states are the dominant actors in an anarchic international system, their interests are rooted in security seeking behavior, and cooperation, when it takes place, can generally be described as a function of those endogenously given national interests.[7] International organizations, therefore,

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[6] Interview, Perricos, Demetrios, Acting Executive Chairman, UNMOVIC, UN Headquarters, NY, NY (October 14, 2004).
[7] For a succinct discussion of realism and its various forms, see: Brown, Chris, *Understanding International Reltions* (London: Macmillan, 1997) pp. 26-35).

are merely an extension of the political interest of the state, and are useful only to the extent that they facilitate member state policies. The idea that international organizations could have independent interests and be legitimate agents that engage in the exercise of public authority beyond the control of member states is not seriously considered. This makes the concept of public authority at the international level "radically irrelevant" from a state-power perspective, and as international relations scholarship has arguably been dominated by theories that emphasize variations of this school, it may account for the gap in literature addressing legitimacy and public authority within international institutions.[8]

And it is difficult to argue that states, and great powers in particular, are not a dominant and critical feature in international politics. They surely are. It is also very likely true, as I will demonstrate in the next chapter, that the formation of international organizations, in this case the IAEA, can be dependent upon the political will of self-interested states. That said, I found Chairman Perricos' answer to my question somehow incomplete, as it is also true that the interests of great powers shift, legitimacy isn't simply a product of power, and international organizations do engage in activities that require legitimate public authority to be successful. Thus, it was necessary to look beyond the literature that focused upon state power as the defining variable for the conduct of international relations in order to fully explain how the IAEA had created and perpetuated the legitimate public authority necessary for the Secretariat to carry out its nuclear safeguards mission. The literature on international society proved a useful place to begin.

*Legitimacy and International Society*

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[8] Clark, p. 11.

The idea of an international society has a long history, beginning with Hugo Grotius's contention that international law creates an international legal community. This community is bound by a common understanding of the legal order, [9] and this common understanding serves as a foundation for international society. Many authors have elaborated upon this idea; however, theories of international society have largely been associated with the English School. The most widely utilized definition of international society as articulated by the English School is one advanced by Hedley Bull and Adam Watson. They define international society as:

> …a group of states (or, more generally, a group of independent political communities) which not merely form a system, in the sense that the behavior of each is a necessary factor in the calculations of the others, but also have established by dialogue and consent common rules and institutions for the conduct of their relations, and recognize their common interest in maintaining these arrangements.[10]

This definition of international society is important for two reasons. First, it distinguishes between a system and a society. This distinction does not, however, reject the notion of an international system, it merely builds upon it. As Barry Buzan observes "system is logically the more basic, and prior, idea: an international system can exist without a society, but the converse is not true."[11] Thus, international society can be perceived as the natural evolution of an earlier and more basic association. While this does not resolve the fundamental differences between the two schools of thought, it does

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[9] See Cutler, Claire A. "The Grotian Tradition in International Relations" *Review of International Studies*, vol. 17 (January 1991), pp. 41-65.

[10] Bull, Hedley and Watson, Adam, *The Expansion of International Society* (Oxford: Oxford University Press, 1984) p. 1.

[11] This observation is clearly not without its detractors. For instance, social constructivism would identify the basic idea as social interaction, and reject the systemic account altogether. However, this proposition is one viable way to reconcile two seemingly contradictory theories. For more, see Buzan, Barry, "From International System to International Society: Structural Realism and Regime Theory Meet the English School" *International Organization*, vol. 47, no. 3 (Summer 1993).

make a certain logical sense. That being said, this concept of society is not without its problems. For instance, there is incomplete agreement as to the date of emergence and the extent to which a universal international society now exists.[12] Nonetheless, the existence of some form of international society is increasingly difficult to deny in light of the growth of international institutions and international laws that identify and define universal rules and norms by which the great majority of states voluntarily agree to abide.[13]

Admittedly, the extent to which this society effectively governs the conduct of its members is inconsistent, and the problem of compliance will likely continue to be the subject of much debate.[14] This problem, however, does not undermine the English School model. Rejection or dissent from established rules does not negate the existence of society; it simply indicates that society does not function perfectly, a standard that would be ridiculous to apply at any level of analysis.

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[12]One of the problems with the concept of a global society is that it assumes certain shared values and norms. This is why Bull argues that institutions will likely develop among those states with a shared "cultural affinity". Thus, lack of shared values and norms remains an obstacle to the development of a single international society. For more on this discussion, see Bull, Hedley, "The Emergence of a Universal International Society" in Bull, Hedley and Watson, Adam, *The Expansion of International Society* (Oxford: Oxford University Press, 1984); Gong, Gerrit W., *The Standard of "Civilisation" in International Society* (Oxford: Oxford University Press, 1984); Jones, Roy E., "The English School of International Relations: A Case for Closure" *Review of International* Studies, vol. 7 (January 1981), pp. 1-13; Watson, Adam, "Hedley Bull, State Systems, and International Studies" *Review of International Studies*, vol. 13 (April 1987), pp. 147-153.

[13] A brief review of existing human rights agreements results in a list well surpassing one hundred documents, including treaties on universal human rights, self-determination, prevention of discrimination, the abolition of slavery, women's and children's rights, rights of prisoners and detainees, employment and labor rights, economic and privacy rights, etc. For a complete list of these documents, please see World Wide Web address: http://www1.umn.edu/humanrts/instree/ainstls1.htm. It is important to note, however, that this body of documents represents only the agreements relating to human rights. An equally elaborate system of treaties governs the international economy, environment, etc.

[14] For more on the subject of compliance, see: Chayes, Abram and Antonia H., *The New Sovereignty: Compliance with International Regulatory Agreements* (Boston: Harvard University Press), 1998.

Secondly, this emphasis upon socialization can go a long way towards explaining the role of legitimacy in international relations. Ian Clark takes precisely this approach in his recent discussion of legitimacy in international society. Clark argues that there are two reasons for linking legitimacy with international society: "First, society makes sense of the concept of legitimacy. Second, and more controversially, legitimacy lies at the very heart of what is meant by an international society."[15] In other words, questions of legitimacy are only meaningful if considered within the context of a community. Further, legitimacy, unlike power, is a "social fact", and sociality defines and delimits what it means to be legitimate.

Further, Clark contends that "core principles of legitimacy *constitute international society*".[16] This goes beyond earlier English School arguments in support of an international society, and singles out legitimacy as *the* central concept around which society is organized. It also implies that core principles of legitimacy can be identified and utilized to construct a more coherent theory of international society. Immediately, a problem becomes apparent. If legitimacy is difficult to define, as implied earlier in this chapter, how do we identify its core principles? Are they derived from common values and interests?[17] Or are they based upon common rules and institutions ?[18] International society is associated with all of these things, and thus Clark argues that the only way to properly understand international society is to separate it from any single interest, value, rule or institution. Instead, he suggests that:

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[15] Clark, p. 5.
[16] Ibid, p. 6.
[17] Bull, Hedley, *The Anarchical Society: A Study of Order in World Politics*, (NY: Columbia University Press, 3rd Ed., 2002) p. 13.
[18] Bull and Watson, p. 1.

…instead of as specific values (like sovereignty) or institutions (like international law), we can think of international society as a set of historically changing principles of legitimacy. These extend beyond international law. They are not necessarily expressed in institutions. And they are often too informal to be classed as rules. In their most rudimentary form, they posit an international society as the conditioned acceptance of mutual obligations to which the principles of legitimacy give rise.[19]

What then are the guiding principles to which Clark refers? These principles are inextricably tied to the idea of being "bound". Clark contends that obligation, and the mutual recognition of obligation, is the basis from which the core principles of society are derived. This sense of obligation results in two expressions: rightful membership and rightful conduct.[20] These expressions define two important parameters: the boundaries of international society and the behavior to be tolerated within it. These parameters, in turn, establish the basis for our understanding of legitimacy, which, Clark contends, is "historically variable".[21] In other words, the parameters identified above realign as power shifts, ideas evolve and consensus changes, creating a "complex political space" in which the practices of legitimacy take place.[22] It is in this way that Clark reconciles the relationship between power and ideas. Instead of prioritizing one over the other, Clark asserts that both can equally influence the principles of society, and that both can shift the parameters that shape our understanding of legitimacy.

This conception of society and its relationship to legitimacy is important because it makes it possible to explain and better understand the development and exercise of public authority at the international level. Social forces *must* contribute to a common understanding of what is legitimate, particularly in the establishment of laws and norms

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[19] Clark, p. 7.
[20] Ibid, p. 24.
[21] Ibid.
[22] Ibid, p. 25.

that allow agents at the international level to "enact rules" and "issue commands".  It is this common understanding that allows agents to act with authority, and is this authority that enables successful governance at the international level.

However, there are limits to the international society model.  For one thing, similar to realist theories, it only generally concerns itself with the actions of states.  This is a problem, for there are clearly other agents active at the international level, and as the literature on international organizations has demonstrated, and as I will argue shortly, these players can also participate in the social processes that distinguish an international society.  Thus, the international society perspective is insufficient as well, although the concept of society at the international level, and the ability of society to situate legitimacy in a meaningful fashion, gets us further in our exploration of the creation and exercise of public authority at the international level.  The final piece, therefore, is to account for the ability of international organizations to generate autonomy, and ultimately the acquisition of authority.  To do this, we need to turn to the international organizations literature.

### Organizational Autonomy and the Acquisition of Authority

*In our time, dealing with the problem of the legitimacy of public authority has become additionally complicated because under the impact of globalization – understood as a process of denationalization – public authority is no longer exclusively exercised within clearly defined territorial entities, i.e., with the sovereign states.  Rather, the "production of public goods" or the performance of hitherto genuinely state tasks, like external security and economic and social welfare, has been shifted, in part, to international and sometimes supranational non-state entities that are constituted by states, but have their own legal capacity to act alongside the states.[23]*

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[23] Delbruck, Jost, "Exercising Public Authority Beyond the State:  Transnational Democracy and/or Alternative Legitimation Strategies" *Indiana Journal of Global Legal Studies*, vol. 10, no. 29, pp. 29-30.

With the advent of globalization and the increase in international institutions expected to carry out some form of governing activity, it is not surprising that greater attention has been paid to the creation, behavior, successes and failures of international organizations (IO).  The IO literature, unsurprisingly, is prolific and varied.  It is interesting, however, that much IO literature is focused upon organizations as extensions of the state.  It was not until Martha Finnemore explored the influence of international organizations on the national interests of states that a serious study was undertaken positing the independent agency of international organizations.  That said, even this book was focused, ultimately, on state behavior, and not, per se, on the behavior of organizations.[24]  Nevertheless, by demonstrating that organizations can influence the preferences of member states, Finnemore's work confirmed that organizations are not merely extensions of the state, but have the potential for autonomous action.

Finnemore later expanded upon this thesis when she and Michael Barnett explored international organizations as significant and increasingly important actors in their 2004 work, *Rules for the World:  International Organizations in Global Politics.* Barnett and Finnemore utilize the literature on the sociology of organizations to demonstrate that international organizations have both power and interests, and that the various Secretariats of international organizations are not merely peopled by impartial, international civil servants, but by political actors who can substantively influence international politics.[25]

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[24] See:  Finnemore, Martha, *National Interests in International Society* (Ithaca, Cornell University Press, 1996).
[25] Barnett, Michael and Finnemore, Martha, *Rules for the World:  International Organizations in Global Politics* (Ithaca:  Cornell University Press, 2004) pp. 16-44.

However, Barnett and Finnemore overwhelmingly focus upon the dangers of organizational autonomy, particularly the "dysfunctions" that result when organizational culture promotes expansionism and distorts the organization's original mission and goals.[26] While the case studies highlighted in the book are compelling, I would argue that they miss the importance of independent identity as a legitimating influence for international organizations. Throughout this thesis, I will seek to establish an alternative conception of this organizational autonomy, one that can limit efficiency, but also facilitate the acquisition of public authority by international organizations.

*Authority as Expertise*

Authority can be defined in two distinctly different ways. It is possible to be both *an* authority and to be *in* authority. In the first instance, an authority is someone with expertise, or a professional in the field. In the second instance, authority is associated with power, and the ability to author and enforce rules. The two are not the same, nor are they mutually exclusive. Both are important and both need to be explored in order to fully understand the relationship between legitimacy and authority.

Authority as an expression of expertise or knowledge can be an effective means through which an organization initially establishes an identity, and a compelling legitimating influence. This perception of authority does not emphasize command, but instead understands authority to be a quality that endows upon a person or an institution a

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[26] It is worth noting that scholars of varying political stripe tend to subscribe to this generally negative view of organizational autonomy. Stephen Krasner, while acknowledging that organizations might have "some autonomy", assumes it is partially "because their activities cannot be effectively monitored", implying that independence is, to some extent, the result of ineffective state oversight. See Krasner, Stephen, "Globalization, Power and Authority" Paper prepared for presentation at the APSA Annual Meeting, San Fransisco, August 29-September 2, 2001.

particular professional status.  This status often reinforces the right to be *in* authority, but it is a separate thing altogether.  For instance, it is possible for a powerful actor to be *in* authority without being *an* authority.  The foreign policy blunders of the great powers seem to testify to this reality.  At the same time, those considered to be authorities in a particular field do not always have the power to decisively influence the international environment.

This is of particular relevance when discussing international organizations like the IAEA.  Organization theory speaks at length of the development of an organizational culture or identity that allows an organization to move beyond being simply a sum of its parts.[27]  In order for an organization to generate its own preferences and act independently, it must conceive of itself as a separate actor with a clear identity.  One of the ways in which organization theorists see this happening is through the promotion of professional expertise as an expression of authority.[28]  In other words, as international organizations become authorities in a particular field, they also develop an identity that is critical if they are going to exist beyond the point at which member state interests converge.  Further, this type of authority can influence the development of rules and norms in a particular area of expertise.  Peter Haas' work on epistemic communities is an excellent example of this phenomenon.[29]  Thus, it is possible that the development of

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[27] See Hawkins, Peter, "Organizational Culture:  Sailing between Evangelism and Complexity" *Human Relations*, vol. 50, no.4, pp. 417-440;  Legro, Jeffrey, "Culture and Preferences in the International Cooperation Two-Step" *APSA Review*, vol. 90, no. 1, pp. 118-137; Barnett, Michael and Finnemore, Martha, "The Politics, Power and Pathologies of International Organizations" *International Organization,* vol. 53, no. 4, pp. 699-732.
[28] Jordan, Robert S., *International Organizations:  A Comparative Approach to the Management of Cooperation*, 4th ed. (London:  Praeger Publishers, 2001), pp. 73-75.
[29] See Haas, Peter, "Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control" *International Organization*, vol. 43, no. 3, pp. 377-403.

authority as expertise is an important first step in the evolution of international public authority. Throughout this thesis, I will make this argument.

It is important to consider, however, the role respect plays in the acquisition of authority as it relates to expertise. In order for expertise to contribute to the exercise of authority, it is vital that the individual or organization in question be a trusted agent, an agent that is widely respected and generally acknowledged to be a legitimate professional in the field. Part of this legitimacy comes from the objective nature of the authority in question, which cannot be assured as international organizations can create their own preferences, as demonstrated by the cases highlighted by Barnett and Finnemore. While it would be unrealistic to expect any agent to be without a viewpoint, it is important that experts be without an agenda. The allure of the scientific explanation lies in its ability to appeal to reason and not passion. Thus, the legitimacy of authority derived through expertise is at least partially dependent upon the agent's ability to serve as an unaligned and impartial observer. This requires both trust and respect, which cannot be endowed, but must be earned. In this sense, trust and respect function much like social capital, in that they are acquired over time. It is also possible that, similar to social capital, they can be utilized. In chapter five, I will make the case that the IAEA's status as a trusted agent allowed them to negotiate a more intrusive system of safeguards, vital to their long-term success as an organization.

That being said, it is clear that the acquisition of authority through expertise is not sufficient for an organization to acquire autonomy to function as an independent actor within international society. It is also necessary to create the conditions under which member states will feel bound to respect the organization as a legitimate actor *in*

authority. This second dimension is perhaps even more critical to the development of international public authority, and arguably more complicated to create.

*Authority as Legitimate Power*

In an anarchic international system, authority is often equated with power. As Athens famously argued in Thucydides Melian dialogue "the strong do what they have the power to do and the weak accept what they have to accept".[30] In other words, might makes right. However, in a society, actors are conscious of both their duties and obligations as well as their national interests. And while powerful states may have the comparative advantage in advancing their ideas, power alone does not define the rules of the game. Therefore, it is necessary to search for an alternative explanation to illuminate "the right of those elevated to authority under such rules to issue commands".[31]

Max Weber is perhaps the most famous scholar to have explored the relationship between legitimacy and authority. His authority typology, which identifies three forms of authority, arguably underpins our current understanding of domestic political legitimacy.[32] The three types are: traditional authority, or authority that is "exercised by the patriarch and the patrimonial prince of the old type"[33]; charismatic authority, or authority that is derived from personal devotion to an individual or a charismatic ruler[34]; and legal-rational authority, authority that stems from a belief in "the legality of patterns

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[30] Brown, Chris, Nardin, Terry and Rengger, Nicholas, *International Relations in Political Thought* (Cambridge: Cambridge University Press, 2002) p. 54.

[31] Weber, Max, *Economy and Society: An Outline of Interpretive Sociology* (New York: Bedminster Press, 1968) p. 215.

[32] For a complete description of Weber's three typologies, see Weber, Max, *Theory of Social and Economic Organization* (NY: The Free Press, 1947) pp. 328-349.

[33] Lassman, Peter and Speirs, Ronald, eds., *Weber: Political Writings* (Cambridge: Cambridge University Press, 2003) p. 311.

[34] Ibid, pp. 311-312.

of normative rules and the right of those elevated under those rules to issue commands."[35]

The question then becomes, can this typology be usefully applied to explain the exercise of public authority at the international level?

The answer to that question is a qualified yes. Not all of the types identified by Weber translate perfectly to the international level. Because the international community is basically structured around sovereign (albeit interconnected) state actors, it is difficult to conceive of a single individual, regardless of charisma, that could realistically serve as a single source of global authority. Therefore, charismatic authority isn't a particularly useful fit at the international level.

Traditional authority may be a more successful in accounting for authority at the international level, in so much that international law, and many of the "rules of the game", emanate from a traditional understanding of right conduct between states. That being said, traditional authority is more likely to influence state behavior, and only incidentally the behavior of international organizations.

The legal-rational type, however, can provide important insights into the relationship between legitimacy and international public authority. If, as has been argued, an international society exists in which norms and rules develop through socialization, it provides a natural backdrop from which Weber's legal-rational structure can emerge. As Weber contends, "systems of convention, laws and regulation develop in many societies".[36] From these systems develop bureaucracy, and while the use of power may be necessary in order to initially establish rule and order, power eventually gives

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[35] Shapiro, Scott, "Authority" *The Oxford Handbook of Jurisprudence and Philosophy of Law,* ed. Jules Coleman and Scott Shapiro (Oxford: Oxford University Press, 2002) p. 307.
[36] Weber in Ritzer, George, *Sociological Theory*, 3rd ed., (New York: McGraw-Hill, 2003) p. 129.

way to established norms that limit and constrain it. In other words, "legitimate power is normatively regulated power". [37] Because this type of authority is generally vested in and exercised by bureaucracies, the emergence of international organizations and specific international bureaucracies would seem to be a part of the natural progression in any society, be it at the domestic or international level. Thus, there is no reason to believe that international bureaucracies cannot acquire legal-rational authority, in the same way that bureaucracies do at the domestic level.

Once again, however, this is dependent upon society's willingness to recognize the bureaucracy as a legitimate authority. Legal-rational authority is not determined by the amount of material power an actor possesses, but instead rests in the perceived legitimacy of the rules. After all, most international organizations are extremely limited in their access to "blood and treasure", and the IAEA, per se, has no material power. Therefore, in order to respect legal-rational legitimacy, society must feel bound. The first step in creating this mutual sense of obligation is the creation of *specific* norms that reinforce the organization's claim to authority, thereby institutionalizing their claim. Of equal importance, however, is the creation of "right" processes within the bureaucracy that reinforce society's belief that the organization functions in accordance with its substantive values. In other words, the organization behaves in such a way that society both trusts and respects its authority. In this way, respected expertise is reinforced through a trusted process.

Thus, it is the emergence of specific norms and the creation of bureaucratic processes that successfully bind member states, thereby creating the mutual obligations

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[37] Scott, John and Gordon Marshall, *A Dictionary of Sociology* (Oxford: Oxford University Press, 2005) p. 307.

that Clark contends are necessary to define the boundaries of and behavior to be tolerated within international society. These norms and processes, as already discussed, will be historically variable.

*International Norms and Legitimacy*

The evolution of international norms that signal a common understanding of the boundaries and behaviors to be tolerated within international society are an important part of legitimation practices at the international level. Unlike legitimacy, norm is more easily defined. As Martha Finnemore and Kathryn Sikkink state "There is general agreement on the definition of a norm as a standard of appropriate behavior for actors with a given identity."[38] And yet, there are distinctions between and within norms. Finnemore identifies three different types of norms: regulative, constitutive and prescriptive. Regulative norms "order and constrain behavior"[39]; constitutive norms "create new actors, interests or categories of action"[40] and prescriptive norms are evaluative, or convey a sense of "oughtness"[41]. The nonproliferation norm – better understood as a cluster of related norms[42] – reflects all three of these aspects. In the first sense, the nonproliferation norm clearly regulates the development and use of nuclear technology. And yet, the nonproliferation norm has also, over time, constituted new interests and actions that have shifted the nuclear "playing field" within international

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[38] Finnemore, Martha and Kathryn Sikkink, "International Norm Dynamics and Political Change" *International Organization,* vol. 52, no. 4 (Autumn 1998) p. 891.
[39] Ibid.
[40] Ibid.
[41] Ibid.
[42] For instance, the nonproliferation norm consists of both a norm against the proliferation of nuclear weapons technology and a norm guaranteeing the right to peacefully pursue nuclear development. Thus, when referring to the nonproliferation norm (singular), we are in fact referring to a plurality of norms that are all related in various ways to the issue of nuclear proliferation.

society.  Finally, the nonproliferation norm has promoted the "oughtness" of certain behaviors to be tolerated within this society.   Taken together, this complex norm helps to establish the parameters that shape our understanding of legitimacy.

Finnemore further emphasizes this point and explicitly discusses the inter-subjective quality of norms:

> We only know what is appropriate by reference to the judgments of a community or a society.  We recognize norm-breaking behavior because it generates disapproval or stigma and norm conforming behavior either because it produces praise, or, in the case of a highly internalized norm, because it is so taken for granted that it provokes no reaction whatsoever.

This emphasis on the social nature of norm development is important, as it reinforces the idea of learning as an agent of change.  In fact, the very inter-subjectivity of norms implies that they can change – or more accurately – their meaning and interpretation can change.  This has clear implications for the exercise of public authority and the types of legitimation practices an organization might pursue.  As Finnemore notes, norms regarding gender have substantially changed over the last century.[43]  This has prompted a shift in the way that women and women's roles in society are considered.  Thus, what is considered appropriate, or "good" may vary greatly over time, prompting organizations to re-conceptualize their mission, goals and operations as norms evolve and shift.

In addition to defining norm, Finnemore also proposes a norm "life cycle" that describes the evolution of international norms.  Using terminology developed by a variety of scholars in a number of fields,[44] Finnemore identifies three stages of norm development:  norm emergence, norm cascade (the point at which a critical number of

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[43] Finnemore and Sikkink, p. 894.

[44] For examples, see Sunstein, Cass, "Behavioral Analysis of Law" *The University of Chicago Law Review*, vol. 64, no. 4 (Autumn, 1997) and Finnemore, Martha, "International Organizations as Teachers of Norms: The United Nations Educational, Scientific and Cultural Organization and Science Policy" *International Organization*, vol. 47, no. 4, (Autumn 1993).

states subscribe to the norm) and norm internalization.   These stages are important to understand, not because the focus of this thesis is upon the development of a nonproliferation norm, but because the IAEA's acquisition of legitimacy in the operation of its safeguards program has been influenced by the extent to which a nonproliferation norm exists.  In fact, I will argue that the ability of the Secretariat to legitimate its activities and exercise public authority independently of its member states evolved as the nonproliferation norm traversed the norm life cycle.  It is necessary, therefore, to explore the specifics of the life cycle in greater detail in order to make this argument clear.

*The Norm Life Cycle*

Norm emergence is a complicated process.  There is no single set of conditions requisite in order for new norms to emerge.  However, two variables seem to consistently be present when examining the origin of norms:  norm entrepreneurs and organizational platforms.[45]  The norm entrepreneur need not be a particularly powerful actor, but they must have access to an organizational platform that allows them to frame the issue and advocate for the adoption of the new norm.    Using this platform, the norm entrepreneur engages in socialization.

It can be useful, and even necessary, however, for the most powerful states to be actively involved in norm promotion.  When the dominant power(s) in society are the primary norm promoters, this is called hegemonic socialization.[46]   And yet, in reality, norm promotion is more likely to be a combination of these things.  In the case of the nonproliferation norm, socialization began with a group of nuclear scientists working

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[45] Finnemore and Sikkink, p. 896.
[46] Ikenberry, John and Kupchan, Charles, A., "Socialization and Hegemonic Power" *International Organization,* vol. 44, no. 3 (Summer 1990), pp. 283-315.

within the United States to craft a solution to the nuclear "problem". It was later picked

up by a comparatively small power, Ireland, extensively socialized within the General

Assembly, and eventually adopted by both the United States and the Soviet Union, albeit

for very different reasons from those who first identified a nonproliferation agenda. In

this case, the United States and the Soviet Union would act as critical states, or states

"without which the achievement of the substantive norm goal is compromised."[47] The

role of critical states in this particular case will be further explored in the following

chapters.

This leads to the second phase of the norm lifecycle – or the norm cascade. A

norm cascade takes place when a critical mass of states adopts a norm. Nonetheless, a

norm cascade is not merely dependent upon the number of states adopting a norm, as is

demonstrated by the need for critical state participation. The point at which a norm

cascade takes place, therefore, is very dependent upon the issue and the context of the

situation. Frequently, however, institutionalization of the norm indicates the "tipping

point", or the movement of the norm from the first to the second phase of the life cycle.[48]

I will argue that the nonproliferation norm reached its tipping point when the NPT legally

entered into force. Further, this also marked an important evolution in the IAEA's

development of independent autonomy. Both chapters three and four will focus on this

development.

The final phase of the norm lifecycle is described as internalization. At this stage,

the norm has become so deeply entrenched in the social fabric of the society that it may,

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[47] Finnemore and Sikkink, p. 901.
[48] Finnemore and Sikkink, p. 900.

in Finnemore's words, be "taken-for-granted".[49]  And yet, a better way to test

internalization may be to look for signs that the boundaries of accepted behaviors within

society are being shifted to conform with the norm.  For example, while still

controversial, rules protecting the rights of women are increasingly widespread, and

gender equity is a common goal in many international development and human rights

documents.  In addition, democratic norms have been extensively institutionalized at both

the state and international levels, legitimizing certain practices, such as transparency and

accountability, as generally accepted standards of right conduct in government.   For

good or ill, the rules of the game have changed, and this indicates the extent to which

such norms are accepted as right and proper, be they imperfectly implemented.

The extent to which the nonproliferation norm has been fully internalized is open

to debate.  On the one hand, membership in the nuclear "club" continues to grow.  On the

other hand, in the 1990s, a number of states actually joined the nonproliferation regime.

And in response to the revelation of an advanced Iraqi nuclear weapons program, the UN

Security Council acted swiftly, decisively and unanimously to respond to the threat.

Further, the 1990s saw the development and fruition of the 93 + 2 process, which

significantly revised the rules of the game under which NPT safeguards operated.  Taken

together, these activities seem to indicate a generally healthy nonproliferation norm.

Thus, norms are an important mechanism through which the boundaries of

international society are set.  In addition, the observance of these norms can both confer,

as well as withhold, the right to participate fully in this society.  Nonetheless, norms are

neither fixed nor permanent.  They change and evolve over time.  And while they help to

institutionalize legitimacy, they cannot guarantee authority.

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[49] Finnemore and Sikkink, p. 904.

*Right Process*

From a legal perspective, the right of international organizations to "act under international law" is well established.[50] This does not change the fact that in practice, international organizations are often limited by a lack of enforcement mechanisms at the international level. Thomas Franck has noted, however, that "in the international system, rules are usually not enforced, yet they are mostly obeyed".[51] This fact is undeniably true, as evidenced by the sheer number of international arrangements that are both effective and rule-based.[52] Further, Franck explains this lack of coercively enforced compliance as a function of legitimacy. Franck goes on to offer his own definition of legitimacy, a definition that noticeably aligns with Clark's idea of rightful conduct. Franck defines legitimacy as "the perception of those addressed by a rule or a rule-making institution that the rule or institution has come into being and operates in accordance with generally accepted principles of right process".[53] Thus, legitimacy, right process and public authority are inextricably tied.

Right process is a concept well developed at the domestic level. From a legal perspective, right process generally reflects certain fundamental values that are cherished within a society – for instance, in most Western countries, procedural due process is derived from a constitution, or similar governing document. In this way, limitations are placed upon governing mechanisms that guarantee certain protections, be they fairness, justice or equitable treatment. Yet the transference of right process to the international

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[50] Delbruck, p. 30.
[51] Franck, Thomas, *The Power of Legitimacy Among Nations*, (Oxford, Oxford University Press, 1990), p. 3. See also Chayes, Abraham and Antonia, *The New Sovereignty: Compliance with International Regulatory Agreements* (Boston: Harvard University Press, 1998).
[52] For examples, see Franck, p. 20.
[53] Franck, p. 19.

level has often been deemed unworkable[54], primarily due to the fact that norms and values within international society shift over time.  Fortunately, when speaking of international organizations, it is possible to identify a source from which these values can be identified.  The political settlements, or treaties, that establish an international organization reflect the consensus of international society regarding the principles and standards to which that organization should be held.  Thus, while imperfect, it is possible to conceive of organizational right process in a similar light as one conceives of procedural due process at the state level.  To this end, the political settlements that establish and expand both the IAEA and its safeguards processes will be carefully considered.  Nonetheless, this also assumes that process must *change* as regimes evolve and organizations amend their guiding documents or assume additional tasks through new political settlements or treaties.

At the same time, international organizations cannot completely avoid the question of substantive values.   Even when foundational documents do not change, substantive values can affect the evolution of standard operating procedures.  For instance, as democracy has emerged as the dominant paradigm in the 21$^{st}$ century, concerns for accountability have increased.  While an organization need not amend its charter to accommodate these changes, it can, and probably should, re-consider its operational procedures in light of these substantive changes.   Therefore, establishing an accurate historical context will be key to accurately evaluating these bureaucratic processes.

At the heart of right process, though, is the concept of trusted agency.  Process is important not simply because it operationalizes the rules and procedures agreed upon by

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[54] Jost, p. 30.

member states, but because it helps to create confidence in the trustworthiness of the agent endowed with the authority to act, an agent that in this particular case is required to operate within the sovereign territory of the member state, inspecting and verifying the accuracy of the member state's declaration. Right process, which creates a predictable operating environment, and aligns with both the agreed upon procedural rules and the larger substantive values established by society, allows an agent the opportunity to establish the reputation, and attendant political capital, necessary to successfully execute their mission. This reputation, based upon the integrity of the organization and its fidelity to a right process, is yet another means through which legitimacy and authority are expanded.

Another aspect of process that cannot be overlooked is the frequent interconnectedness of international organizations. The IAEA, for instance, is a member of the United Nations family, and the IAEA Board of Governors makes their final recommendations directly to the UN Security Council. The UN Security Council is then responsible for deciding the appropriate action in the event a state is found to be noncompliant. Thus, the Security Council is part of the IAEA's safeguarding process, and their perceived legitimacy can influence IAEA legitimacy.

*Legitimacy and Effectiveness*

Finally, it is difficult to speak seriously about the exercise of public authority without considering the role efficiency plays in generating organizational legitimacy. Rightful conduct can be conceived of as more than the alignment of behavior with the rules and norms identified within treaties and evolving within society, it must also be conceived of as the *effective* execution of the duties entrusted to the international

organization. "Efficiency has a legitimizing effect", and lack of effectiveness can undermine public authority to such an extent that once again, an organization is rendered inoperable.[55] If an organization cannot fulfill its mandate, it cannot be considered reliable, even if it is trustworthy in all other areas. This is especially true in situations where the mission carried out by the organization is a critical piece of a larger political settlement, as is the case with the IAEA and its system of safeguards. If the IAEA is not effective, if its safeguards cannot be trusted, than it undermines the entire nonproliferation regime. In order for verification to work, the IAEA must safeguard effectively, thereby legitimating its own activities, as well as the larger political bargain it supports. Thus, when the IAEA inaccurately verified the peaceful nature of the Iraqi's nuclear program, it profoundly undermined the legitimacy of the organization. The fact that this failure resulted largely from the limitations imposed upon the process of safeguarding by member states, which promoted an overly cautious bureaucratic culture, did not diminish the perception that the organization was ineffective.

And yet, in order to fairly evaluate the efficiency of any institution, it is necessary to construct a complete understanding of the normative constraints under which an institution operates. In the absence of this understanding, assessments of efficiency could be both unrealistic and inaccurate. Thus, while efficiency itself is not tied to any specific idea, it is closely, if not inseparably linked to the organization's normative framework. This thesis will consider IAEA efficiency both in terms of its perceived success, as well as its success in light of normative constraints, and consider the problem of legitimation from both of these perspectives.

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[55] Jost, p. 42.

*In Conclusion*

Legitimacy, therefore, is critical to the exercise of public authority at the international level. This may, no doubt, seem startlingly obvious. Nevertheless, it is also obvious that the idea of public authority as exercised by international organizations beyond the strict purview of the state is a concept that continues to be controversial, both in practice and within the academy. Thus, it is not surprising that it has received comparatively less attention as a target for focused study. That said, the nature of the international environment, particularly in a post Cold War globalizing society, requires an honest assessment of this very subject. As IO scholarship has demonstrated, international organizations have the potential to be influential players in international politics. Unfortunately, to date, the autonomy of organizations has been largely perceived as problematic, the assumption being that bureaucracies negatively complicate the successful execution of an international organization's tasks. In the following chapters, I will attempt to demonstrate an alternative. Tracing the emergence of the IAEA and its system of nuclear safeguards, I will show that organizations acquire legitimacy in various ways, at different times in their development and evolution. I will also show that organizational autonomy, specifically within the bureaucracy, can prove critical to the successful and legitimate exercise of public authority at the international level. It is to this task that we now turn.

**Chapter 2: Establishing Legitimacy – The Original Safeguards Regime**

Power has long been the currency of international relations. The founding of the IAEA would prove no different. In the aftermath of the first nuclear explosions at Hiroshima and Nagasaki, the United States, perpetrator of the attacks, took steps to mitigate the threat posed to international security by this new and devastating technology. As the only state in possession of nuclear weapons, the U.S. position was unique. To a certain extent, the U.S. could dictate the form that such a response would take. At the outset, the U.S. opted to explore the internationalization of nuclear control mechanisms. Unfortunately for the Americans, the Soviet Union tested a nuclear weapon in 1949, beginning a period of intense arms racing that initially derailed these efforts.[1] And yet, with the election of President Eisenhower, the U.S. would determine that an international body designed to promote peaceful nuclear technology and cooperation would be in their best interest. As a result, after intense negotiations, the IAEA was born. Thus, it will be shown that U.S. national interest and the exercise of U.S. power overwhelmingly contributed to the creation of the IAEA, the first international institution to attempt arms control inspection, monitoring and verification. With U.S. support, this first system of safeguards would ultimately be successful. At the same time, it wasn't long before the IAEA's Secretariat began to form an identity of its own, beginning a slow process that would contribute to an imperfect if genuine public authority.

This chapter will examine this evolution, and trace the extent to which the U.S. was instrumental in the foundation and early legitimation of IAEA activities. To this end,

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[1] Many Cold War scholars, most notably John Lewis Gaddis, date the beginning of US/Soviet hostilities well before the successful Soviet weapons test in 1949 (see *The Cold War: A New History* (New York: Penguin, 2006). That said, the nuclear test shifted the intensity of the nascent conflict.

the chapter will begin with an examination of the first U.S. effort to control the dangerous technology developed under the Manhattan Project. This examination is important for two reasons: it provides essential context that helps to explain why the U.S. pursued a policy of internationalization. At the same time, the Acheson-Lilienthal Report gives an in-depth look into the nature of and problems associated with the control of nuclear technology. This is extremely important to understand, as much of this thesis involves the extensive comparison of different systems of nuclear safeguarding. Understanding the challenges posed therein is clearly vital. Next, the evolution of the Atoms for Peace program will be considered, as well as the negotiations leading up to the foundation of the IAEA, and the IAEA statute itself. Again, the role of U.S. power and national interests will be highlighted as major influences in the institutionalization of international nuclear control mechanisms. Following this, the first IAEA safeguards regime will be analyzed, particularly the extent to which the IAEA would be expected to intrude upon the sovereignty of states requesting IAEA assistance. Finally, the emergence of a unique IAEA organizational culture will be contemplated, as well as the ramifications associated with the acquisition of technical authority as a legitimizing influence.

### Acheson-Lilienthal: Internationalizing Nuclear Control

The atom bomb inexorably changed the debate regarding the control and use of weapons in the international system. Unlike earlier treaties limiting chemical warfare and naval disarmament, the existential threat implicit in full scale atomic warfare lent a sense of urgency to the problem of nuclear technology used for military purposes. In its very first recommendation, the new UN General Assembly passed resolution 1(1), "Establishment of Commission to Deal With the Problems Raised by the Discovery of

Atomic Energy".[2]  Responding to this and fearful of an arms race sparked by a U.S.

monopoly on the atom bomb,[3] the United States initiated efforts early on to devise an

international regime that could control and safeguard the spread of nuclear technology.

Delegated with the task of formulating such a policy for the United States, Dean Acheson

chaired a committee made up of scientists and executives intimately familiar with the

U.S. atomic program.[4]  In addition, Acheson appointed a board of experts to guide the

committee and make specific suggestions for an international system of nuclear control.

Chairman of this board was David Lilienthal, head of the Tennessee Valley Authority,

and Robert Oppenheimer, a board member who assumed the role of atomic "tutor" for

both Acheson and Lilienthal during the formulation of the report.[5]  Both Acheson and

Lilienthal moved forward with the following terms of reference, provided by the U.S.

government on January 7, 1946, the date of the committee's inception:

> "anticipating favorable action by the United Nations Organization on the proposal
> for the establishment of a commission to consider the problems arising as to the
> control of atomic energy and other weapons of possible mass destruction, the
> Secretary of State has appointed a Committee of five members to study the
> subject of controls and safeguards necessary to protect this Government so that
> the persons hereafter selected to represent the United States on the Commission
> can have the benefit of the study."[6]

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[2] For a transcript of the resolution, see World Wide Web address:
http://daccessdds.un.org/doc/RESOLUTION/GEN/NR0/032/52/IMG/NR003252.pdf?OpenElement.

[3] Chace, James, "After Hiroshima: Sharing the Atom Bomb," *Foreign Affairs*, January/February, 1996, p.1 (online, cited January 5, 2005), http://www.foreignaffairs.org/19960101faessay4177-p30/james-chace/after-hiroshima-sharing-the-atom-bomb.html.

[4] Committee members included James Conant, Vannevar Bush, John McCloy and General Leslie Groves, the head of the Manhattan Project.

[5] Chace, 1996, p.4.

[6] *Report on the International Control of Atomic Energy (The Acheson Lilienthal Report),* Department of State Publication 2498, prepared for the Secretary of State's Committee on Atomic Energy, U. S. Government Printing Office, Washington, D. C. (March 16, 1946), p. VII, http://www.learnworld.com/ZNW/LWText.Acheson-Lilienthal.html#text.

Further, because the committee determined that it would be incumbent upon America, as the sole atomic power, to bring forth a plan for the United Nations Commission's consideration regarding the nature of controls and safeguards, a report that reviewed and analyzed all relevant facts and possible proposals would be required. Therefore, the nature of the report, which became known as the "Acheson-Lillienthal Report", was submitted, explicitly, "not as a final plan, but as a place to begin, a foundation on which to build."[7] As a place to begin, however, it proved remarkably prescient, for over half a century later, the Acheson-Lilienthal report identified precisely the "process" problems with which the nuclear safeguards system continues to struggle today.

The Acheson-Lilienthal Report (hereafter referred to as "the Report") based its recommendations on a number of assumptions, some political, some technical. First of all, echoing the Agreed Declaration of 1945,[8] the committee supported the need for an international mechanism through which the destructive aspects of atomic energy could be controlled. This support was prefaced on three assumptions: that atomic weapons represented a revolutionary leap in the power of the state, that countermeasures were technologically infeasible and likely to remain so, and that U.S. secrecy was unlikely to prevent the eventual spread of nuclear weapons "know how." Assuming these three things, a plan for the cooperative control of destructive nuclear power seemed both reasonable and necessary.[9]

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[7] Acheson-Lilienthal, p. VIII.
[8] The Agreed Declaration of 1945, signed by the United States, the United Kingdom and Canada, called for the establishment of a U.N. Atomic Energy Commission to discuss the elimination of the use of atomic energy for "destructive purposes." This was also the first official call for an international system of nuclear safeguards, http://www.ibiblio.org/pha/policy/post-war/451115b.html.
[9] Acheson-Lilienthal, pp. 1-2.

Secondly, in response to calls for the elimination of nuclear weapons, the Report recognized that the pathways to the development of nuclear energy for peaceful purposes and the pathways to the development of nuclear energy for nuclear weapons were both "interchangeable and interdependent." [10] Thus, if the world was to pursue the development of peaceful applications of atomic energy, it would be faced with a potentially intractable dilemma. Further, should there be an international ban on the production of fissile material for destructive purposes without an effective and trustworthy international mechanism for monitoring such a ban, the potential result would be similar to that of the Naval Treaties[11], gross violation. Thus, unlike previous attempts to control a particular category of weapon, the Report specifically laid out the requirements for a system of verification.

Interestingly, the panel did not view the problem as entirely technical in nature, as becomes apparent by their recommended plan of action. Instead the panel emphasized the political problems likely to be found in a regime that is heavily dependent upon national good faith in an international system that is often governed by national rivalry. Recognizing that concerns for the maintenance of state sovereignty would likely undermine a system in which states retained control of dangerous fissile material, the Report recommended the formation of an international agency in which control and ownership of *all* dangerous nuclear materials would be vested. The result: any diversion of fissile materials outside the jurisdiction of the international control body would

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[10] Acheson-Lilienthal, p. 4.

[11] The Naval Treaties negotiated after World War I sought to return the navies of the major powers to pre-war levels. This series of treaties, while initially successful, eventually unraveled, as there was no system for the verification of treaty commitments. For more on the Naval Treaties, and the problem of verification, see Kaufman, Robert, G., *Arms Control During the Pre-Nuclear Age: The United States and Naval Limitation Between the Two World Wars*, (New York: Columbia University Press, 1990).

provide a clear and unambiguous signal regarding the political intent of the state engaged

in the diversion, i.e., the intent to develop a nuclear weapon.  The international

community could therefore respond in a timely fashion.  If, however, fissile materials

were to remain in the hands of sovereign states, the intent to use atomic power for

military purposes would be significantly more difficult to determine, as the processes

necessary to produce nuclear energy for peaceful purposes are often indistinguishable

from the processes used to produce military technologies.[12]  Such a system would require

an extremely intrusive international inspectorate, the purpose of which would be to

verify, within a state's territory, the peaceful character of their nuclear program.  As

stated in the Report:

> We have concluded unanimously that there is no prospect of security against
> atomic warfare in a system of international agreements to outlaw such weapons
> controlled only by a system which relies on inspection and similar police-like
> methods. The reasons supporting this conclusion are not merely technical, but
> primarily the inseparable political, social, and organizational problems involved
> in enforcing agreements between nations each free to develop atomic energy but
> only pledged not to use it for bombs…We are convinced that if the production of
> fissionable materials by national governments (or by private organizations under
> their control) is permitted, systems of inspection cannot by themselves be made
> "effective safeguards…to protect complying states against the hazards of
> violations and evasions."

*The Acheson-Lilienthal Safeguards*

The technical considerations regarding an international inspectorate can be

summed up fairly simply.  Basing their conclusions upon a report prepared for the War

Department,[13] the Board of Advisors determined that "every stage in the activity, leading

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[12] Sokolski, Henry D., *Best of Intentions: America's Campaign Against Strategic Weapons Proliferation* (London: Praeger Publishers, 2001), pp. 15-16.

[13] Two reports were prepared by the United States prior to the Acheson-Lilienthal study:  The Jeffries Report, prepared for Arthur Compton, director of plutonium production for the Manhattan Project, and passed onto General Leslie Groves, head of the Manhattan Project and a member of

from raw materials to weapon, needs some sort of control, and that this must be exercised on all of the various paths that may lead from one to the other; that at no single point can external control of an operation be sufficiently reliable to be an adequate sole safeguard".[14]  In order for there to be any certainty that the nuclear activities remained entirely peaceful and that nuclear products were not being diverted to weapons programs, the presence of international inspectors would have to be both extensive and invasive. And this would give way to what the Report termed "human factors in inspection". These human factors would likely prove far more difficult to address in any international system of inspection than technical factors.  The report identifies two main areas where human factors would prove problematic:  the ability to recruit the required number of qualified experts, a problem that continues to this day; and the social and organizational "frictions" that would result from having a large number of foreigners with "special privileges and immunities inquiring intimately and generally into industrial and mining operations."[15]  As inspectors would also be required to interact with individuals regardless of rank, this would challenge both the integrity of the nation's commitment and undermine its system of authority.  These human factors, the Report argues, would produce an environment in which the good faith of a nation was perpetually being questioned and ultimately jeopardize the spirit of cooperation necessary for such a mission to succeed.

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Acheson's committee. This report outlined possible future developments in nuclear energy.  The second report, or the Franck Report, prepared for the War Department and reviewed by Secretary of War Henry Simpson, dealt with the problem of controlling nuclear power after the war.  This was the work referred to in "The Technical Problems of Inspection" section of the Acheson-Lilienthal Report.  For a copy of the Franck Report, please see: http://www.nuclearfiles.org/redocuments/1945/450611-franck-report.html
[14] Acheson-Lilienthal, p. 6.
[15] Acheson-Lillienthal, pp. 6-8.

It is evident upon reading the Report that the committee, clearly qualified to speak to the technical difficulties, chose deliberately to emphasize the social and political problems associated with an inspection system structured solely around national treaties that rely heavily upon good faith and cooperation. Why is this? Because the technical difficulties, while not insurmountable, demanded an unheard of incursion into the sovereign affairs of the independent state, an incursion that seemed unlikely to meet with long-term success and without which verification would be inconclusive.

So what alternative did Acheson-Lilienthal specifically offer? Firstly, before making specific recommendations, the report identifies six "characteristics of an effective safeguard system." It recommends that any effective plan would: 1. Reduce the problem of enforcement, 2. Provide "unambiguous and reliable" signals that a state has begun steps towards a nuclear weapons program, 3. Protect the individual security of states in the event the system fails, 4. Not rely wholly upon negative "police-like" measures for security, 5. Be flexible enough to adapt to an emergent field, 6. Be international in character and "minimize rivalry between nations in the dangerous aspects of atomic development."[16]

How then did the committee propose to design a safeguards system that incorporates these specific characteristics? Their answer lies in identifying "definable boundaries" between safe and dangerous activities. The report argues that the production of an atomic weapon is dependent upon access to specific fissile materials and the key to successful safeguards lies in limiting individual state access to these materials. At the same time, a robust program that encourages scientific exploration of peaceful activities

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[16] Acheson-Lilienthal, p. 9.

must be constructed so that the potential benefits likely to be found in nuclear energy can be enjoyed by all. As the report broadly summarizes "the proposal contemplates an international agency conducting all intrinsically dangerous operations in the nuclear field, with individual nations and their citizens free to conduct under license and a minimum of inspections all non-dangerous or safe operations."[17]

Taken together, the Acheson-Lilienthal recommendations suggest a particular type of safeguards system that avoids the burden of excessive and intrusive information requirements while at the same time establishing clear systemic parameters that eliminate the problem of intent. Both of these issues are particularly relevant to the discussion of the current system, and the following cases will demonstrate how these initial ideals eroded as the political reality of the Cold War shaped the emergent nuclear safeguards regime.

*The Baruch Plan*

Although the Acheson-Lilienthal Report represents a remarkably innovative approach to the atomic problem, particularly in its recommendations regarding international control of fissile material, these recommendations were by no means embraced by the entirety of the U.S. government. While the Report's recommendations did form the foundation of the U.S. proposal to the United Nations, a number of important additions were made prior to its submission. These additions reflected a school of thinking that is probably most commonly associated with Bernard Baruch, an elderly statesman uninvolved in the proceedings of the Acheson-Lilienthal Report. The additions had little to do with the issue of nuclear control and almost everything to do with the

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[17] Acheson-Lilienthal, p. 31.

enforcement of the proposed safeguards system. Baruch, dismissive of the input

provided by Acheson's Board of Advisors, refused to include scientists in his exploration

of the problem, asserting that he would "smell his way through."[18] When the U.S.

proposal to the United Nations was finally announced at the opening session of the

Atomic Energy Commission on June 14, 1946, Baruch added the following two

provisions: that "condign punishment" swiftly be enacted in the result of violations, and

that the permanent members of the Security Council should *not* have veto power over the

assignment of punishment, due to the offensive nature of nuclear weapons. In Baruch's

words "The bomb does not wait upon debate. To delay may be to die. The time between

violation and preventive action or punishment would be all too short for extended

discussion as to the course to be followed."[19]

It is unsurprising that Baruch's proposals met with significant resistance. As a

permanent member of the United Nations Security council, the Soviets objected not only

to the proposed renunciation of their veto, but also to a provision within the Baruch Plan

that would have placed Soviet nuclear facilities under international control *prior* to the

establishment of safeguards on U.S. soil.[20] The Soviets replied with a proposal for total

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[18] In Chace, 1996, p. 4.

[19] The Baruch Plan, (online, cited 11/02/04). Available from World Wide Web:
http://www.nuclearfiles.org/redocuments/1946/460614-baruch.html. Baruch was not the only
statesman to address the issue of enforcement. On the same week that Baruch made his address,
Bernard Brodie, Frederick Dunn, Arnold Wolfers, Percy Corbett and William Fox, members of
the Yale Institute of International Studies, published an edited volume addressing the political
implications of the atomic bomb. Brodie, a renowned military strategist, would become famous
for his book, *the Absolute Weapon*, published shortly thereafter. For details, see Corbett, Percy
E., "Effect on International Organisation" in Bernard Brodie (ed.), *The Absolute Weapon: Atomic
Power and World Order* (New York: Harcourt, Brace and Company, 1946).

[20] Sokolski, p. 19.

nuclear disarmament, arguing that nuclear control should come after disarmament.[21]

History would reveal this position to be a bit disingenuous, as Stalin had already

implemented a "crash program" for the development of nuclear weapons by this time.[22]

Nevertheless, the U.S. swiftly rejected the Soviet's counter-proposal and the Acheson-

Lilienthal cum Baruch Plan failed.  Truman would later comment that his appointment of

Baruch "was the worst mistake I ever made."[23]

It is important to note that the U.S. Congress was also actively engaged in the

development of nuclear policy during approximately the same time period.  Acting with a

significantly different understanding of the nature of nuclear technology, Congress

supported the view that the U.S. could maintain its nuclear monopoly for the foreseeable

future if only vital technical information regarding the development of nuclear weapons

could be kept in U.S. hands.  While neither Acheson nor his advisors shared this

assumption, it was a comparatively common opinion supported by a number of nuclear

experts.  General Groves, the head of the Manhattan Project, estimated that the Soviets

would need at least twenty years to acquire a nuclear weapons capability.[24]  Thus,

Congress passed the first Atomic Energy Act in 1946, dramatically limiting the ability of

the U.S. government to share nuclear information.[25]

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[21] Fischer, David, *History of the International Atomic Energy Agency: The First Forty Years* (Austria:  IAEA, 1997), p.20.  The Soviets would make yet another proposal almost exactly one year later.  This proposal would advocate a system of reporting and inspection, to include both US and Soviet facilities, but it would not be extensive enough to satisfy the US.  For additional information, see Chapter 2 of Fischer's history.

[22] Holloway, David, *Stalin and the Bomb: The Soviet Union and Atomic Energy 1939-1956*, (New Haven: Yale University Press, 1994) p.

[23] Chace, James, *Acheson: The Secretary of State Who Created the American World* (New York: Simon and Schuster, 1998) p.127.

[24] Chace, 1998, p. 5.

[25] The Atomic Energy Act of 1946 essentially made secrecy the official U.S. policy for nuclear control.  It created the U.S. Atomic Energy Commission and the Joint Committee on Atomic

*Atoms for Peace*

Congress' hopes to limit the spread of nuclear technology were dashed when in August of 1949 the Soviet Union exploded its first nuclear device. Thus commenced the first nuclear arms race of the Cold War. With little intelligence regarding the details of the Soviet nuclear weapons program, the U.S. government was forced to speculate as to potential Soviet capabilities and the point at which the Soviets could successfully attack the United States. The National Security Council (NSC), in a revised brief delivered shortly after the Soviet test, estimated that the Soviets could potentially destroy 100 U.S. cities (a benchmark earlier identified in the Franck Report) by 1954 – approximately five years from Soviet acquisition of the bomb.[26] In response, the Department of Defense recommended a greatly expanded program of fissile material production. Recognizing the inherent dangers to be found when confronting a classic "security dilemma" whereby states are drawn into a mutually sustaining arms race as they respond to each other's actions, Dean Acheson (since appointed Secretary of State) chose Robert Oppenheimer to head an advisory body tasked to re-visit the issues of disarmament and nuclear control, the situation having changed markedly since the end of the American monopoly on the atom bomb.

The report of the Oppenheimer committee concluded that fissile material production, on both sides, had progressed to such an extent that verifiable disarmament would be impractical in light of the amount of stockpiled material. In addition, they

Energy, a Congressional committee that would meet behind closed doors and determine authorization for the sharing of nuclear information. Those convicted of sharing nuclear "secrets" without approval would receive the death penalty. For specific details, see *The McMahon Bill, December 1945 (Atomic Energy Act, 1946,* http://www.nuclearfiles.org/redocuments/1945/451220-mcmahon.html.
[26] Sokolski, p. 25.

warned of the potential for a Soviet "knock-out" blow, a fear that was further intensified

when the US detected what they thought was a hydrogen bomb test in August of 1953.[27]

The report would encourage the U.S. to expand its pursuit of offensive and defensive

nuclear capabilities, potentially intensifying an already heated arms race.[28]  Until

adequate capabilities could be acquired, however, the U.S. would be vulnerable, and the

report recommended two principle actions to mitigate an all out arms race.  The first was

to end the strict policy of secrecy required by the Atomic Energy Act of 1946.  This could

be accomplished in two ways: by informing the public of the nature of the "crisis" and by

making freely available certain information regarding the U.S. nuclear arsenal.  Both of

these steps were important for the report's second recommendation:  the initiation of an

arms control dialogue with the Soviets.  The committee did not think such a step would

be successful without public support.  Further, it seemed unlikely that the Soviets would

engage in any discussion without assurances that the U.S. had yet to reach their own

"knock-out" capability.[29]

Yet before these recommendations could be acted upon, a new President came

into office.  Oppenheimer, concerned that the committee's work would be overlooked in

the inevitable transition, published an article in *Foreign Affairs* entitled "Atomic

Weapons and American Policy", essentially outlining the recommendations listed in the

committee report.[30]  In response, Eisenhower met with Oppenheimer, and subsequently

asked his chief speechwriter to begin work on a presidential address that would take up

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[27] Fischer, p. 23.

[28] On August 12, 1953, the Soviets

[29] For further details regarding Oppenheimer's report, see "Armaments and American Policy: A Report of the Panel of Consultants on Disarmament to the Department of State" State Department Archives, file number 330.13/1-1553 (January 15, 1953).

[30] See Oppenheimer, Robert J., "Atomic Weapons and American Policy" *Foreign Affairs* 31, no.4, (Summer 1953) pp. 525-535.

the committee's ideas.[31]  This assignment was dubbed Operation Candor, and the

eventual result would be Eisenhower's "Atoms for Peace" proposal.

The proposal itself, however, was not simply a reiteration of the Oppenheimer

report.  Initially reflecting the worst-case scenarios envisioned by the administration, the

report conveyed a deep sense of impending crisis, and Eisenhower found the early focus

of Operation Candor dispiriting and misguided.  His comments on the drafts indicated

that, as written, these proposals would leave the American people "with only a new

terror, not a new hope".[32]  Further, he began "to search around for any kind of idea that

could bring the world to look at the atomic problem in a broad and intelligent way and

still escape the impasse to action created by Russia's intransigence in the matter of

mutual or neutral inspection of sources."[33]

Without a doubt, this desire to avoid the problem of inspection influenced the

development of Eisenhower's Atoms for Peace initiative, and the initial creation of a

nuclear safeguards system.  It is important to note, though, that Eisenhower's concerns, at

this stage, were almost entirely focused upon reducing the potential for nuclear war with

the Soviets, and not with the horizontal proliferation of nuclear weapons, a concern that

would not truly surface until later in the arms control debate.  In fact, the key concept

upon which Eisenhower based his ideas was that of a fissile material "bank".  The bank

would be a depository for fissile materials.  It would be managed by a new international

agency concerned specifically with atomic matters, and it would provide the world with

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[31] Weiss, Leonard, "Atoms for Peace" *Bulletin of the Atomic Scientists* vol. 59, no. 6 (November/December 2003) p. 36.

[32] *The Presidential Papers of Dwight David Eisenhower,* "To Charles Douglas Jackson" Document #395 (August 24, 1953), notes section. Available from World Wide Web: http://www.eisenhowermemorial.org/presidential-papers/first-term/documents/395.cfm

[33] Eisenhower, Dwight D., *Mandate for Change* (New York: Doubleday, 1963) p. 252, in Sokolski, p. 28.

reliable (and safeguarded) access to the materials necessary for the cultivation of peaceful nuclear development.[34]  This bank, he posited, could usefully reduce excess fissile material in both the U.S. and the Soviet stockpiles, creating opportunities for peaceful nuclear development while simultaneously offsetting the arms race.  While Atoms for Peace was not explicitly a disarmament scheme, concerns for disarmament certainly inspired its conception.[35]

At the same time, there was growing concern that the U.S. policy of technology denial might be shortsighted.   It was certainly unpopular with allies interested in expanding their own civilian nuclear power industries.[36]  Further, if U.S. refusal to collaborate with other like-minded countries hindered the development of American technologies, this could be a boon to the Soviets.  As Sterling Cole noted "the relations of the United States with every other country in the world could be seriously damaged if Russia were to build an atomic power station for peacetime use ahead of us. The possibility that Russia might demonstrate her 'peaceful' intentions in the field of atomic energy while we are still concentrating on atomic weapons, could be a major blow to our position in the world."[37]  Unsurprisingly, the US and Soviet competition for alliance partners was already manifesting itself in the potential provision of nuclear technology and assistance.

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[34] Keep in mind, at the time, access to natural uranium was limited, with worldwide reserves largely underestimated, and few countries had the technology to produce plutonium and enriched uranium.

[35] Weiss, pp. 36-41.

[36] France was particularly incensed by the policy, and repeatedly criticized the United States for its stance on technology sharing.  See Bayliss, John, "Exchanging Nuclear Secrets" *Diplomatic History,* vol. 25, no. 1 (Winter, 2001), or "Difficult Partner" *Time Magazine* (June 22, 1959).

[37] Cole, Sterling, letter to Congressman John Phillips, DOE Archives (May 20, 1953).

The Atoms for Peace speech delivered by President Eisenhower to the United Nations on December 8, 1953 "brought rays of hope to a scene which previously had reflected nothing but despair."[38] Until that moment, the destructive uses of nuclear power had far outweighed the peaceful potential for nuclear development in the minds of most people. Ironically, the Atomic Energy Act of 1946, while the very root of this problem due to its stringent restrictions regarding the dissemination of atomic information, had also created the Atomic Energy Commission, an agency engaged in the task of nuclear research. Within the agency, an Industrial Advisory Group concentrated on the development of nuclear power.[39] It was this aspect of atomic development that Eisenhower chose to emphasize, and it was the idea that nuclear power could be harnessed for the good of mankind that stimulated such a positive response to the speech.

In the speech, Eisenhower outlined his rationale for an international atomic agency. As the President envisaged it, this body would serve three main objectives: 1. To develop peaceful uses for atomic energy, 2. To assist in the production of nuclear energy for "the power-starved areas of the world", and, 3. To "…open up a new channel for peaceful discussion", presumably between the U.S. and the Soviet Union.[40] Sustaining this peaceful work would be the fissile material bank, operated under an international aegis and supplied by countries with advanced nuclear programs or plentiful source materials.

Eisenhower's vision did not materialize in the manner he imagined, however, despite the fact that negotiations for the establishment of an atomic agency eventually

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[38] Bechhoefer, Bernhard, "Negotiating the Stature of the International Atomic Energy Agency" *International Organization*, Vol. 13, No. 1 (Winter, 1959), p. 40.
[39] Weiss, p. 36.
[40] See *Atoms for Peace*, the Dwight D. Eisenhower Library, available at World Wide Web: http://www.eisenhower.archives.gov/atoms.htm

followed the objectives outlined in the Atoms for Peace speech.  Recognizing that critical issues would have to be agreed upon with key players, particularly the Soviets, before dialogue could commence in the UN General Assembly, the negotiations initially began as bilateral discussions between the U.S. and the Soviet Union.  These talks progressed slowly, and under absolute secrecy, so that little was visibly accomplished in the first ten months.  This resulted in conspicuous disappointment from the many developing countries who, anticipating that peaceful applications of nuclear power would provide a fast track for development, eagerly awaited the creation of an agency that could assist in their ambitions.[41]

Unfortunately, bilateral negotiations with the USSR were suspended in late August of 1954, when the United States, after achieving little in the way of progress with the Soviets, decided to begin the unilateral promotion of peaceful nuclear technology.  To begin, the U.S. congress passed the Atomic Energy Act of 1954.  This act amended the earlier Atomic Energy Act of 1946 and allowed the U.S. government to provide nuclear materials, technology and information to certain countries, under the supervision of the U.S. government.[42]  This new legislation served two purposes:  the U.S. government could finally disclose the progress made to date in its work on the peaceful applications of nuclear power, and it could begin to negotiate the transfer of small amounts of fissile material to allies for the purpose of peaceful research and development, demonstrating U.S. willingness to follow through on its earlier promises. These two initiatives successfully revived enthusiasm for the Atoms for Peace proposal, and when the General

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[41] Bechhoefer, pp. 43-44.
[42] See *Atomic Energy Act of 1954: Laws of 83rd Congress, 2nd Session 1098, 1118-21*.  Available at World Wide Web: http://www.nuclearfiles.org/redocuments/1954/540830-aea.html

Assembly met in late September of 1954, the Soviets found themselves unable to further delay work towards an international atomic agency.[43]

The Soviets, however, would not simply accede to the wishes of the Americans in the construction of the international nuclear agency whose primary stated goal was to act as a fissile bank, providing both knowledge and the basic start-up materials for member states' peaceful nuclear energy programs. While both the U.S. and the Soviets were cementing alliances with the provision of nuclear assistance, the Soviets continued to express concern over the potential that assistance provided through an international agency would result in the worldwide proliferation of weapons grade fissile material outside of the control of the nuclear weapons states. In this sense, the Soviets were more cognizant of the duel nature of nuclear technology than their American counterparts. As Gerald Smith, U.S. leader on the SALT I negotiations noted "…I had to explain to Dulles that Molotov had been better informed technically than he."[44]

This ultimately prompted U.S. negotiators to propose a second, and potentially alternative, rationale for a new international nuclear agency: to act as a clearing house for nuclear transactions that would moderate requests for nuclear material, but limit the extent to which the Agency would actually possess and provide the material itself.[45] Thus, the fissile material bank that served as the motivation for Atoms for Peace never materialized. In addition to Soviet objections, the US itself would contribute to the proposal's demise, albeit unintentionally. As the U.S. embarked upon an aggressive

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[43] As described in Bechhoefer, the Soviets, doubting U.S. intentions and their ability to provide support for peaceful nuclear development, insisted upon countering early U.S. proposals with a demand for total disarmament. These demands soon proved untenable when the U.S. positively demonstrated their intent to proceed with the Atoms for Peace proposal, with or without Soviet involvement. See Bechhoefer, p. 47.

[44] Fischer, pp. 29-30.

[45] Fischer, p. 30.

program to enter into Agreements for Cooperation with "as many states as possible"[46] in order to facilitate the Atoms for Peace initiative, it soon became the primary supplier of nuclear materials to countries interested in the operation of peaceful research reactors.[47] By the early 1960s, when the International Atomic Energy Agency (IAEA) was fully operational, the need for a fissile material bank was no longer pressing. Thus, the anticipated disarmament benefits proved ephemeral.

### The Birth of the IAEA

On July 18, 1955, the Soviet Union executed a volte face on its position regarding the new international nuclear agency. Perhaps in anticipation of the upcoming "Geneva Conference" to be held over two weeks in August, the Soviets officially joined the negotiations with a pledge of 50 kilograms low enriched uranium.[48] The Geneva conference would be the largest gathering of scientists participating in an international forum of any kind, much less nuclear science. Over 1500 delegates attended, with over 1000 papers delivered to various panels. Of particular importance, the conference would take a significant step towards eliminating the secret nature of various nuclear technologies – an important step in the promotion of peaceful nuclear power, but a problematic development for nuclear proliferation. In fact, the French, in a likely swipe at the United States and its historic policy of technology denial, revealed the technological process for the recovery of plutonium from spent fuel.[49]

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[46] Bechhoefer, p. 52.
[47] Pendley, Robert, Lawrence Scheinman and Richard W. Butler, "International Safeguarding as Institutionalized Collective Behavior" *International Organization*, Vol. 29, No. 3, International Responses to Technology (Summer 1975) p. 588.
[48] Fischer, p. 32.
[49] Ibid.

Thus, when the negotiating parties returned from the conference, the U.S. was finally forced to confront the reality that Atoms for Peace could potentially result in the spread of technologies that could be used for both peaceful and military purposes. Some U.S. experts even went so far as to question the continued participation of the U.S. in the venture. However, there was broad agreement that technology denial "would not avert the risk of proliferation" and could "involve a serious loss of face for President Eisenhower". Accordingly, the creation of the Agency went forward with U.S. support, albeit with an increased interest in the formation of an adequate system for safeguarding nuclear materials supplied by, or created through, the technological assistance of the Agency.[50]

*The Agency's Purpose Agreed*

By the end of 1956, the negotiating parties had agreed upon broad objectives and functions for the new Agency. They would include, and allow the Agency to:

– Take any action needed to promote research on, development of, and practical applications of nuclear energy for peaceful purposes (Article III.A.1);
– Provide materials, services, equipment and facilities for such research and development, and for practical applications of atomic energy "with due consideration for the needs of the under-developed areas of the world" (Article III.A. 2);
– Foster the exchange of scientific and technical information (Article III.A.3);
– Establish and apply safeguards to ensure that any nuclear assistance or supplies with which the IAEA was associated should not be used to further any military purpose – and apply such safeguards, if so requested, to any bilateral or multilateral arrangement (Article III.A.5);
– Establish or adopt nuclear safety standards (Article III.A.6).[51]

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[50] Fischer, p. 32.
[51] Fischer, p. 36.

Further, the Statute would emphasize the importance of technical assistance to the developing world, placing a distinct importance upon the role of the IAEA in support of peaceful nuclear development.[52]  This would later evolve in such a way at to "become one of the main functions of the IAEA".  As we will see, this would help to legitimate the Secretariat as a public authority, while at the same time socializing member states to the idea that peaceful nuclear technology was a sovereign state right.

And yet, the initial Statute did not specifically address the exact system of safeguards to be implemented in the event that a state received Agency assistance.  This would necessitate yet another round of negotiations, and these would divide largely along Cold War lines.

*Negotiating the First System of Safeguards*

While nuclear safeguards were not the only controversial topic to be addressed during the negotiation of the IAEA settlement, they proved to be the most contentious point by far.  As this thesis focuses upon these systems, it is useful to note the extent to which safeguards were a significant topic of debate during the negotiations, and why. Safeguards, in practice, endowed the new agency with the authority to implement certain controls on the nuclear materials located within a state's sovereign territory.   As Mason Willrich notes, "safeguards infringe the sovereignty of the recipient state and undercut the trust and mutual confidence which are the basis of good relations between states."[53] Thus, in many ways, the problem of nuclear control is intrinsically linked to the issue of state sovereignty – and the substance of the debates over IAEA safeguards underscore

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[52] IAEA Statute, Article III.A. 4.
[53] Willrich, Mason, "Safeguarding Atoms for Peace" *The American Journal of International Law,* Vol. 60, No. 1 (January 1966), pp. 37-38.

this assertion.  To further examine this linkage, the debate regarding safeguards will be considered in two parts: the initial negotiation of the IAEA statute and the negotiation of the technical safeguards agreement.

The negotiation of the IAEA statute progressed through six phases,[54] each phase attempting to further resolve the most difficult aspects of the debate prior to its presentation at a final international conference.  Throughout this process, the question of safeguards was repeatedly addressed, with the majority of disagreement taking place between two factions:  those that considered safeguards an unnecessary intrusion upon the sovereign rights and economic development of a state (the Soviet Union, the Eastern Block and India) and those that insisted upon the centrality of safeguards to any international program of nuclear assistance (the U.S., the U.K. and Canada).[55] Ultimately, the Soviet Union, unlikely to be a recipient of IAEA assistance and therefore not subject to the new system of controls, reversed its position in support of a safeguards regime, reservations notwithstanding.[56]  India, however, as a potential recipient of assistance, continued its objections, and these objections specifically targeted the provision of source materials and the disposition of by-products.  India argued that the Agency's safeguards should extend only to "fissionable materials supplied" and not to source materials or those materials produced (plutonium or uranium 233) during the reactor process.  Further, India objected to the Agency's control of the chemical processing of fissionable material, maintaining that wording in the statute would place the Agency "in a position to dictate in perpetuity what fissionable materials would be

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[54] Bechhoefer, p.39.
[55] Bechhoefer, p. 57.
[56] See Appendix G (footnote 65) in Bechhoefer and Stein for a discussion of the evolution of the Soviet position towards nuclear safeguards.

allotted to all states."  This power could then be used to make such allocations based upon "political or economic" considerations.[57]   Thus, India's objections amounted to unease over the transfer of sovereign power (the control of Indian nuclear materials and infrastructure) to an international institution whose interests may not align with its own.

India's objections were eventually overcome, albeit "the discussion on the safeguards occupied about half of the Conference debates."[58]  The compromise included a provision that allowed the IAEA to preserve oversight over source materials and fissile material by-products, but, for all intents and purposes, lose ownership.  In essence, states would be allowed to retain reactor by-products for the purpose of peaceful research or nuclear development, under the condition that such materials would remain under safeguards.[59]  As a result, states would preserve certain sovereign rights, while conceding to the IAEA continued access to the materials in question.

In the end, the safeguards provisions resulting from this negotiation process were at once specific and yet incomplete.  They included the right of the IAEA to approve designs for nuclear facilities, to review operating records and progress reports, to control nuclear activities in which diversion of fissile material is a likely consequence, to establish an inspectorate and to fix health and safety guidelines.[60]  Nonetheless, much work would need to be done by the new Board of Governors towards the formation of a working inspectorate.

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[57] Bechhoefer and Stein, Appendix H, pp. 795-796.
[58] Ibid, p. 766.
[59] IAEA Statute, art. XII.  Available at World Wide Web: http://www.iaea.org/About/statute_text.html
[60] IAEA Statute, art. XII.  Available at World Wide Web: http://www.iaea.org/About/statute_text.html

This second round of negotiations, which took place from April 1958 to January 1961, established a specific system for Agency safeguards. Once again, the debate took place between two factions, the majority "Western" nations (seventeen states) and the minority Eastern Block and less developed countries (six states).[61] Initially, the debate was simply tabled, as there had yet to be a request for assistance from the IAEA, making the question of safeguards moot. In October of 1958, however, the Japanese government became the first state to request support from the Agency in the form of three tons natural uranium, necessitating the resumption of discussions on safeguards. Safeguards would be tied to supply agreements, and limited in scope to the assistance and materials provided by the IAEA.[62] Nevertheless, establishing a model protocol proved difficult. In January of 1959, a first proposal was considered, presented by India, that would have limited safeguards to a pledge by member states not to divert material to military purposes, bypassing an inspectorate altogether. This proposal was based on the minority proposal's contention that safeguards should be premised on a state's promise (i.e., emphasizing the importance of trust over verification), a state's history of peaceful behavior (reputation), and "most of all its lack of intention to enter the nuclear arms race", squarely placing the determination of intent at the center of any safeguards arrangement. Unsurprisingly, this proposal failed. In May of 1959, two months after the Japanese request received initial approval, the Director General submitted to the Board "The Agency's Safeguards",[63] a draft proposal for a technical safeguards system. Despite

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[61] Pendley, Scheinman and Butler, p.598.

[62] Full scope safeguards, or safeguards that are applied "to all nuclear materials in all peaceful nuclear activities within a countries territory or under its control" did not come into force until 1972, with the negotiation of a new safeguards regime under the NPT. For specifics, see World Wide Web address: http://www.nti.org/db/China/iaeasg.htm.

[63] See IAEA Document GOV/334.

multiple attempts by India and the Eastern Block countries to open this draft proposal to wider debate, their efforts were routinely defeated.  After several re-drafts that took place over the course of a year, on January 31, 1961, this safeguards system was approved by a vote of 17-6, with few substantive compromises on the part of the majority states.  As a result, the first safeguards document did not result from consensus and in many ways "was virtually entirely a function of political, strategic, and economic considerations."[64]

*The Agency's Safeguards In Detail*

As defined by the IAEA, safeguards are "the measures pursuant to the Statute to prevent loss or diversion of materials, specialized equipment or principal nuclear facilities." [65] Under Article III.A.5 of the Statute, the IAEA is authorized:

> "to establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or, at the request of a State, to any of that State's activities in the field of atomic energy."

Specific technical details are elaborated in INFCIRC/26, an IAEA Information Circular entitled *The Agency's Safeguards*, published on March 30, 1961. This document defines key terms, describes the principles in support of Agency safeguards, identifies the conditions under which safeguards are attached and terminated, and how Agency safeguards are to be applied.

The essential form of the IAEA's first safeguards system is very much a product of the state of nuclear technology in the early 1960s.  At this point in time, few powers had extensive nuclear capabilities; therefore, the guiding principle of the agreement is

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[64] Pendley, Scheinman and Butler, pp. 598-602.
[65] INFCIRC/26, p. 3.  Available at World Wide Web: http://www.iaea.org/Publications/Documents/Infcircs/Others/earliernr01.shtml

that each application of safeguards will be considered on a case-by-case basis, depending "upon the form, scope and amount of assistance supplied by the Agency".[66] In addition, both facilities and material would be subject to safeguards, a perfectly reasonable proposition as few facilities had yet to be constructed.  The IAEA, as the source of development assistance, would play a role in approving suitable facility designs.  In addition, "the application of Agency safeguards to Agency projects will take into consideration all PN (peaceful nuclear) materials and PN facilities in the State."[67]  The actual safeguards, however, would only be applied to nuclear material supplied by the Agency (including all materials intermixed with said material); any fissile materials produced using Agency materials, or at the specific request of the State.  The same standards would be applied to facilities supplied or "substantially assisted" by the Agency, and specialized equipment.[68]

Agency safeguards would be limited to nuclear activities in which the material utilized exceeded a certain benchmark.[69]  In this way, the Agency would not be required to monitor very small programs with little likelihood of diversion.  Termination of oversight would take place when "there are no conditions…that require attachment of Agency safeguards."[70]

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[66] INFCIRC/26 Article III, par. A, subpar. 22.
[67] A critical exception to this is mining of source materials.  "No Agency safeguards will be attached to mines, to mining equipment or to ore-processing plants." INFCIRC/26 Article III, par. B, subpar. 27.
[68] INFCIRC/26 Article III, par. C, subpars. 28-31.
[69] For the specific guidelines, see INFCIRC/26 Article IV, par. A, subpar. 32.
[70] INFCIRC/26 Article IV, par. C, subpar. 38.

*Application*

The application of safeguards requires each state to meet the following

conditions:

> (a)    The Agency shall examine the design and approve it only from the
> viewpoint of assuring that it will not further any military purpose and that
> it will permit effective application of Agency safeguards;
> (b)    The States shall maintain a system of records as agreed with the Agency
> of the material and facilities to which Agency safeguards are to be applied;
> (c)    The State shall submit to the Agency routine and special reports on the
> facilities and the materials under safeguards; and
> (d)    The State shall permit inspections by the Agency to account for material to
> which Agency safeguards are applied and to detect diversion.[71]

It is in the application of safeguards that a clear process becomes apparent.

INFCIRC/26 describes in specific detail the obligations each state must assume and the

standards they must meet in order that the Agency is adequately assured of the peaceful

nature of each nuclear program.

The first component of the process is the review of facility design.  This initial

step allows the technical specialists within the Secretariat, and ultimately, the Board of

Governors to determine the suitability of the facility for the application of safeguards.

The IAEA is committed to limiting its consideration of facility design to this

specification only.

The second component of the process is slightly more complicated, as it requires

each state to develop adequate material accounting and control measures in order that the

inspectorate may review these records at regular intervals.  A material accounting and

control plan must be submitted to the Board of Directors for approval.[72]

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[71] INFCIRC/26 Article V, par. A, subpar. 40.

[72] Adequate material accounting and control can be quite expensive, and this is one example of
the increased costs assumed by any state that undertakes to comply with IAEA safeguards.

The third component of the process involves the provision of reports to the inspectorate on the operation of safeguarded facilities. This component can take two forms: routine reports and special reports. Routine reports detail the day-to-day activities at the facility, including summaries of material accounting. Routine reports are generally submitted twice yearly. Special reports are required in the event that "any unusual incident occurs" or "if material is lost or unaccounted for in quantities that exceed those normal operating losses…accepted by the Agency". In addition, a special report is required should transfer of material take place that would alter the overall quantity under safeguards or should major changes to the program be anticipated.[73]

The final component of this process is the procedure for inspections. Inspections allow the inspectorate to confirm information submitted by the State, verifying overall compliance with the safeguards agreement. Inspection is a particularly sensitive and vital part of the safeguarding process, and during the negotiation of the statute, it was determined that the IAEA should operate as "an international civil service".[74] This decision was taken despite the possible economies to be enjoyed when using national inspectors seconded to the agency by their home government. Once again, this decision can be traced to concerns voiced by many state parties regarding the issue of state sovereignty. While it may be acceptable to welcome a representative of the IAEA, it is less acceptable to welcome a representative of any particular state. Further, goals were articulated regarding the make-up of the inspectorate, aspiring to a diverse and

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[73] INFCIRC/26 Article V, par. A, subpars. 40-53.
[74] Bechhoefer, p. 51.

representative body despite the small number of qualified inspectors outside the major

nuclear powers.[75]

In practice, routine inspections "will be kept to the minimum consistent with the

effective application of safeguards" and the frequency of inspections will be determined

by the nature of the facility and the nature and amount of nuclear material used or

produced by the facility.[76]  However, "the rights of Agency inspectors in routine

inspection are both detailed and broad." [77] These particular rights can be traced directly to

a clause in the IAEA statute that allows the inspectorate complete access to the facility,

data and personnel of a safeguarded reactor.[78]  Additionally, the agreement guarantees the

right of special inspection in the event of reporting discrepancies or "unforeseen

circumstances requiring immediate action".[79]  This gives inspectors comprehensive

access when verifying compliance.

Ultimately, the first safeguards system established by the IAEA, although not

"full scope"[80], was extremely flexible, largely due to the fact that many unresolved

technical issues remained in the field of nuclear technology, thereby producing a system

without "specific technical criteria to determine whether there has or has not been

diversion."[81] This necessitated an arrangement elastic enough to adapt to changing

conditions, and inevitably produced a regime with a surprising degree of subjectivity:  the

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[75] Willrich, pp. 46-47.  See also IAEA, GC(V)/INF/39 for refinements re: the selection and make-up of the inspectorate.

[76] INFCIRC/26 Article V, par. B.

[77] Willrich, p. 46.

[78] IAEA Statute, Article VII, par. A, subpar. 6.

[79] INFCIRC/26 Article V, par. C.

[80] Full scope safeguards refer to safeguards that oversee the entire nuclear fuel cycle.

[81] Imai, Ryukichi, "Safeguards Against Diversion of Nuclear Material: An Overview" *Annals of the American Academy of Political and Social Science*, Vol. 430, Nuclear Proliferation: Prospects, Problems and Proposals (March 1977), p. 61.

Board could influence facility design, determine the sufficiency of material accounting and control procedures, request special reports and special inspections and gain access to all areas related to IAEA supported projects. Then, based upon a systematic understanding of each particular site, the inspectorate would determine compliance and make recommendations to the Board.

This potential degree of "power" inevitably opened the inspectorate to criticism, chiefly from Japan, whose nuclear program grew the fastest and necessitated the greatest degree of nuclear oversight. Alleging that Agency inspections were more demanding than those required under bilateral agreements with the U.S. and the U.K., Japan repeatedly questioned the necessity of such extensive safeguards.[82] These and similar complaints (regardless of their substance) were not disregarded, and over time, the safeguards document was amended, placing further restrictions upon the safeguards process,[83] while at the same time simplifying the earlier document.[84] This document, INFCIRC/66, continues to define IAEA nuclear safeguards for a limited number of facilities to this day.

### Establishing Legitimacy and Creating Authority

Founded in 1957, the establishment of the IAEA predates the evolution of widely accepted international norms regarding the manufacture and use of nuclear weapons. Thus, the question becomes, in what way was the IAEA initially legitimated as a viable

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[82] *Atoms in Japan* (Tokyo: Japan Atomic Industrial Forum, 1968) pp. 3-5.

[83] Szasz, Paul, "International Atomic Energy Standards," in Mason Willrich, (ed.), *International Safeguards and Nuclear Industry* (Baltimore: JHU Press, 1973) pp. 105-106.

[84] See the revised safeguards document, INFCIRC/66, available at World Wide Web: http://www.iaea.org/Publications/Documents/Infcircs/Others/inf66r2.shtml It should also be noted that at the same time Agency authority was being constrained, the types of facilities to be safeguarded was expanding: to chemical reprocessing plants (1966) and fuel fabrication plants (1968).

international institution in the absence of a moral consensus regarding the "oughtness" of its mission? Quite clearly, state power and national interest partially answer this question. The United States, for the reasons discussed throughout this chapter, felt the establishment of such an agency would be in its national interest. Many countries without access to nuclear technology saw it as a means to speed economic development and achieve greater independence. However, the exercise of power is rarely straightforward, and while the early actions of the United States certainly established the conditions necessary to successfully establish an international atomic agency, complete control over the process inevitably diminished over time, and created opportunities for both other states, and the bureaucracy itself, to contribute to the legitimation of the IAEA as an authority in international nuclear affairs.

*Internationalization*

Post World War II saw a resurgence in international conflict-solving and cooperative security. Despite the failure of the League of Nations, the impulse to organize internationally to combat global insecurity proved persistent. Thus, it is unsurprising that an international body would be contemplated as a response to the new threat posed by nuclear weapons. Further, both the Acheson-Lilienthal Report and the Baruch plan had introduced the idea of an international response as a viable option for nuclear control. Nonetheless, it would be incorrect to assume that the U.S. was either contemplating or willing to cede their nuclear authority to an international body. Nor were they contemplating the creation of an international agency that would be responsible for wide-scale policing of nuclear development. In fact, the U.S., despite their critical involvement with the Agency's establishment, came close to de-legitimizing the early

safeguards program, inadvertently undermining the IAEA with an extensive bilateral inspection program of its own.  Indeed, the IAEA was not the only organization tasked with the control of nuclear materials; it was not even the first.  In addition to U.S. bilateral agreements, several regional organizations provide an alternative to IAEA safeguards.  The European Nuclear Energy Agency (ENEA, later shortened to NEA when Japan joined), and the European Atomic Energy Community (EURATOM) both offered early alternative models for safeguarding of nuclear materials.[85]

The ENEA was founded in 1957, approximately one year after the establishment of the IAEA and several years before agreement was reached on an IAEA safeguards system.  The principle purpose of the ENEA was to promote peaceful nuclear cooperation amongst its members.  At the same time, member states wished to actively prevent their work from being used to further military applications of nuclear energy.  To that end, on the same day that the ENEA came into being, member states signed a "Convention on the Establishment of a Security Control in the Field of Nuclear Energy".  This document called for the establishment of a control system that would apply to any of the nuclear activities in which member states jointly engaged.[86]  This significantly reduced the inspection burden on the organization, for controls are only applicable to *joint* undertakings.  At the height of its activities, ENEA (NEA) inspected reactors in but three

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[85] Later, control systems established under the various Nuclear Weapon Free Zones (NWFZ) would in some cases expand the scope of safeguarding within particular regions.  This is particularly true for the OPANAL inspectorate (Latin American NWFZ).  However, these systems generally utilize IAEA safeguards as the foundation for nuclear control, and therefore do not compete with IAEA safeguards.

[86] Saeland, Einar, "The European Nuclear Energy Agency" in Wayland Young (Ed.) *Existing Mechanisms of Arms Control* (London: Pergamon Press, 1966) pp. 37-48.

countries,[87] and has been "willing to subordinate itself" when alternative safeguarding systems have overlapped.[88]  While a valid example of nuclear control, the ENEA (NEA) has not proven a significant alternative to IAEA safeguards, and since the establishment of the NPT, has operated within the IAEA safeguards system.[89]

Euratom, however, continues to operate the most extensive and arguably most viable alternative to IAEA safeguards.  The Euratom Treaty, one of the founding treaties of the European Union,[90] began operations before the establishment of the IAEA safeguards regime.  Euratom has a long and complex history with the IAEA, and there are significant differences between the IAEA and the Euratom systems.  Unlike the safeguards agreements negotiated between member states and the IAEA, Euratom deals directly with the civilian entities in charge of nuclear materials, bypassing state governments altogether.[91]  In this way, Euratom has direct access to the nuclear materials in question,[92] thereby lessening the problem of state sovereignty as suggested in the early Acheson Lilienthal Report.  Further, the system emphasizes nuclear material accounting versus the inspection of nuclear facilities.   Euratom activities concentrate on tracking "ores, source materials and special fissionable materials"[93], preventing their diversion to military use.  Nuclear materials explicitly used in military programs do not fall under the

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[87] See "Changing Role for OECD's Nuclear Energy Agency" OECD Observer, no. 66 (October, 1973) pp. 19-26.

[88] Shaker, Mohamed, *The Nuclear Non-Proliferation Treaty: Origin and Implementation, 1959-197, Volume II* (London: Oceana Publications, Inc., 1980) p. 687.

[89] Pendley, Scheinman and Butler, p. 589.

[90] "Euratom Research:  A Long History" European Commission, Research Headlines (June 27, 2005).

[91] Except in the case of the UK and France.  As nuclear weapon states, safeguards information is transmitted through a government office to protect the integrity of weapons programs should civilian and military reprocessing take place in the same facility.

[92] Shaker, p. 691.

[93] Euratom Treaty, Article 77, available at World Wide Web: http://eur-lex.europa.eu/en/treaties/dat/12006A/12006A.htm.

Euratom safeguards regime, creating a significant disparity, if clear distinction, between military and civilian nuclear activities.[94]  That said, all non-weapons related materials (declared to be civil) are under safeguards, be they in a nuclear or a non-nuclear weapon state – giving Euratom greater reach than the IAEA.  Finally, Euratom inspectors have access to "all activities connected with the peaceful uses of nuclear energy in Member countries."[95] This has remained largely unchanged, unlike the increasingly restricted system operated under the IAEA Statute.

For all intents and purposes, the existence of Euratom need not have diluted the authority exercised by the IAEA in the arena of nuclear safeguards.  Unfortunately, in 1958, the U.S. chose to allow Euratom safeguards in lieu of IAEA safeguards in the operation of its own bilateral inspection program[96].  Practically, this served to make the two programs functionally equivalent in the eyes of many, especially those European countries who would later question the necessity of additional IAEA inspections under the NPT.  Taken together with the complaints of those states submitting to both the U.S. and IAEA inspection regimes, and the early years of the IAEA safeguards program proved precarious.  With no fissile material bank, and startlingly few calls for substantive material assistance[97], the future of the IAEA seemed to be limited at best.

The U.S., however, dramatically changed its policy with the election of President Kennedy.  Reassessing the role of IAEA safeguards in light of increasing tensions with the Soviet Union, the U.S. chose to bolster the legitimacy of the IAEA inspectorate,

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[94] Euratom Treaty, Article 84.
[95] Shaker, p. 691.
[96] Fischer, David, *History of the International Atomic Energy Agency: The First Forty Years* (Austria:  IAEA, 1997), p.77.
[97] Prior to the NPT, the IAEA required only 7 inspectors, and negotiated agreements with only a dozen countries.

specifically shifting its bilateral inspection regime into Agency hands[98]. This would greatly buttress the IAEA's authority in the area of nuclear safeguards, and begin to shift nuclear control away from state agency and towards an international regime.  The emergence of a norm supporting international control was once more on track.  Nonetheless, it would not have been possible without the direct intervention of the U.S.  Had the U.S. chosen *not* to delegate its inspection responsibilities to the IAEA, it is possible that the IAEA system of nuclear safeguards would have failed for lack of customers.  In this instance, U.S. power would prove to be the deciding factor.

*Peaceful Nuclear Technology*

As previously discussed, the initial vision underlying Atoms for Peace was a fissile material bank, designed to minimize the potential for arms racing between the two superpowers.  While this function never emerged, the complementary vision, peaceful nuclear energy, became the raison d'etre for much early IAEA technical work.  Conceived as a powerful carrot designed to entice international support for the Agency, the spread of peaceful nuclear technology was a secondary, if genuine ambition of the United States.  Realistically, the U.S. would have preferred to limit technology transfer to its allies, but the political bargain struck would guarantee nuclear assistance to any IAEA members willing to submit their programs to nuclear safeguards.  For many countries, Eisenhower's vision of a peaceful atomic future proved so compelling that it was both rational and legitimate to make concessions regarding certain aspects of their sovereignty in order to attain the vital assistance that only a nuclear power could provide. For the nuclear aspirants, they obtained the essential components for the production of nuclear

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[98] Fischer, p. 94.

energy.  For those providing support, they attained guarantees that the knowledge and source materials provided were being used exclusively for peaceful purposes.

As a legitimation strategy, this type of trade-off is particularly effective as it does not require absolute equity in terms of power, as long as the bargain struck is perceived to be fair and beneficial to all.  It would be impractical to expect the nuclear powers to ignore or renounce the advantageous position with which their status provided them.  At the same time, it is unreasonable to expect the aspirants to accept without protest an invasion of sovereignty without certain benefits or guarantees.  This approach, which emphasizes relative versus absolute equity, can accommodate both the realities of power within the international environment and legitimacy principles such as equity and fairness.

This settlement, on the other hand, established an unanticipated precedent.  Once the bargain had been struck, the idea that peaceful nuclear technology should be available to all rightful members of international society developed quickly.   An often-overlooked aspect of the nonproliferation norm, the "right" to peaceful nuclear power, is problematic as it depends upon the highly subjective determination of a state's standing within international society.  With the first IAEA system, this problem was less acute, as few requests were received and those petitions that did come forward were relatively uncontroversial.   The right to peaceful nuclear power, however, would eventually have a major impact upon the further development of international nuclear safeguards – and the problem of rightful membership would never be fully resolved.  Current negotiations with Iran provide eloquent testimony to that fact.

*Membership*

Requirements for membership in the IAEA were designed to be both minimal and inclusive. While limited to members of the United Nations, or to any "specialized agencies which sign the statue within the specified period and ratify it",[99] only five communist states were excluded, outright, from joining the Agency.[100] This does not mean, however, that membership was equitable. The IAEA, being made up of three separate bodies, would institutionalize the differences between nuclear "haves" and nuclear "have-nots". The first body, the General Conference, would represent all member states. The second body, the Board of Governors, would initially be comprised of twenty-three members,[101] with ten being designated by the General Conference. The remaining members would be appointed by the board itself (outgoing), based upon two criteria: geographic representation and the ability to contribute to the Agency in both expertise and resources. In practice, however, this resulted in a Board of Governors dominated by the existing nuclear powers. As Bechhoefer observes "the top five 'atomic powers' may claim what amounts in fact to a permanent membership as long as they retain their leading position in the atomic energy field – regardless of whether they actually contribute to the Agency and regardless of any geographic criteria."[102]

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[99] Bechhoefer, Bernhard, G., "Atoms for Peace: The New International Atomic Energy Agency" *Michigan Law* Review, Vol. 55, No. 6, (April 1957), p. 750.
[100] Communist China, North Korea, East Germany, Outer Mongolia and Vietnam were the only states who did not qualify for membership, as they were not party to any of the qualifying organizations.
[101] Today, the Board is made up of 30 members, with similar membership requirements. Membership was expanded to allow for broader geographic representation.
[102] Bechhoefer, 1957, p. 754. In addition, as the nuclear weapon states were also the permanent members of the UNSC, they would play a particularly instrumental role should the IAEA discover a discrepancy, and the Board choose to report an incident of noncompliance to the Security Council.

Realistically, this emphasis upon expertise makes sense considering that the nuclear age was in its infancy and an atomic agency would of necessity be dependent upon the limited number of existing nuclear powers for start-up material and those few scientists trained in the field of nuclear science. At the same time, it inadvertently institutionalized the existing power hierarchy, giving a few states extraordinary control over the shaping of international nuclear relations. That said, decision-making very rarely aligned along the lines of those with nuclear power and those without. Instead, it tended to mirror the pattern established early on in the negotiation of the IAEA statute. The West, well represented on the board, generally voted as a majority block.[103] The "rest" – the U.S.S.R., India and their allies – made up a small, but vocal minority. This lack of consensus would characterize early decision-making within the Board.

It is also essential to note, differences aside, that the Board of Governors was designed to be a powerful decision-making body. While the General Conference did negotiate some concessions, including control of the budget and the right to make "decisions" versus "recommendations", the primary decision-making body at the IAEA would be the Board. As observed by Mr. Morehead Patterson, a U.S. diplomat directly involved in the negotiations:

> "It was clear that the membership as a whole could not deal with the day-to-day technical problems which would confront the Agency. Therefore, we provided in the Statute for a Board of Governors with broad authority to make most of the necessary decisions for the Agency. The membership as a whole – described in the Statute as the General Conference – maintains its control over the Board of Governors through election of a number of its members and through complete control over the purse."[104]

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[103] The one notable exception to this pattern would be France, who has consistently maintained a policy that supports a broad understanding of nuclear sovereignty. For a more detailed discussion on France's position, see Kapur, Ashok, *International Nuclear Proliferation: Multilateral Diplomacy and Regional Aspects* (New York: Praeger Publishers, 1979), chs. 3-4.

[104] Patterson, Morehead, Department of State Bulletin 34, (1956).

*The Board and the Director General*

The extent to which the Board would interfere in "the day-to-day technical problems" of the bureaucracy's operations early on exemplifies the nexus that exists between society and international organization, and the drawbacks inherent in power as a tool of legitimation. While most states believed that the first Director General would be a politically neutral choice with technical credentials; instead, the U.S. used its influence to place its own representative in that critical role.[105] Sterling Cole, Congressional Chairman of the Joint Committee on Atomic Energy and ardent supporter of the IAEA, would become the first Director General. Unfortunately, Cole found himself in the unenviable position of being unpopular with both the Board and much of the Secretariat.[106] As a consequence, the Board of Governors "wanted to keep the American Director General on a very short leash."[107] Over a two-year period of time, the Board met a total of 156 times,[108] leading Cole to accuse the body of excessive interference.[109] This allowed the minority block within the board to complicate and confuse the decision-making process, requiring the Director to submit numerous, unnecessary reports while "provoking lengthy, ideologically tinged, arguments".[110] Unsurprisingly, the Board would initially find it difficult to effectively make decisions in the face of an increasingly polarized political environment, given the absence of leadership necessary to moderate

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[105] Fisher, p. 59.
[106] Ibid, pp. 76-78.
[107] Ibid.
[108] *First Annual Report of the Board of Governors to the General Conference Covering the Period from 23 October 1957 to 30 June 1958* and *Annual Report of the Board of Governors to the General Conference Covering the Period from 1 July 1958 to 30 June 1959*, archived at the IAEA Library, Wargramer Strasser 5, Vienna, Austria.
[109] Fisher, p. 79.
[110] Fisher, p. 79..

discussion and focus debate.   As a result, the Board eventually passed a proposal that would further amplify its own power, while legitimately creating a more feasible environment for its deliberations.  Against the vociferous objections of the minority block, the Board of Governors voted to both meet in private and keep all of its deliberations classified[111].  This ultimately resulted in a more effective Board, less bound to the political rhetoric of the Cold War and more likely to address the issues relevant to IAEA business.  It would take a new Director General, however, to shift the IAEA away from the political morass in which it seemed persistently mired; and to begin to build the reputation necessary to act both as an authority and with authority.  The appointment of Sivard Eklund, in 1961,[112] proved to be this turning point.

*Creating an Independent Identity*

It would be unfair to characterize Sterling Cole's tenure at the IAEA as entirely unsuccessful.  Under his management, the IAEA began several programs of nuclear assistance, safety and information exchange[113].  Nonetheless, at the time he finished his tenure as Director General, the IAEA was undergoing an identity crisis.  Not anticipating a shift in the U.S. policy away from bilateral safeguards, and no longer needed as a fissile material bank, or as a nuclear "intermediary" between states, the bureaucracy needed a mission.   As scholars of international organization have long observed, an organization without a strong sense of direction is unlikely to last over the long term, especially if that

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[111] Ibid, pp. 78-79.
[112] "About the IAEA, Former DGs", at World Wide Web address: http://www.iaea.org/About/DGC/former_dgs.html.
[113] Fisher, p. 84.

direction changes or is expanded along the way.[114]  And Sterling Cole, American

politician, was unable to vest the new organization with a sense purpose separate from

the political machinations of the board.  Sigvard Eklund, on the other hand, was able to

do so.  While a controversial appointment himself, Eklund, as a diplomat from a

decidedly more neutral country, overcame initial Soviet hostility[115] and was reappointed

to the position four separate times, retiring only after twenty years of service.

Eklund, a well-respected scientist, turned to the first half of the IAEA Statute for

direction, which seeks "to accelerate and enlarge the contribution of atomic energy to

peace, health and prosperity throughout the world".[116]  Further, as a manager, Eklund

chose to emphasize the technical and scientific over the political.   Initially avoiding

political spats, Eklund's competence as a manager convinced both the Board and the

Secretariat to embrace his proposals to expand the IAEA's research projects, including a

center for theoretical physics, the extension of work in two international laboratories, and

a joint project with the FAO to promote nuclear research in support of agricultural

development.[117]  Eventually, Eklund would take a more active role in the politics of the

Board, and yet, his approach was to resolve potential issues prior to the official meeting,

engaging in extensive behind the scenes diplomacy.  He promoted efficiencies where

possible, reducing the reporting burden the Board had imposed upon the Secretariat.  And

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[114] For a discussion of identity and international organizations, see Chapter Four of Robert Jordan et al, *International Organizations: A Comparative Approach to the Management of Cooperation* (Westport: Praeger Publishers, 2001).
[115] The Soviet representative initially refused to have contact with Eklund, fearing he was yet another puppet of the West.
[116] Statute of the IAEA, Article II (July 29, 1957).
[117] Fischer, pp. 87-88.

slowly, the Board itself shifted to reflect this new identity, with new appointments being given to the heads of national nuclear commissions, in lieu of professional diplomats.[118]

As a result, the "spirit of Vienna" reigned[119], and the IAEA enjoyed an unusual period of positive growth and cooperative development. While this spirit did not last forever, it does underscore the critical role the Director General can play in legitimating an organization's activity. By encouraging the Secretariat to develop an identity as *an* authority, the Director General was able to exercise greater authority. The exercise of this authority, however, was built upon Eklund's explicitly apolitical approach, which emphasized the day-to-day management activities of the Secretariat.

A second, and perhaps unanticipated effect resulted from this shift towards the exercise of apolitical authority. The bureaucracy, having been subject to a weak Director General and a Board of Directors bogged down in the politics of the Cold War, took a decidedly conservative approach to its early operations.[120] While this led some to characterize its work as "pale and uncontroversial"[121] – it did help to mitigate the human factors identified in the Acheson Lilienthal report. It also created a certain type of bureaucracy, one "naturally reluctant to risk upsetting such harmony by entering controversial areas."[122]

Thus, by the time negotiations began in earnest for a nonproliferation treaty, the Secretariat had successfully established a reputation for scientific and technical authority.

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[118] Fischer, pp. 87-88.
[119] The spirit of Vienna refers to a period of time where there was an unusual amount of cooperation amongst the Board members, the General Conference and the Secretariat, despite the ongoing Cold War.
[120] Rosen, Steven, "Proliferation Treaty Controls and the IAEA" *The Journal of Conflict Resolution*, Vol. 11, No. 2 (June 1967), pp. 172-173.
[121] Ibid.
[122] Ibid.

By assuming responsibility for U.S. negotiated bilateral inspections, in addition to the inspections originating with the Agency, the inspectorate, while small, was viable and increasingly experienced.[123] Further, in the practice of executing INFCIRC/26 and INFCIRC/66, the bureaucracy was able to gradually develop its safeguards model, evolving a distinctive bureaucratic process for the conduct of nuclear safeguarding.

*Implications*

The founding of the IAEA is arguably a textbook example of great power politics. In the wake of World War II, the US utilized its brief nuclear monopoly, and its position within the international system, to shape the international response to the evolution of nuclear weapons. In reply to a rapidly evolving threat from the Soviet Union, the US chose to support the establishment of an international organization with the intent to mitigate the problem posed by an arms race in the production of plutonium. The fact that the IAEA would never become a fissile material bank does not change the reality that its initial purpose was largely the product of a classic security dilemma. And without US support for the IAEA, including a persistent advocacy for the infant system of nuclear safeguards, it is possible that the IAEA would have foundered early on, becoming a minor agency with little to do, and little authority to influence nuclear politics.

It is also possible to cast the negotiations for the establishment of the IAEA, as well as its first system of safeguards, as an example of power politics. The nuclear weapons states disproportionately influenced the debate on the control of nuclear technology, and institutionalized a permanent role for themselves within the IAEA's board of directors. At the same time, disagreements between member states divided

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[123] Prior to the NPT, the IAEA had only 7 inspectors at the height of its inspection activities.

consistently along Cold War lines, and the United States, with its strong allies, consistently dominated decision-making within the Board of Governors. Without established norms or rules governing the conduct of nuclear behavior, power reliably defined the debate.

That said, by ultimately choosing to internationalize the problem of nuclear development and safeguarding, the US inadvertently ceded definitive control of the nuclear issue. While the spread of nuclear know how would very likely have made such a response inevitable in the long term, and while the US would not see its influence moderated for some years to come, it is also true that cooperation at the international level, regardless of whether it is an expression of national interest, complicates the exercise of power. This is perhaps most clearly exemplified by the failure of Sterling Cole, the first Director General, to successfully manage the internal politics of the Board of Governors.

At the same time, the Secretariat began to create an identity of its own. With the appointment of Sigvard Eklund, the bureaucracy shifted its attention away from Cold War politics, and focused instead on building up its scientific credentials. As a consequence, the Secretariat became *an* authority, establishing itself as an entity separate from the combined interests of its member states. While this autonomy would be limited in the early years of the IAEA's development, the expansion of a technical and professional base contributed to a bureaucracy with its own interests and its own character. That character would be distinctly conservative, with its interests best served by avoiding, or subtly managing, political entanglements. This resulted in widening

support for the organization, establishing an initial level of trust between member states and the Secretariat that would serve the bureaucracy well in the coming years.

Thus, it is not surprising that with the establishment of a nonproliferation treaty, the IAEA would be called upon to expand its system of safeguards. This would further institutionalize its legitimacy, and significantly expand its international public authority. At the same time, however, the NPT would increase demands upon the inspectorate exponentially, challenging both the apolitical character of the Secretariat and its preferred focus upon scientific and technical development. It is this second stage in the IAEA's development that is the subject of Chapter Three.

## Chapter 3:  Expanding Legitimacy – NPT Safeguards

The Treaty on the Non-Proliferation of Nuclear Weapons (referred to hereafter as the NPT) opened for signature on July 1, 1968 and came into force on March 5, 1970. With 187 parties to the treaty, the NPT has long been the cornerstone of the nonproliferation regime.  Despite the fact that the treaty has been subject to significant criticism, much of it justified, it has for the most part defined and delimited "appropriate" nuclear behavior for the last thirty-five years.

The treaty itself has three pillars: nonproliferation, disarmament, and the right to peaceful nuclear technology.   While the second two pillars are often overlooked, they were, and continue to be, an essential part of the political settlement agreed upon by the negotiating parties.  Further, the right to peaceful nuclear technology proved of critical consideration when crafting the NPT system of safeguards.  It is also, arguably, the aspect of the treaty that allows abuse within the system.  Nonetheless, it was under the NPT system of safeguards that the Secretariat significantly expanded its safeguards regime, as well as the public authority necessary to execute its new role as international nuclear watchdog.  The ways in which this was accomplished are the subject of this chapter.

This chapter is divided into four sections.  The first section will examine the creation of a nonproliferation norm and the negotiation and agreement of a nonproliferation treaty, including not only the institutionalization of nonproliferation rules, but also realignments that shifted society's understanding of "right" nuclear conduct, redefining the political space and shifting the direction in which nuclear safeguards would evolve.   Secondly, a discussion of the specific system of NPT

safeguards will be considered.  Variations from the first system of IAEA safeguards will be identified, as well as the further articulation of a right process and a bureaucratic style by the Secretariat for the conduct of nuclear safeguarding.  Next, implementation issues following the NPT's entry into force will be addressed, including the problem of threshold states, India's "peaceful" nuclear explosion, and the initial creation of a nuclear export regime.  Finally, the expansion of bureaucratic authority will be considered and assessed within the context of this environment, highlighting both the strengths and weaknesses of the overall system as it stood on the eve of the first Gulf War.

## The Creation of a Nonproliferation Norm

Before we begin a discussion of the nonproliferation norm, it may be useful to briefly consider critical developments in nuclear technology that help to further illuminate the basic problem of proliferation, and the specific technical issues that would inform and influence nonproliferation policymaking in the period leading up to, and several years following, the negotiation of the NPT.

On December 20, 1951, Experimental Breeder Reactor-1 (EBR-1) at the Idaho National Laboratory generated enough power to light four electric bulbs.  Within twenty-four hours, EBR-1 was powering the facility that housed the reactor, and within less than two years, EBR-1 demonstrated that "breeding" fuel, or producing more fuel in a reactor than initially utilized, was not only conceptually possible, but a reality.[1]  The development of such a reactor has obvious appeal; it also poses significant risks.

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[1] "Experimental Breeder Reactor-1" Idaho National Laboratory Bulletin 06-GA50269, at www.inl.gov.

Nuclear reactors require fissile materials in order to produce the chain reactions that generate energy. Fissile materials are those isotopes that fission when bombarded with neutrons. The majority of fissile materials are isotopes of uranium and plutonium, specifically U-233 and 235, and Pu-239 and 241. However, these isotopes, in this particular form, do not occur in nature in significant quantity, if at all. Naturally occurring uranium is composed of both U-235 at 0.7% and U-238 at 99.3%. Uranium can be enriched to increase the concentration of U-235, but this process is complicated and expensive. However, U-238 is a fertile isotope, in that upon capturing a neutron, it decays to become a fissile material (Pu-239). Today, reactor fuel is generally made up of low enriched uranium (with enrichment levels as low as 0.72%), with the majority of the fuel being U-238. A by product of this process, however, is plutonium – which can be used to generate further chain reactions in either a reactor (uncommon today), or a nuclear weapon.[2] Breeder reactors, therefore, represent a significant proliferation risk.

During the negotiation of the NPT, these technologies were rapidly evolving. A perceived shortage in international uranium supplies, ultimately proven false, combined with the promise of self-sustaining energy production, resulted in the brisk spread of breeder technology. Combined with the superpowers push to breed and stockpile plutonium for nuclear weapons, the potential for further proliferation of nuclear weapons seemed almost inevitable.

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[2] For a more detailed discussion of fissile material production and its use in nuclear weapons, please see Owen R. Cote, Jr., "Appendix B: A Primer on Fissile Material and Nuclear Weapons Design" in Graham T. Allison, Owen Cote, Jr., Richard A. Falkenrath and Steven E. Miller, *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material* (Boston: CSIA Studies in International Security, 1996), or Steve Fetter, Valery A. Frolov, Oleg F. Prilutsky and Roald Z. Sagdeev, "Appendix A: Fissile Materials and Weapon Design" *Science and Global Security*, Vol. 1, pp. 225-302, 1990.

*Negotiating the NPT:  Early Resolutions*

When we consider the problem of proliferation today, we unavoidably think of rogue states and clandestine nuclear programs.  However, when the first proposal calling for a halt to the spread of nuclear weapons was suggested in the late 1950s, the proliferation with which they were concerned related directly to the Cold War and U.S. policies that placed nuclear weapons within the territories of European allies.  In fact, the first calls for a policy of nonproliferation can be found in U.S. and Soviet disarmament proposals, as early as 1957[3].  These proposals were less a true call for disarmament or proliferation reform, and more political shots in an increasingly frigid conflict.

The first genuine resolution concerning nonproliferation, offered by Irish Foreign Minister Frank Aiken to the UN General Assembly in the fall of 1958, merely identified the potential problem and proposed the establishment of a committee to study the dangers inherent in this sort of proliferation.[4]  This proposal failed.  However, Aiken re-submitted another non-proliferation proposal the following year, and subsequently a debate began regarding the need for and nature of nuclear nonproliferation that would continue for close to a decade.  The arguments put forth in support of the Irish Resolution were two: that the more states with nuclear weapons (or the control of someone else's weapons), the more likely a small state would accidentally (or deliberately) begin a conflict that could result in nuclear war between the two superpowers.  The avoidance of this, clearly, was in the interest of all parties.

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[3] General Assembly Resolution 1664 (XVI), UN GA, 16th Session, UN Doc A/4980/Add. 1, *Documents on Disarmament, 1945-1959,* Vol. 2, (Washington, DC:  ACDA, 1960) p. 693.
[4] "Irish Draft Resolution Introduced in the First Committee of the General Assembly: Further Dissemination of Nuclear Weapons, October 17, 1958" *Documents on Disarmament, 1945-1959*, Vol. 2, (Washington, DC:  ACDA, 1960) pp. 1185-1186.

Secondly, the growth of civilian nuclear power reactors was anticipated to be increasingly problematic, for these reactors produced significant quantities of weapons grade fissile material.  Without an agreement disavowing the acquisition of nuclear weapons, the pressures upon a state, both domestic and international, to "go nuclear" could become extremely intense – resulting in unnecessary proliferation.[5]  Thus, the Irish Amendment proposed that nuclear weapons states should pledge not to proliferate weapons to non-nuclear weapons states, and non-nuclear weapons states should refuse to acquire nuclear weapons capabilities either through the proliferation of a weapons state or via a domestic nuclear program.

At the time, this proposal may have appeared extreme.  Nonetheless, parts of the proposal proved appealing to a number of states, and arguments for and against such an agreement grew from this original premise.  Additions and amendments were made, and support for the idea seesawed back and forth depending upon the particular variation being proposed.  For instance, the U.S. supported the 1959 version of the proposal, until, in 1960, it was amended to include a provision against the transfer of nuclear control or information to non-nuclear weapons states.[6]

This series of proposals, however, played an important part in the socialization of UN member states, and established important political precedents with each, more detailed version, of the original Irish proposal.  For instance, while the Irish resolution of 1959 failed to establish a specific committee dedicated to the problem of proliferation, it did succeed in passing a draft that acknowledged the danger of nuclear weapons

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[5] "Statement by the Irish Foreign Minister, November 13, 1959" *Documents on Disarmament, 1945-1959*, Vol. 2, (Washington, DC:  ACDA, 1960) pp. 1520-1525.
[6] Sokolski, pp. 44-45.

proliferation.  The following year, yet another draft, known as the Five Power

Resolution,[7] established the goal of a "permanent agreement" as the preferred method for

addressing the problem of proliferation.  This version proved increasingly controversial,

for it is this version that asked the non-nuclear weapons states to immediately renounce

any intention to acquire nuclear weapons, while demanding that the nuclear weapon

states abstain from sharing their nuclear arsenals *and* the technologies necessary to build

nuclear weapons.  This was an important evolution in the emergence of a nonproliferation

norm, for it formally proposed, for the first time, the nuclear bargain that would form the

cornerstone of the nuclear nonproliferation treaty.[8]  The Five Power Resolution passed in

the General Assembly with 68 votes, and 26 abstentions.[9]

Finally, in 1961, yet another Irish Resolution would create the conditions from

which a "universal" system of nuclear safeguards could eventually emerge.  This

proposal, which passed unanimously, called for an international agreement organized

around a mandatory inspection and verification regime.  This proposal, unlike so many

others to emerge from this period, did not imagine a system primarily concerned with the

"voluntary" measures generally preferred by sovereign states.  Instead, it advocated an

international response that would require verification of compliance.[10]  Once again, this

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[7] Due to the fact that it was sponsored by Ireland, Japan, Ghana, Mexico and Morocco.

[8] It is interesting to note that the initial response of the U.S. to the now infamous nuclear "bargain" was distinct reluctance.  Concerned that states would grow weary of nuclear celibacy if the superpowers were unwilling to disarm, the U.S. at first placed "central responsibility" for the success of a nonproliferation agreement on the nuclear powers.  See the U.S. State Department Statement on the Five Power Resolution in *Documents on Disarmament, 1960* (Washington, DC: ACDA, 1961) p. 372.

[9] Shaker, Mohamed Ibrahim, *The Nuclear Nonproliferation Treaty:  Origin and Implementation, 1959-1979* (London:  Oceana Publications, 1980) pp. 12-24.

[10] Shaker, pp. 24-33.

set an important precedent, and while the argument was by no means over, it did begin to clarify state expectations regarding a future nonproliferation treaty.

Superpower support for a nonproliferation treaty did not truly materialize until several years later though, and this can generally be attributed to a number of unrelated events. Perhaps most significantly, the Cuban Missile Crisis forced the two superpowers to confront the deadly seriousness of a continued nuclear arms race.[11] Shortly after the crisis' resolution, the U.S. and the Soviet Union negotiated a Partial Test Ban Treaty, an important first step in the restoration of stable relations between the two superpowers.[12] The negotiations for a nonproliferation treaty offered an additional venue for this type of exchange, and bilateral U.S and Soviet talks eventually became central to the establishment of the NPT.[13]

In addition, the Soviet Union witnessed directly the unwelcome consequences associated with proliferating weapons technology to another country. With the death of Stalin, relations between China and the Soviet Union began to break down, as the relationship between Khrushchev and Mao proved difficult to establish, ultimately souring altogether.[14] In 1964, China exploded its first nuclear device, using technology supplied by the Soviets. Russia had clearly begun to regret her role in the Chinese

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[11] See Graham Allison's *The Essence of Decision* for a complete examination of the causes and controversies surrounding the Cuban Missile Crisis.

[12] Burns, E. L. M., "Can the Spread of Nuclear Weapons Be Stopped?" *International Organization,* Vol. 19, No. 4 (Autumn 1965), p. 855.

[13] *PPNN Briefing Book, Volume I*, Chapter 1, Evolution of the Nuclear Non-Proliferation Regime, 1945-1970, p.5.

[14] For a detailed account of the changing relations between the Soviet Union and the People's Republic of China after Stalin's death, see Luthi, Lorenz M., *The Sino-Soviet Split: Cold War in the Communist World* (Princeton, Princeton University Press, 2008).

nuclear weapons program, and became more amenable to the nonproliferation agenda.[15]

Taken together, these incidents motivated the superpowers to more seriously address the problem of proliferation, and by the mid-1960s, negotiations for a nonproliferation treaty began in earnest.   In 1965, General Assembly resolution 2028 provided five principles to be incorporated in a nonproliferation treaty.  These principles were:

– the Treaty should be void of any loop-holes which might permit nuclear or non-nuclear powers to proliferate nuclear weapons in any form;
– the Treaty should embody an acceptable balance regarding the mutual responsibilities and obligations of the nuclear and non-nuclear powers;
– the Treaty should be a step towards the achievement of General and Complete Disarmament and, more particularly, nuclear disarmament;
– there should be acceptable and workable provisions to ensure the effectiveness of the Treaty; and
– nothing in the Treaty should adversely affect the right of any group of states to conclude nuclear-weapon-free zone treaties.[16]

While this was an important step in the development of the treaty, these guidelines, per se, did not answer the unresolved problems between negotiating parties. It merely allowed the parties to focus on the central issues to be expanded and clarified. Two particular debates arose that considerably detained the negotiation of the final treaty: the inclusion of provisions for a Multilateral Force and the role of Euratom in the eventual safeguards settlement.

*The Multilateral Force*

U.S. desire to institutionalize the right to field a Multilateral Force (MLF) in Europe consumed almost a decade of the nonproliferation debate.   First raised in their

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[15] Pendley, Scheinman and Butler, p. 606.  See also Roman Kolkowicz, et. al., *The Soviet Union and Arms Control: A Superpower Dilemma* (Baltimore: JHU Press, 1970).

[16] *PPNN Briefing Book Volume I*, Chapter 1: Evolution of the Regime, 1945-1970, p. 5.

disarmament proposal in 1957, it would not be until the summer of 1966 that the U.S.

gave up on the demand[17]. Specifically, the U.S. wanted to retain the rights to transfer

nuclear weapons to its allies in Europe, arguing that such a transfer would not result in an

increase in weapons, simply a shift in the location of existing weapons. Initially designed

to support allies without nuclear weapons in Europe, specifically West Germany, three

developments ultimately derailed the MLF. Two revolved around command and control

of the weapons to be transferred onto foreign soil, the third with the Russian stance on an

MLF. First, the idea of an MLF proved controversial in Europe. The extent to which the

U.S. would turn access and launch authority over to its allies became a significant point

of contention – one that was never fully surmounted. Further, some allies came to

believe that this type of vertical proliferation, even if it did not result in an increase in the

overall number of nuclear weapons, increased the potential for a nuclear exchange[18]. At

the same time, the U.S. Congress, increasingly interested in the development of a

nonproliferation treaty, signaled that it would not support such a transfer of weapons out

of U.S. custody[19]. Finally, the Soviet Union refused to consider further negotiation of the

treaty unless the MLF proposal was dropped.[20] These concurrent shifts in support for the

MLF firmly derailed the proposal, and progress on the treaty resumed.

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[17] Firmage, Edwin Brown, "The Treaty on the Non-Proliferation of Nuclear Weapons" *The American Journal of International Law*, vol. 63, no. 4, (October 1969), p. 716.
[18] Firmage, p. 717.
[19] This is particularly important, for an MLF would require the amendment of the Atomic Energy Act, which forbids this type of transfer. For complete text of the legislation, see the *Atomic Energy Act of 1946* at World Wide Web address: http://www.rosenbergtrial.org/docatomact.html. For a discussion of the Senate's position on the MLF, see Firmage, p 717.
[20] Bunn George and Rhinelander, John B., "Looking Back: The Nuclear Nonproliferation Treaty Then and Now" *Arms Control Association*, available at World Wide Web address: http://www.armscontrol.org, corrected online September 3, 2008.

*Euratom*

In August of 1965, the U.S. submitted a draft proposal to the Eighteen-Nation Disarmament Committee (ENDC) that proposed, "to cooperate in facilitating the application of IAEA or equivalent safeguards on all peaceful nuclear activities."[21] The equivalent safeguards to which they were referring were the safeguards operated by Euratom. This instantly proved to be a problem, for the Soviet Union, and in fact, many countries not party to the European Community saw the utilization of Euratom as discriminatory in so much that it would constitute "self-inspection". Further, the opposing states argued, it would undermine the principle of a single system for civilian nuclear control.[22] Ironically, the United States had publicly declared support for such a system[23], and for all intents and purposes, found themselves caught between the desire to establish universal safeguards and the need to support their European allies.

Why did its members so vigorously defend Euratom? A number of reasons can be advanced. In the first place, as discussed earlier, Euratom predated the IAEA, and had significant experience in the area of safeguarding nuclear material. In addition, "Euratom became solidly attached to its system, which was not only effective but also conceptually different than that of the IAEA."[24] Further, Euratom was arguably one of the earliest successes in the trend towards European cooperation, and renunciation of the system would have been a blow to the infant movement.[25]

Thus, in response to calls for the renunciation of the Euratom system, Euratom member states pulled together to demand a continuation of their safeguarding authority,

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[21] Documents on Disarmament, 1965, p. 348.
[22] Pendley, Scheinman and Butler, p. 606.
[23] Documents on Disarmament, 1967, pp. 338-341.
[24] Shaker, Vol. II, Part V, Ch. 10, p. 694.
[25] Shaker, Vol. I, Part III, Ch. 6, pp. 344-346.

despite the fact that their American allies eventually chose to support the Soviet position establishing an "IAEA only" regime. The debate was eventually resolved when the German Foreign Minister proposed to the Bundestag a joint control system in which Euratom would directly negotiate with the IAEA verification procedures that would satisfy IAEA safeguards requirements.[26] This was the solution that was ultimately accepted by the negotiating parties. While this would, in essence, place Euratom under IAEA oversight, it would also insure that Euratom performed the majority of safeguard activities within its own territory. Regardless of the practical implications, however, this accommodation would substantially expand the Secretariat's authority and establish the IAEA as the primary organization in charge of nuclear safeguarding at the international level.

The debate regarding Euratom, however, had one particularly instrumental and unforeseen consequence: it promoted a new degree of cohesion among European Community member states.[27] This solidarity would allow the major European states to greatly influence the development of the NPT's model safeguards protocol, negotiated in the year following the treaty's entry into force.

*The Superpowers and the NNWS*

It is probably safe to say that superpower motivation over the creation of a nonproliferation treaty varied somewhat from the motivations of other states. Initially a political gambit, it wasn't until the superpowers saw their control over the spread of

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[26] Firmage, p. 718.
[27] Shaker, Vol. II, Part V, Ch. 10, p. 698.

nuclear technology erode[28] that nonproliferation became a subject of genuine concern.

Even still, the substance of superpower debate, be it over the MLF or the role Euratom

would play in the safeguards regime, remained primarily focused upon the superpower

rivalry.  The dangers of proliferation *outside* the parameters of this struggle were

genuinely less of a concern for either party.  This, perhaps, explains the willingness of the

nuclear weapons states to agree to both a plan for eventual disarmament, and the

guarantee of peaceful nuclear technology as a sovereign state right.  While both the U.S.

and the Soviets were "critical" states, in that any treaty negotiated without their

participation would be practically meaningless, both superpowers recognized that to

eventually achieve widespread acceptance of the plan (or, in other words, a norm

cascade), the political settlement would have to offer something to the non-nuclear

weapon states in return for renouncing the right to nuclear weapons[29].

A "balance of obligations" neatly sums up the primary concerns of the NNWS in

the final phases the NPT's negotiations.  Largely excluded from the bilateral negotiations

that dominated U.S. and Soviet dialogue in the early stages of the treaty's development,

when presented with the final draft agreed upon by both superpowers and a limited

number of other powerful states, the NNWS went back to the principles set out in 1965

and reminded the nuclear powers that "the Treaty should embody an acceptable balance

of mutual responsibilities and obligations of the nuclear and non-nuclear powers."[30]  This

represents an intriguing evolution, for early concerns, as highlighted in Aiken's proposal,

are limited to the dangers associated with vertical proliferation and unchecked fissile

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[28] With the expansion of the nuclear "club" to China in 1964.
[29] Burns, p. 801.
[30] *PPNN Briefing Book Volume I*, Chapter 1: Evolution of the Regime, 1945-1970, p. 5.

material production – and not the need for guarantees regarding the right to peaceful

nuclear explosions (Article V) and peaceful nuclear technology (Article IV).   The only

compensatory article that reflects early proliferation concerns is Article VI, an

acknowledgement that "the nuclear weapon states cannot ask of the non-nuclear weapon

states their eternal forbearance from the acquisition of nuclear weapons while the former

maintain their position of immense power over the latter by reason of such weapons."[31] It

would seem that while the superpowers were arguing over their interests, the NNWS had

discovered interests of their own – partially fueled by the European experience

negotiating the Euratom settlement.

Upon review of the various draft treaties presented during these expanded

negotiations, it is fairly clear that the question of disarmament was of significantly more

import to the NNWS than it was to the nuclear powers.[32] Reluctant to once more commit

to a disarmament agenda, there is no indication that either of the superpowers took the

obligation to disarm seriously.[33] The NNWS, on the other hand, seemed to feel that

compliance with Article VI would ultimately make or break the NPT's entry into force.

The start of SALT I negotiations in Helsinki in 1969 may have been misinterpreted as a

move towards disarmament, but the superpowers themselves made a clear distinction

between disarmament and arms control, firmly categorizing both SALT I and II as the

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[31] Firmage, p. 733.

[32] For a compendium of these draft treaties, please see the appendix in *International Negotiations on the Treaty for the Nonproliferation of Nuclear Weapons*, Publication 48 (Washington, D.C.: United States Arms Control and Disarmament Agency, January 1969).

[33] For more information on US/Soviet goals regarding arms control, see: Bobbitt, Philip, and Neidle, Alan, *Nuclear Negotiations: Reassessing Arms Control Goals in U.S.-Soviet Relations* (Austin:  Lyndon B. Johnson School of Public Affairs, 1982).

latter.[34] Thus, of the three pillars of the NPT, Article VI is the weakest.  Nuclear

prohibition has not emerged as a prevailing aspect of the nonproliferation norm, and once

again, it is unlikely to do so without the genuine support of the critical states involved.

On the other hand, the right to peaceful nuclear technology has emerged as a powerful

aspect of the nonproliferation norm.  Unlike disarmament, the superpowers not only

supported the idea of peaceful nuclear energy, they institutionalized it at the international

level.[35]  Atoms for Peace, the IAEA and its emphasis on scientific exchange, the first

nuclear safeguards regime – all of these things established a framework which

emphasized the possibility and promise of peaceful nuclear technology.  By the time a

nonproliferation treaty was in the works, this precedent was well accepted, and the future

non-nuclear weapon states were not likely to give it up.   While the question of peaceful

nuclear technology was not one that dominated the dialogue between the U.S. and the

Soviet Union, it did instrumentally affect the eventual articulation of the NPT in practice.

Ironically, over the long term, this has had a far greater impact upon the development of a

nonproliferation norm than either of the MLF or the Euratom debates.

*The IAEA*

There is little question that the Secretariat's successful technical assistance

programs helped to establish the idea of peaceful nuclear technology as a central part of

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[34] *International Negotiations on the Treaty for the Nonproliferation of Nuclear Weapons*, Publication 48 (Washington, D.C.:  United States Arms Control and Disarmament Agency, January 1969).  Disarmament refers to the elimination of a particular category of arms; arms control, on the other hand, refers to controlling, capping, or reducing a category of arms in order to create equity between states and minimize arms racing.

[35] That said, both superpowers implemented fairly restrictive bilateral nuclear trade policies.  U.S. efforts in this area have been discussed at length, but the Soviets also restricted trade in certain technologies, specifically, access to the nuclear fuel cycle.  For more on Soviet nonproliferation policies, see Potter, William C., "The Soviet Union and Nuclear Proliferation" *Slavic Review*, vol. 44, no. 3 (Autumn 1985), pp. 468-488.

the nonproliferation norm.   While the uses for which it had initially been envisioned, a fissile material bank, for example, did not come to pass, the success of the IAEA as a focus for peaceful international nuclear development cannot be underestimated.  Under Sigvard Eklund's guidance, the bureaucracy cultivated an impressive array of technical programs, beginning with opening of the Agency's own laboratory in Seibersdorf, Austria in 1961.  Shortly thereafter, the Secretariat convened the first of a long series of global conferences in support of nuclear research.  In 1964, the IAEA established a Department for Technical Assistance, and later that year, christened a Center for Theoretical Physics.  In addition, over the years, the Secretariat has established a reference database for nuclear information and an extensive library at its headquarters in Vienna, contributed to the establishment of safety and environmental standards in the operation of nuclear materials and the handling of nuclear waste, expanded its network of laboratories, facilitated the exchange of nuclear development information, and advanced nuclear research in areas related to food, agriculture and power.  All in all, the bureaucracy has played a constructive role in the advancement of nuclear technology and its peaceful use.[36]  By the time a nonproliferation treaty was finally negotiated, the idea of the "peaceful atom" had been extensively socialized throughout international society. The Secretariat's contributions to this process were important.

It is ironic that during the NPT negotiations, the bureaucracy, despite its future as international nuclear watchdog, probably had more influence on the socialization of states in their defense of peaceful nuclear technology than in their acceptance of nuclear safeguards.  Having chosen to explicitly emphasize its mandate to support scientific and

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[36] *The IAEA Turns 40,* Supplement to the IAEA Bulletin,  September, 1997.

technical assistance, the Secretariat was more than a bit reluctant to further expand its

role in treaty verification. This is perhaps best expressed in the organization's

disinclination to become involved in the monitoring and verification aspect of a test ban

treaty[37]. Having successfully conceived an identity for itself, the bureaucracy was

reluctant to jeopardize that, while at the same time having a distinct interest in the

continuance of civilian nuclear research.

Nonetheless, the Secretariat's comparatively successful experience with its

safeguards system very likely played a more positive role than a negative one. While

some expressed concern that, given their expanded role in the NPT inspections regime,

the Secretariat would possibly become too powerful, the truth is that the bureaucracy –

having evolved as an authority with a reputation for apolitical, conservative action, had

few critics on either side of the Cold War divide.[38] This, in and of itself, may have

assisted in the expansion of an international "universal" system of nuclear safeguards.

*Redefining the Political Space*

Two major shifts can be identified in the rule and decision-making environment

of the IAEA in the wake of the NPT coming into force: an expansion in membership and

a shift in alliance blocks. Unlike the first IAEA safeguards settlement, which did not

obligate IAEA members to comply with safeguards unless they were the recipients of

IAEA assistance, all NNWS party to the NPT are required to implement IAEA

safeguards. However, the NPT, beyond designating the IAEA as the agency responsible

for enacting, executing and overseeing the safeguards arrangements, says nothing about

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[37] Stoessinger, John, "Atoms for peace: The IAEA" in Arthur Holcombe, *Organizing Peace in the Nuclear Age* (New York: New York University Press, 1959) p. 223.
[38] Firmage, p. 733-735.

the specific system that will be enacted nor the manner in which compliance will be determined. Therefore, the Board of Governors, being the primary rule and decision-making body within the organization, inherited the responsibility for crafting a new system of safeguards and determining compliance with these settlements, should compliance ever be in doubt. The make-up of the Board would thus be an issue of substantial import, and the alliances that would emerge would greatly determine the shape of the new safeguards regime.

*Expansion in Membership*

Unlike the first system of nuclear safeguards, NPT safeguards aspire to universality, thus the political settlement rests upon substantively different assumptions than the one that under girds the original IAEA system. In the first case, the nuclear powers were providing assistance to individual states on a case-by-case basis, for all intents and purposes creating a relationship in which interested states approached the IAEA as petitioners. At the same time, due to the virtual monopoly on nuclear technology by a few powerful states, the balance of power institutionalized within the Board of Governors, which was explicitly based upon nuclear know how and the ability to contribute materials, was explicable, if heavily weighted towards the West.

The bargain struck under the NPT created an entirely different relationship. This time, the nuclear weapon states would ask the rest of the international community to voluntarily renounce any right to non-peaceful nuclear technology. In essence, the nuclear weapons states became, if only for that moment, the petitioners. As we will see, the non-nuclear weapon states extracted certain concessions in pursuit of a reasonable balance of obligations. At the same time, despite the concessions made to the non-

nuclear weapon states, it was unlikely that these same states would find the current balance of power on the Board of Governors acceptable.

The first change to the Board of Governors took place in 1960. Reflecting the growth of membership in the IAEA, particularly in developing areas of the world, the Board and General Conference approved an expansion in the number of seats assigned to both Africa and Latin America.[39] This, however, proved inadequate as the number of states joining the IAEA continued to grow. By 1968, with a nonproliferation treaty in sight, a number of states took an active interest in reforming Article VI of the Agency Statute, which establishes the number and outlines the allotment of seats on the Board.

Ironically, while lack of representation was the initial driver behind expansion of the Board, it was those countries with comparatively large nuclear programs that ultimately advocated successfully for significant change in the allocation of seats. For instance, both West Germany and Italy, seeing the opportunity to acquire a permanent place on the Board, pushed for reform. Italy would eventually submit an amendment, that after much debate, found success. Most importantly, "permanent" membership would increase from five seats, to nine seats – expanding the Western European presence on the Board[40]. This would reduce the number of permanent regional designates, but an increase in the number of elected seats (non-permanent) from 12 to 22, would ostensibly offset this loss. For the first time, the non-western states would make up a majority of seats on the Board.

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[39] Szasz, P.C., "The Law and Practices of the International Atomic Energy Agency" *Legal Series No. 7* (Vienna: IAEA, 1970), p. 141.

[40] The first level of membership being conferred upon those states that were "most advanced in the technology of atomic energy including the production of source materials" (see IAEA Statute, at World Wide Web address: http://www.iaea.org/About/statute_text.html). This would clearly privilege Western European countries, whose nuclear programs were significantly more advanced.

This shift in membership would be further reinforced by a shift in alliance blocks. Unlike the founding of the IAEA, in which negotiations took place predominantly along Cold War lines, the NPT saw a new schism. While it would be easy, and initially correct, to describe the new alignment as between the nuclear "haves" and the nuclear "have-nots", this would underestimate the complexity of the shift in alliances. While the actual negotiation of the NPT did, for the most part, follow this pattern, both the Euratom negotiations, the reassessment of Board membership, and the later safeguards settlement reflect a more nuanced reality. In the Euratom negotiations, Western Europe eventually found itself at odds with both the U.S. and the Soviet Union, identifying a European interest distinct from that of the West writ large. In the case of Board membership and safeguards, critical players in the European block found common ground with the developing countries, forging a new coalition that would successfully lobby for shifts in both the membership and the process of safeguarding that helped to legitimate NPT safeguards.

This represents an important development in the evolution of the Board's decision-making. For the first time since the U.S. successfully tested a nuclear weapon, the fate of international nuclear control was no longer the de facto concern of the nuclear weapon states alone. With an expansion in Board membership, and the growth of new alliances, the possibility of new policy that ran counter to the desires of the superpowers became possible. While both the United States and the Soviet Union would continue to play a vital role in all decision and rulemaking related to the IAEA and the safeguards regime, they were no longer the only critical players. The reality of this shift would be

played out over the following years, including the granting of IAEA observer status to the

Palestinians and the denial of regional representation to South Africa.[41]

## NPT Safeguards

The NPT itself is an interesting document in that it preserves for an unspecified

period of time the discrimination between nuclear "haves" and nuclear "have-nots". This

is why the major debates regarding NPT safeguards revolved around issues of "equity".

As Robert Pendley, Lawrence Scheinman and Richard Butler note:

> "whereas pre-NPT safeguards could be rationalized by sovereignty-sensitive
> states as being part of the price of an international transaction, NPT safeguards
> represent an unprecedented voluntary abnegation of the principle of sovereignty.
> In sum, it would be even *less* likely than under normal circumstances that such
> asymmetrical costs and benefits would be willingly accepted."[42]

Specifically, non-nuclear weapon states would willingly forego the development

of nuclear weapons programs only if they received something tangible, and equitable, in

exchange. What they received, as articulated in the NPT, was the "inalienable right" to

develop nuclear energy for peaceful purposes,[43] the guarantee of "potential benefits from

any peaceful applications of nuclear explosions",[44] a promise by the nuclear powers to

undertake measures towards nuclear disarmament,[45] the right to amend the document by a

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[41] Due to the situation with apartheid.

[42] Pendley, Scheinman and Butler, p. 609.

[43] Treaty on the Nonproliferation of Nuclear Weapons, Article IV, available at World Wide Web: http://www.iaea.org/Publications/Documents/Treaties/npt.html

[44] Ibid, Article V. While the idea of peaceful nuclear explosions may now seem absurd, at the time that the NPT came into force, many countries anticipated the use of nuclear explosives in a variety of peaceful projects. See Koop, "Plowshares and the Nonproliferation Treaty" *Orbis*,Vol.12,(Winter 1968), pp. 793-809

[45] Ibid, Article VI.

majority vote of the treaty parties,[46] and the "sovereign right" to withdraw from the treaty if the treaty "jeopardized the supreme interests of the country".[47]

Of these rights, the right to develop nuclear energy for peaceful purposes, Article IV, most seriously influenced the development of NPT safeguards. Arguing that research and development in support of nuclear weapons gave the nuclear powers an advantage in the development of civilian technologies,[48] those with advanced civilian nuclear industries extracted concessions from the nuclear powers that would mitigate this advantage.[49]  These concessions, including "assurances that the NPT system would not create obstacles to national nuclear research programs",[50] contributed to a climate in which the non-nuclear weapon states were able to utilize their newfound "right" to peaceful nuclear development to craft a system of nuclear safeguards defined by two primary characteristics: minimal intrusiveness and objective analysis.

The argument in support of "minimal intrusiveness" was forwarded primarily by Euratom member states and others with similarly advanced nuclear programs, who expressed considerable objection to any system of safeguards that was "plant-oriented". As explained earlier, the Euratom system emphasized the control of material over the control of facilities.  Euratom states worried that a "plant-oriented" system would be more vulnerable to industrial espionage, and reasoned that a material based system would be less at risk and more practical in light of cost.[51]  This second contention surely had a basis in fact, for the practical implementation of universal safeguards entailed a dramatic

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[46] Treaty on the Nonproliferation of Nuclear Weapons, Article VIII.
[47] Ibid, Article X.
[48] Sokolski, p. 51.
[49] Pendley, Scheinman and Butler, p. 610.
[50] Documents on Disarmament, 1968, pp. 678-680.
[51] Shaker, Vol. II, Part V, Ch. 10, p. 723 and 743.

expansion of the number of facilities under the IAEA's control.  In the end, the NPT

safeguards would be material based, with clearly defined restrictions upon the access

inspectors would enjoy when verifying compliance. This is a particularly noteworthy

departure from the system operated under the IAEA Statute, although it did conform to

the previously identified trend to move away from open and unlimited access.

Secondly, the question of objectivity figured prominently in the development of

the new NPT safeguards.  Unlike the IAEA system, which operated on a case-by-case

basis without specific technical criteria, the new system would be "formalized, objective

and rational".[52]  In addition, the Federal Republic of Germany led the call for the

development of automatic safeguarding techniques.[53]  These automatic techniques would

measure material and use statistical sampling to analyze sample size, thereby permitting

the IAEA to objectively verify compliance while limiting the necessity for intrusive

inspections.  At the time, this technique was determined to be "much more satisfying" as

it would eliminate the problem of subjective judgment.[54]

All in all, the overall settlement on a universal system of nuclear safeguards

created a regime far different from the one implemented to monitor the provision of

IAEA assistance.  Paradoxically, this settlement would not wholly supplant the initial

IAEA system either, for states that did not sign and ratify the NPT would still be required

to submit to IAEA safeguards in order to receive the Agency's assistance.   Thus the

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[52] Ibid, p. 746.

[53] To this end, the German delegation circulated a working paper on the work of the Nuclear
Research Centre in Karlsruhe.  This paper prompted an IAEA sponsored symposium two years
later, and indicated a general willingness to improve analytical methods for safeguarding.  See
notes 186 in Shaker, p. 743.

[54] Imai, p. 61-62.

IAEA continues to employ both safeguard systems, discrepancies in process notwithstanding.

*Safeguards in Detail*

As stated in INFCIRC/153, entitled "The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons", the objective of NPT safeguards is "the timely detection of diversion of significant quantities of *nuclear material* from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and deterrence of such diversion by the risk of early detection."[55] Thus, the scope of the NPT safeguards agreement is comparatively limited. It is worth noting that, as described in the statement above, NPT safeguards are only designed to detect the diversion of significant quantities of nuclear material from peaceful (and declared) nuclear programs.[56] They are "not intended to detect hidden nuclear weapons or clandestine production of such weapons."[57] Moreover, if diversion of significant material is verified, safeguards cannot establish the intent behind the diversion, i.e., the Secretariat cannot prove that the material is being utilized to build a nuclear weapon. These objectives align clearly with the stated principles upon which NPT safeguards are implemented:

- To avoid hampering the economic or technological development of the State or international cooperation in the field of peaceful nuclear activities, including international exchange *nuclear material* (sic);

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[55] INFCIRC/153, Paragraph 28, available at World Wide Web: http://www.iaea.org/Publications/Documents/Infcircs/Others/inf153.shtml
[56] Shaker, Vol. II, Part V, Ch. 10, p. 714.
[57] Ibid, p. 710. This is in contrast, for instance, with the OPANAL agreement, which is specifically tasked with the detection of undeclared nuclear activities.

- To avoid undue interference in the State's peaceful nuclear activities, and in particular the operation of *facilities*; and
- To be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.[58]

Practically speaking, this has translated in a particular type of safeguarding technique, which relies predominantly on two key concepts: material balance areas and strategic points where key measurements take place.

Unlike the original IAEA system, in which inspectors initially enjoyed significant access to most areas of the nuclear facility, routine inspections under the NPT are limited to material balance areas (MBA). A material balance area is "an area such that all material entering or leaving is measurable and in which an inventory of the material situated there can be determined when necessary".[59] Furthermore, measurements are taken at key measurement points, or points where strategic information is located. This information can then be statistically assessed in order to verify treaty compliance. Consequently, design review of a nuclear facility under the NPT is limited to determining the MBA and strategic key measurement points.[60]

In addition, material balance areas allow the bureaucracy to conduct cost effective inspections in complex facilities, an increasingly important consideration given the scope of the safeguards task under the NPT and the limited resources available for safeguarding. This is especially important at facilities enriching or reprocessing materials, due to the significant risk associated with diversion.

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[58] INFCIRC/153, Part 1, Paragraph 4 (Implementation of Safeguards).
[59] INFCIRC/153, Paragraph 73, and Shaker, Vol. II, Part V, Ch. 10, pp. 747-748.
[60] INFCIRC/153, Paragraph 46.

Provisions for special inspections do exist under the NPT; however, they are dependent upon further agreement with the state in question. For instance, if it were determined by the Secretariat that a special inspection of areas outside the MBA is desirable, this would have to be negotiated with the state in advance of the inspection.[61]

In addition, containment and surveillance activities are central to the NPT safeguards. This involves locking and storing material in such a way that the Secretariat can reliably verify container contents, using cameras and other surveillance equipment to detect the unusual movement of materials.[62]

Finally, the NPT safeguards allow a state to approve the inspectors designated by the Director General.[63] During the Cold War, this minimized the inevitable frictions that might have resulted should an IAEA inspector hail from a country on the opposite side of the conflict, or should an inspector come from a country likely to engage in industrial espionage.[64]

*The Evolution of a Process*

There is no question that the expansion of the nuclear safeguard mission under the NPT marked a critical juncture in the life of the IAEA bureaucracy. While safeguarding, up until this point, had been an important mission, it had not been the focus of their activities. In fact, safeguarding represented a minority percentage of the budget with few

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[61] INFCIRC/153, Paragraph 83.
[62] Shaker, Vol. II, Part V, Ch. 10, pp. 749-750.
[63] INFCIRC/153, Paragraph 85.
[64] Shaker, Vol. II, Part V, Ch. 10, p. 757.

permanent staff inspecting only a handful of facilities.[65]  The NPT would refocus the bureaucracy on nuclear safeguarding, dramatically expanding the assets dedicated to this mission.  The NPT would not, however, drag the bureaucracy back into the political quagmire that defined its early days.   The new safeguards system would, in fact, reinforce the Secretariat's chosen identity, as a nuclear authority peopled by scientists, not politicians.

While the two IAEA processes for safeguarding were substantively different, they did share an important commonality: both systems were variations on the police-like inspection model rejected by the Acheson-Lilienthal Report.  And yet, instead of undermining the bureaucracy's ability to work, the Secretariat continued to expand its safeguards activities due to the success of the first system.   This would seem to undermine the conclusions reached by Acheson-Lilienthal regarding the human factors of inspection, or the social and organizational frictions that result when foreign inspectors intrude upon the sovereign territory of a member state.  To reach such a conclusion, however, would be incorrect.

In the first case, two factors seem to militate against drawing such a conclusion. First of all, the first system of safeguards applied to a very few states, all of whom entered into the arrangement as voluntary participants in a transaction.  Even still, despite the fact that the conditions for the receipt of assistance were clear from the beginning, safeguards in practice resulted in resentment and resistance from inspected states.[66]  As a result, participating states whittled away at the degree of intrusiveness granted the

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[65] For specific amounts, please see General Conference Document (Regular Budget Appropriations),  archived at World Wide Web address: http://www.iaea.org/About/Policy/GC/GC47/Records/.
[66] See Chapter 2, p. 26.

Secretariat, with the actual safeguards becoming more limited in application over time. Thus, even though the sample is small, it is possible to argue that the human factors cited by Acheson-Lilienthal influenced the early development of safeguarding.

With the NPT safeguards, the new system itself helped to avoid the problem of human factors. As previously noted, the process agreed upon by the Agency was highly technical, emphasizing the objective nature of data collection and interpretation. Secondly, inspections were deliberately non-intrusive and highly routinized, relying upon limited access to the facility in order to take measurements. Finally, the inspectors themselves were subject to the inspected state's approval. Taken together, this greatly minimized the potential for conflict between the inspectors and the member state.

And yet, neither of these systems successfully surmounted the obstacles associated with human factors. Instead, in both cases, the bureaucracy was ultimately forced to avoid the issue by altering the system, making it less police-like and, arguably, less effective. What it did do, however, was create a process that allowed the bureaucracy to establish a viable operating environment, even if under restricted conditions. This, no doubt, aided in the ability of the bureaucracy to solidify its exercise of public authority. Should the Secretariat have pushed for more invasive inspections, should they have operated under the intrusive system envisaged by the Acheson-Lilienthal Report, human factors would likely have undermined the bureaucracy's ability to operate. Nonetheless, a clear trade-off was made, sacrificing thoroughness in order to maintain a non-confrontational atmosphere. [67]

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[67] In both chapters four and five, the issue of access will be discussed more extensively.

*Solidifying a Bureaucratic Style*

It is not surprising that the bureaucratic style to evolve from the new system of

safeguards would follow the basic template established early on in the Secretariat's

career. Quite compatible with the scientific and technical identity emphasized by

Director General Eklund, NPT safeguards suited the scientists that made up the ranks of

IAEA inspectors. These scientists, specialists in the field of nuclear technology,

preferred to avoid the political machinations that intermittently convulsed the Board, and

often found more in common with the staff running the nuclear facilities they inspected

than with the diplomats serving in Vienna. In fact, many inspectors forged long-term

working relationships with the staff at the nuclear facilities they inspected.[68] On the one

hand, this certainly helped to alleviate the "human factors" identified within the Acheson

Lilienthal Report, but at the same time, it created a particular type of culture within the

safeguards inspectorate. As noted by Ambassador Jonathan Dean at a review conference

in 1992 "IAEA inspectors do not have a verification 'culture' of friendly suspicion and

desire for final assurance but instead have often been caught in an intellectual conflict

between their duty to verify and their desire for a productive future relationship with

host-nation fellow scientists."[69] And while there is no doubt that this eased the acceptance

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[68] It is also worth noting that the pool from which inspectors were drawn stayed relatively limited, despite Agency efforts to encourage its expansion. This resulted in a select group of specialists who often found themselves assigned to the same facility for extended periods of time, creating incentives for the inspector to maintain positive relations with the facility being inspected. It was, therefore, in the best interest of the inspectors to maintain a positive working relationship with facility management.[68] This might explain why inspectors chose to exercise their authority conservatively. For instance, as has been previously observed, while inspectors had the right to issue special inspections under the NPT, they elected not to use them.

[69] Dean, Jonathan, "Summary of Conference Proceedings" in Beier, J. Marshall and Steven Mataija, *Verification, Compliance, and Confidence Building: The Global and Regional Interface Proceedings of the 13th Annual Ottawa NACD Verification Symposium* (Toronto: Center for International and Security Studies, 1996) p. 139.

Agency safeguards, it did result in a process that examined only a very narrow set of inputs, with little interest among the scientists in expanding those parameters.

Unsurprisingly, the inspected states found little to complain about under the IAEA safeguards regime. The single greatest fear, that IAEA supervision would compromise the development of state and or regional nuclear industries, did not materialize. Without a compelling reason to alter the existing system, both the inspectors and the inspected forged a functional arrangement with which the majority of those involved were satisfied.[70] And as we discussed in the first chapter, broad based acceptance of the rules and behaviors determined to be acceptable within a society is a critical aspect of legitimation. The Secretariat, simply through the consistent execution of its duties, as understood and recognized by NPT member states, cemented its claims to public authority by adhering to a generally accepted "right" safeguarding process. The fact that this process would ultimately prove inadequate would not undermine the political capital acquired by the bureaucracy as a trusted agent over a period of twenty plus years, arguably a critical aspect in the Secretariat's ability to reconstitute its authority after the Iraqi revelation.

It might be tempting, nevertheless, to fault the IAEA's inspectors in the conduct of their duties, particularly in light of the revelations regarding Iraq's clandestine nuclear program. This, however, would not be entirely fair. As we have discussed in detail, the system itself was not designed to detect dedicated cheating, and despite the inspectorate's predisposition towards conservatism, they did succeed in carrying out the verification

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[70] Dean, p. 139.

mission as it was understood and defined within INFCIRC/153.  And for twenty years, that system seemed perfectly adequate.

## 1970 and Beyond:  Implementing the NPT

*Those Who Opted Out*

It is important to note that while the coming into force of the NPT arguably signaled the beginning of a successful norm cascade, the fact that several important, if not critical states, opted out of the regime posed a real threat to its ultimate success. Although a norm may successfully emerge, the extent to which it truly becomes internalized may depend upon the number of states who adhere to it – or, on the flip side, successfully ignore it.  While noncompliance with a norm does not necessarily indicate failure of the norm, a norm that is widely ignored, or ignored by enough critical players, loses its ability to regulate behavior.

Following the NPT's entry into force, a number of important states remained outside the regime, including France, China, Israel, India, Pakistan, Argentian, Brazil, and South Africa.  As nuclear weapons states, the absence of France and China proved a distinctly different problem for the regime than the problem posed by "threshold" states. For the most part, France voluntarily abided by the tenets of the treaty, while China upheld the right of sovereign states to acquire nuclear weapons, while not actively encouraging its other states to take that final step.[71]  Regardless, both states already had nuclear weapons, thus their status had basically been resolved.  The threshold states,

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[71] Kapur, Ashok, *International Nuclear Proliferation:  Multilateral Diplomacy and Regional Aspects* (New York:  Praeger Publishers, 1979), p. 68.

however, remained outside the treaty, keeping the option of nuclear weapons open.[72]

This posed a more complicated nonproliferation challenge, a challenge that came to a

head with India's "peaceful" nuclear test in 1974.

*India's Peaceful Nuclear Explosion*

India's nuclear program, established in 1946, very likely began as a peaceful

attempt to utilize nuclear energy for development purposes, with little intent to develop

nuclear weapons.[73] Nevertheless, as discussed in chapters two and three, India

consistently resisted efforts by the nuclear weapons states to restrict its sovereignty in the

use and development of nuclear technology. From the first negotiations to

internationalize nuclear control with the establishment of the IAEA in the 1950s to the

refusal to sign the NPT in 1968, India rarely compromised in what must have been a

primary goal: an independent nuclear program with few of the restrictions that would

ultimately be imposed upon the majority of non-nuclear weapons states. This resistance

to conform to the boundaries established by international society should have resulted in

consequences, not the least of which should have been a nuclear "shunning" of India by

the more advanced nuclear powers. These consequences, by and large, were restricted to

nuclear trade embargoes, despite India's peaceful nuclear explosion, now generally

acknowledged to have been a nuclear weapons test.[74]

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[72] For a more detailed discussion of nuclear threshold states, please see Jed C. Snyder and Samuel F. Wells, Jr. in *Limiting Nuclear Proliferation* (Cambridge: Ballinger Publishing Company, 1985), or M. P. Fry, N. P. Keatinge and J. Rotblat, eds., *Nuclear Nonproliferation and the Nonproliferation Treaty* (New York: Springer Verlag, 1990).

[73] Cirincione, Joseph, John B. Wolfsthal and Miriam Rajkumar, *Deadly Arsenals* (Washington, D.C.: Carnegie Endowment for International Peace, 2002) pp. 191-206.

[74] In 1997, two Indian scientists, Raja Ramanna and V.S. Venkatavardhan, publicly admitted that the 1974 explosion in the Pokharan desert "was a bomb". APn 10/10 1835, India-Nuclear, 1997.

The Indian nuclear explosion proved particularly problematic for the United States because it utilized material purchased from the U.S. and produced at a research facility provided by Canada. While India rightly pointed out that "peaceful" nuclear explosions were a guaranteed right under the NPT, neither Canada nor the U.S. found this to be a compelling explanation. The fact that the U.S. had not anticipated the test, despite regular surveillance of the Indian nuclear program, lent further urgency to the matter.[75] In response, Canada immediately ended bilateral cooperation with India on nuclear development projects.[76] The U.S. found itself in a more complicated position. The previous year, the U.S. and India had negotiated a long-term nuclear cooperation agreement that would provide India with two G.E. light water reactors at Tarapur, as well as guarantee the U.S. exclusive rights to provide the new reactors with nuclear fuel. This agreement was intended to continue for the life of the nuclear reactors, or approximately thirty years.[77] With India's peaceful nuclear explosion, this agreement, of significant benefit to both sides, came under fire.

While initially suspending assistance to India, and insisting upon Indian accession to the NPT, the U.S. attempted to "manage" the situation, using trade incentives, the threat of sanctions and increased surveillance, despite the fact that U.S. intelligence had failed to predict the first nuclear test. With the negotiation of an agreement with the French to provide India with the requisite fissile material to fuel the reactor, and with India's solemn promise to discontinue nuclear explosions of any kind, and particularly not to divert materials away from Tarapur (also under IAEA safeguards), the U.S.,

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[75] Spector, Leonard S., "Silent Spread" *Foreign Policy*, No. 58 (Spring 1985) pp. 60-62.
[76] Ibid, p. 60.
[77] Goheen, Robert F., "Problems of Proliferation: U.S. Policy and the Third World" *World Politics*, Vol. 35, No. 2 (January 1983) p. 195.

despite intermittently rocky diplomatic interactions, chose to continue their cooperation on Tarapur.  The lesson gleaned by the developing world could not be clearer:  under certain circumstances, proliferation would be tolerated, if it did not manifest in an actual nuclear weapons test.[78]

This "no test" approach eventually came to delimit a new set of boundaries for the threshold states outside the NPT.  Recognizing that certain states would continue to refuse the restrictions dictated by the treaty[79], and therefore remain outside the purview of NPT safeguards, the nuclear powers began to use "carrots and sticks" to keep overt proliferation at bay.  As Leonard Spector noted of this period "What gives life to the nonproliferation regime's formal elements…is ad hoc political pressure – jawboning, threats of sanctions, and sometimes the imposition of sanctions – by the nuclear suppliers, led by the Soviet Union and the United States.  This is where the rules of engagement apply."[80]  Unfortunately, this approach inevitably led to further inequity, with states outside the regime subject to a more lenient interpretation of the rules, in which political maneuvering could sometimes effectively execute an "end run" around the relatively new nonproliferation norm.  Again, Spector observes, "An emerging nuclear country is not penalized after the fact for successfully circumventing [export] controls.[81]

To counter this reality, a body of nuclear nonproliferation policies began to emerge beyond the auspices of the NPT, including the creation of a nuclear suppliers

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[78] Spector, pp. 60-62 and Goheen, pp. 195-202.
[79] Countries that refused to sign the NPT during this period include:  Israel, South Africa, Pakistan, Brazil and Argentina, all of whom possessed comparatively advanced nuclear technologies.
[80] Spector, p. 52.
[81] Spector, p. 55.

group to coordinate rules for the export of sensitive nuclear technologies, and the re-emergence of U.S. policies of denial, largely associated with President Carter's administration.  Neither was fully successful, and the lack of a comprehensive nuclear export control regime would eventually test the resilience of the nonproliferation treaty and the emergent nonproliferation norm.

*The Nuclear Suppliers Group*

Article III.2 of the NPT makes provision for a certain number of limited controls on the export of nuclear items by nuclear "supplier" countries.  It states:

> Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article.

In 1971, in order to clarify the expectations enumerated above, a small group of states chaired by Professor Claude Zangger of the Swiss Federal Office of Energy in Berne met to identify exports that would "trigger" the necessity of nuclear safeguards.  This "trigger list" was published in 1974 (as INFCIRC/209) and allows for coordination of nuclear export policy as it relates to NPT members engaged in the trade of nuclear technology.  The trigger list contains three basic components that must be met in order for nuclear material to be supplied to a NNWS:  the promise to refrain from "non-explosive" use of the material, the assurance that the material provided will remain under IAEA safeguards, and a re-export provision, preventing the purchasing state from re-selling the material without adhering to similar strictures.

The Zangger Committee trigger list is tied closely to the NPT, however, as it reflects the very specific concerns expressed in Article III, and as it only applies to NPT

signatories, it proved fairly limited in scope.  With nuclear weapon states remaining

outside the treaty, and the rapid evolution and spread of nuclear technology, India's

nuclear test galvanized nuclear supplier states to go beyond the controls established under

Article III, and further restrict exports in nuclear technology.  For all intents and

purposes, the nuclear suppliers unilaterally chose to re-define the rules, and this did not

meet with unalloyed enthusiasm.  In fact, the suppliers group was generally seen by the

developing world as undemocratic and unnecessarily secretive.[82]  Nevertheless, there

was, and continues to be, a legitimate need to constrain the export of particularly

dangerous nuclear technology.  Thus, in 1975, the Nuclear Suppliers Group (NSG) was

formed.[83]

Unfortunately, nuclear suppliers varied widely in their perception of threat in

relation to the export of nuclear technology, as well as the extent to which they believed

in the necessity of full scope safeguards.[84]  There was no common ideological thread to

bind the group together, and while a primary purpose of the group was to close loopholes

in the NPT, the group's varying national interests made consensus difficult.[85]  For

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[82] The group, initially called the London Club due to the location of the meetings, met behind
closed doors, and the exact content of the discussions was not published.  For more, see Kapur,
pp. 98-99.

[83] For a detailed discussion of past and future issues related with the Nuclear Suppliers Group, see
Anthony, Ian, Ahlstrom, Christer and Fedchenko, Vitaly, *Reforming Nuclear Export Controls:
The Future of the Nuclear Suppliers Group, SIPRI Research Report Number 22* (Oxford:  Oxford
University Press, 2007).

[84] France, a non-signatory to the NPT, based its objections on the discriminatory nature of the
treaty.  While they pledged to generally observe NPT conventions, France resisted many
limitations on the trade of nuclear technology, and questioned the necessity of comprehensive
safeguards.  For more on the above, see Kapur, Chs.  3 and 4; or Goldschmidt , Bertrand, "A
Historical Survey of Nonproliferation Policies" *International Security*, vol 2, no 1 (Summer
1977) pp. 69-87

[85] Kapur, pp. 77-81.

instance, despite the Indian nuclear test, both the Germans and the French entered into controversial agreements with states of proliferation concern in the mid 1970s.

In June of 1975, Germany signed an historic agreement with Brazil to provide the entire nuclear fuel cycle to its civilian nuclear program.[86] The deal, approved by the IAEA's Board of Governors, included an extensive program of nuclear safeguards, including agreement to continue international monitoring and verification beyond the period at which German oversight would end, and a replication clause that, in theory, would limit the Brazilians ability to duplicate the technologies acquired through the agreement without also implementing a similar safeguards arrangement with the IAEA. This last aspect was generally deemed "unworkable in practice" and many experts expressed concern that Brazil would utilize the knowledge gained through the German collaboration to pursue a nuclear weapons program. This prompted the Carter administration to embark upon a program of nuclear nonproliferation initiatives that will be discussed in the section following.[87] Thus, beyond the noteworthy scope of the agreement, the transaction prompted a marked shift in the vehemence with which the U.S. approached the problem of proliferation.

In March of 1976, the French signed an agreement with Pakistan for the sale of a fuel reprocessing plant.[88] The United States, in an attempt to derail the agreement,

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[86] The Brazilian nuclear program had two parts: a civilian program safeguarded by the IAEA and a "parallel track" program managed by the military that sought to generate an indigenous nuclear capability.

[87] Redick, John R., "Nuclear Illusions: Argentina and Brazil" *The Henry L. Stimson Center,* Occasional Paper No. 25 (December, 1995) pp. 6-8.

[88] At approximately the same time, Pakistan embarked upon a purchasing spree across Europe in which they were able to legally acquire a number of components for their nuclear program. For example, the Pakistanis placed orders with the Swiss and the Dutch for valves and tubes related to gas centrifuge technology. These items were not on the London Club's list of restricted or prohibited exports. For more information, see: Weissman, Steve & Krosney, Herbert, *The Kindly*

offered Pakistan 110 Vought A-7 attack aircraft to cancel the sale.  At the same time, the

U.S. and France embarked upon a series of diplomatic altercations over the Pakistani

agreement.[89]  By November of 1976, the French had begun to reconsider, partly due to

Canada's refusal to supply the Pakistani's nuclear reactor with fuel should the French

deal proceed.   In December, the French Nuclear Export Council changed its policy on

the provision of fuel reprocessing plants, limiting their future export out of proliferation

concern; nonetheless, they continued to honor the existing contract with Pakistan.

However, the French, under continued pressure from the U.S. and Canada, attempted to

re-negotiate the agreement with Pakistan, offering first to substitute a plant that did not

produce plutonium, and when that was rejected, a plant that used mixed uranium and

plutonium as fuel.  When the second proposal was rejected, in August of 1978, the

French cancelled the contract outright.[90]

In the midst of these negotiations, in January of 1978, the NSG published an

extended trigger list through the IAEA as INFCIRC/254.[91]  This was largely possible due

to the French policy change on the export of reprocessing technology the month

previously, and the trigger list would specifically include a ban on the export of

reprocessing technology, among other things.  With French cooperation, and to the

dismay of the Germans, INFCIRC/254 would become the guiding document for the

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*Dr. Khan: The Islamic Bomb: The Nuclear Threat to Israel and the Middle East* (New York:
Times Books, 1981).

[89] These altercations played out mainly through a series of high level diplomatic exchanges and
public statements made by both the American Secretary of State, Henry Kissinger, and the French
Prime Minister, Jacque Chirac.

[90] Nuclear Threat Initiative, *Pakistan Country Profile*, Nuclear Chronologies:  1975-1977 and
1978-1979, available at World Wide Web address:
http://www.nti.org/e_research/profiles/Pakistan/Nuclear/index.html.

[91] The NSG trigger list is an informal mechanism that does carry the weight of law until it is
incorporated into domestic/state level legislation (Anthony et al, p. 4).

transfer of nuclear technology by major nuclear suppliers, and plainly emanated from the spate of high profile, and potentially dangerous, nuclear deals agreed upon the decade prior.

However, between 1978 and 1991 the NSG did not meet[92], and much work was left unresolved that would later allow states to extensively exploit regulatory loopholes in their pursuit of nuclear weapons. A number of states were able to take advantage of this situation, including Iraq, North Korea and South Africa. The Iraqi acquisition of nuclear technology will be explored in depth in the following chapter.

Thus, the international response to the issue of nuclear export controls was inconsistent at best. In some areas, like the trade in nuclear technologies specifically targeting industrial scale plutonium production, fairly sound regulations were put into place and reasonably well enforced. Uranium enrichment technologies, however, remained less well regulated.[93] As the issue of international regulation proved somewhat ambiguous, nuclear supplier states began to enact their own legislation at the domestic level – some advocating significantly more stringent restrictions. The United States, historically the dominant actor in the market for nuclear material, would pursue such a course with decidedly mixed results.

*The Carter Policies*

The restrictive policies towards plutonium re-processing and the export of nuclear goods that emerged in the U.S. during the middle of the 1970s have come to be

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[92] "The Nuclear Suppliers Group: Its origins, role and activities" INFCIRC/539, Attachment, available at www.sipri.org/contents/expcon/infcirc_539_1.html.

[93] This can possibly be explained as uranium enrichment was considered to be an extremely costly and fairly complicated undertaking. At the same time, advanced nuclear states dedicated to a "closed" nuclear fuel cycle were reluctant to limit access to (and trade in) nuclear technologies they considered vital to their own national interests.

associated with President Jimmy Carter, who was elected in November, 1976 and took office in January, 1977.  However, President Carter was not the only actor extensively involved in the move towards a more aggressive nonproliferation policy, and the U.S. Congress played a significant role in the implementation of more stringent controls on the transfer of nuclear technology beyond U.S. borders.  For instance, with administration support, Congress attempted to directly intervene in the provision of nuclear technology to threshold states, passing the Nuclear Nonproliferation Act of 1978, reminiscent to the Atomic Energy Act in 1946.  The NNPA of 1978 tried yet again to unilaterally limit the provision of nuclear material and technical assistance to potential proliferators, restricting the export of nuclear goods from the U.S. to other states.  Unfortunately for Congress, the new law would prove untenable on two grounds:  its overwhelming complexity, and its inability to restrain a nuclear market over which the U.S. was no longer completely dominant.

As is the case for much U.S. policy, the NNPA of 1978 would require oversight from three separate bodies:  the executive, the legislature and the Nuclear Regulatory Commission, an independent agency created by Congress in 1974 "to regulate the nation's civilian use of byproduct, source, and special nuclear materials".[94] Unsurprisingly, the application of the law would be described as "madcap" and "cumbersome" with "discouraging complexities, constraints, and anomalies".[95]  For instance, in some cases, the new legislation would retroactively require states to safeguard nuclear material already delivered, necessitating new arrangements to

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[94] NRC Mission Statement, available at World Wide Web address: http://www.nrc.gov/about-nrc.html.

[95] Brenner, Michael, "Proliferation Watch:  Carter's Bungled Promise" *Foreign Policy* (Fall, 1979), pp. 93-94.

countermand earlier agreements.  The confusion that resulted did not further the

American case.[96]

      At the same time, changes in the state of the nuclear market would undermine the

law's efficacy.  While the Atomic Energy Act of 1946 demonstrated the limits involved

in technology denial, at the very least, the U.S. possessed a nuclear monopoly at the time

of its passage.  This made a policy of denial conceptually feasible, if not ultimately

successful.  In 1978, not only did the U.S. no longer hold a monopoly on nuclear

weapons, it no longer dominated the nuclear market.  For many years following the loss

of its nuclear monopoly, the U.S. remained the largest supplier of nuclear material to

"peaceful" nuclear development projects, often through the Atoms for Peace program.

With the growth of an international market in nuclear material, however, the U.S.

inevitably lost its ability to single-handedly influence the exchange of nuclear goods.

The European countries, while allies of the U.S., had their own standards (and political

objectives) for determining appropriate nuclear transactions.[97]  Thus, the NNPA of 1978,

while well intentioned and responding to a genuine and pressing need for increased

controls over the trade in nuclear technology, had a significantly diminished impact, due

to its political execution and the practical realities that now defined nuclear markets.

      Further, President Carter revised U.S. nuclear policy in a number of additional

areas, again with mixed success.  Three developments are worth noting:  the indefinite

suspension of fuel reprocessing in the U.S. (extending the three year moratorium placed

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[96] McGrew, Anthony G.,  "Nuclear Revisionism:  The United States and the Nuclear
Nonproliferation Act of 1978" *Millennium Journal of International Studies,* vol. 7 no. 3 (1978),
pp. 237-250.
[97] Goheen, pp. 207-210.  These policies were not always wise, as demonstrated in the German
and French examples described above.  Thus, while the Carter administration could have
executed their policies more effectively, they were ahead of the curve in understanding the
necessity for increased regulation.

upon the same by President Ford); the call for an International Nuclear Fuel Cycle

Evaluation (INFCE); and the call for multilateral arrangements that would result in an

International Plutonium Storage, thereby reducing the demand for breeder reactors and

plutonium reprocessing. Each of these proposals had (and in some cases still has)

technical merit. And yet they were hampered considerably by the Carter administration's

policy execution.

In the case of plutonium reprocessing, the administration never fully clarified

their stance on the issue. While suspending reprocessing in the U.S., Brenner notes "it

has never been entirely clear whether the United States was asking the world to abandon

plutonium completely as a reactor fuel or merely seeking a moratorium of indefinite

duration on its use while the terms and conditions for its safe employment could be

worked out internationally."[98] As an example, while declaiming the risks associated with

reprocessing, the U.S. endorsed the very same activity in both the UK and France,

specifically in the case of reprocessing Japanese spent fuel.

This issue was further complicated by the INFCE effort, a series of international

conferences held between 1977-1979 and dedicated to a technical assessment of the

nuclear fuel cycle.[99] Specifically, INFCE was concerned with increasing the proliferation

resistance of the fuel cycle, without compromising the development of peaceful nuclear

technology, especially in the developing world. The goals of the conference, surely, were

both important and timely. The results, unfortunately, were vague, and neither endorsed

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[98] Brenner, p. 91.

[99] INFCE drew upon over 500 experts from sixty-six countries, both North and South, and five international organizations. Skoldebrand, R., "The International Nuclear Fuel Cycle Evaluation: INFCE" *IAEA Bulletin*, vol. 22, no. 2 (1980), p. 2.

nor denounced a particular type of fuel cycle.[100] The fault for this, however, can hardly be laid at the feet of the U.S. administration. Few documents resulting from this type of international symposium are rich in detail or offer specific plans, especially when the topic is highly contested and the contributors represent a wide array of viewpoints, as was certainly the case with the INFCE initiative.

Finally, despite the President's call for International Plutonium Storage, Washington proved reluctant to offer many explicit incentives to make such a proposal reality. At the front end of the fuel cycle, a guaranteed supply of low enriched uranium would be necessary; at the back end, a realistic way to deal with the nuclear waste that is inevitably part of a once through process.[101] Neither was forthcoming, and lack of movement on this issue likely resulted from a reluctance in Congress to fund the requisite programs necessary for its successful implementation.

Ironically, it is possible that "the brusque American call for a reprocessing moratorium"[102] and associated nonproliferation efforts had the unanticipated consequence of undermining the diplomatic efforts of the NSG by exacerbating differences between America, Europe and Japan. At the time, Europe and Japan had committed extensively to reprocessing technology and breeder reactors. In forcing their allies to defend their nuclear programs, Carter may have brought to a premature halt to the cooperation that had been evolving between 1974 and 1978.[103] On the other hand, European intransigence over the regulation of nuclear technologies surely impeded the full articulation of a meaningful international export control regime.

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[100] Lellouche, Pierre, "International Nuclear Politics" *Foreign Affairs* (Winter, 1979/80).
[101] Brenner, p. 93.
[102] Ibid.
[103] Kapur, 92-101.

Regardless, it is fair to say that by the end of the 1970s, the focus of the

international community was on large-scale nuclear activities, including industrial level

plutonium reprocessing and the export of component parts in support of such operations.

This may have had an effect upon the approach to and expansion of the safeguards

regime,[104] as bulk fuel cycle facilities were considered by some experts to be

"intrinsically unsafeguardable".[105]  Thus, the very utility of safeguards came into question

for a period of time.  Fortunately, these concerns would ultimately prove unfounded, for

by the mid-1980s, the dream of a plutonium economy disappeared, as the costs of

implementing such a system proved prohibitive.[106]  With a steady supply of naturally

occurring uranium and the advent of proliferation resistant technologies, breeder reactors

and plutonium reprocessing for civilian use became unnecessary and unsustainable.

Thus, much that was foreseen did not come to pass, and it would be very different,

largely unanticipated concerns that would plague the IAEA in the decades to come.

## The Expansion of IAEA Authority

Despite these many challenges to the infant nonproliferation regime, the

Secretariat did successfully expand its legitimacy and the extent of its public authority.

With the successful negotiation of a nonproliferation treaty and the evolution of

nonproliferation norm, the bureaucracy finally saw its authority move beyond the

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[104] For instance, despite the growth in bulk handling fuel cycle facilities (4 to 49), a commensurate growth in the IAEA inspectorate did not materialize. (See Muntzing, L. Manning, "Safeguards and Nuclear Safety:  A Personal Perspective" *IAEA Bulletin*, vol. 24, no. 4, 1982). This could simply be attributed to ongoing and persistent budgetary restraints.  At the same time, it may also reflect a general assumption that safeguards, under certain situations, could simply be overwhelmed due to the volume of flow resulting from certain processes.

[105] Notes, William Walker, September 12, 2008.

[106] Demonstrated best, perhaps, by the collapse in international investment in nuclear power in the late 1970s and early 1980s.

convergence of powerful states and their specific national interests and into the formal

institutionalization of international law.  The NPT officially defines right nuclear conduct

within international society, and entrusts the Secretariat with the specific task of nuclear

safeguarding, supplanting other competing systems and endowing the IAEA's

bureaucracy with an official role independent of its original patrons.   In terms of

legitimacy and the evolution of authority, this development cannot be underestimated.  It

also sets up the bureaucracy for the further expansion of its authority, as the primary

institutional actors at the international level in the area of nuclear affairs.

In addition, the Secretariat continued to increase its technical authority through

the growth of programs in support of peaceful nuclear development.  By the end of the

1970s, IAEA headquarters in Vienna had been the international clearinghouse and

spokesperson for the international nuclear community for more than a generation.  And as

*an* authority, the Secretariat was increasingly placed *in* authority, as demonstrated by the

expansion of its safeguarding mission with the successful conclusion of the NPT.   In

addition to its new role under the NPT, however, the bureaucracy experienced expansion

in other areas, most notably nuclear safety.  A prime example of this bureaucratic

expansion can be found in the period following the catastrophic nuclear accident at

Chernobyl. This event, albeit tragic, opened up a formal, new role for the Secretariat, and

further solidified its public authority as the primary international organization in charge

of nuclear affairs.

*New Tasks:  Nuclear Safety*

It has been consistently observed that bureaucracies often increase their public

authority through the expansion of their mission.  This "mission creep" occurs at both the

domestic and international levels, and can be either a boost to existing authority or a drain

on existing resources.[107]  In the Secretariat's case, increased involvement in the

institutionalization of international nuclear safety regulations resulted in an expansion of

authority, while building on existing strengths within the Agency.

In 1986, the Soviet nuclear power plant, Chernobyl RBMK, located in the

Ukraine, experienced a catastrophic nuclear accident that resulted in widespread

radiological fallout, affecting the majority of Europe and resulting in considerable

contamination. [108]   The governments of Europe, outraged by the Soviet Union's "passive

attitude" and "failure adequately and promptly to inform the potential victim States

and…its reluctance to disclose details of the accident, which obstructed an effective and

proactive international response" made a concerted push to inculcate new norms in

support of nuclear safety. [109]  The IAEA, having initially been tasked "to establish or

adopt standards of safety for protection of health and minimization of danger to life and

property"[110] became a natural host for the conference that would establish legal guidelines

for notification and follow up in the event of a cross-border nuclear accident.  Two

conventions, the *Convention on Early Notification of a Nuclear Accident* and the

*Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*

were negotiated at the IAEA's General Conference in 1986.  These conventions defined

the responsibilities of states in the event of a catastrophic nuclear accident and

established the IAEA as the body through which such normative development would take

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[107] Jordan, Robert S., *International Organizations: A Comparative Approach to the Management of Cooperation* (London: Praeger Publishers, 2001), pp. ??
[108] "The Chernobyl Accident", *Nuclear News*, June 1986.
[109] Horbach, Nathalie and Pieter Bekker, "The Concept of Sovereignty within Nuclear Energy Law" in Kreijen, Gerard et al, *State, Sovereignty, and International Governance* (Oxford:  Oxford University Press, 2002) pp. 429-430.
[110] Ibid, p. 444.

place. While these conventions did not devolve significant operational responsibilities to the IAEA bureaucracy for their oversight and maintenance, the Secretariat, as the primary international body concerned with nuclear issues, would become an important actor in terms of intra-state coordination and information sharing.[111]   In this way, the Secretariat formally expanded its role beyond the nonproliferation regime, building upon its initial mandate as advocated by Sigvard Eklund. Once again, the bureaucracy's credibility in terms of technical expertise and the evolution of specific nuclear norms would further legitimize their overall public authority.

*Implications*

Unlike the series of negotiations that established the IAEA and its first system of nuclear safeguards, the negotiation of a nonproliferation norm is best understood as the product of socialization, amongst a variety of actors, over a period of approximately ten years.   And while power was not incidental, as the US and the Soviet Union played a critical role in the promotion and acceptance of the new nonproliferation norm, it was not their interests alone that defined the character of that norm.  New groups identified new interests, and non-state actors, specifically the IAEA's Secretariat played a role in the evolution of a "right" to peaceful nuclear development.

At the same time, the establishment of a nonproliferation norm through the NPT and the institutionalization of the IAEA as the lead international agency responsible for nuclear safeguarding, signaled a turning point in the Secretariat's evolution as a public authority.  No longer simply *an* authority, dependent upon the organization's reputation

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[111] "IAEA Conventions on Nuclear Safety Provide for Co-Operation in Wake of Nuclear Accident" *UN Chronicle*, Vol. 23 No. 5 (1986) p. 74.

as an international expert in nuclear science, the bureaucracy was now legally *in* authority, responsible for upholding the day to day verification member states treaty obligations. That said, continued identification as the primary international nuclear expert allowed the Secretariat to expand its portfolio, to include substantive new responsibilities for international nuclear safety.

And yet, in spite of the steady and sustained acquisition of authority, the IAEA stood on the brink of a major trial, the revelation of an Iraqi secret nuclear program. Some of the ensuing controversy would stem from its own practices, mainly the decidedly conservative approach to safeguarding that at times compromised effectiveness for collegiality and sustained operability. Others still would stem from weaknesses in the system itself, resulting from political compromises, technical limitations, and a misreading of the likely future threat environment. Both are relevant in terms of norm development and process.

The NPT and the nonproliferation norm would set certain boundaries of right conduct within international society regarding the types of nuclear behavior to be tolerated. Unfortunately, in two specific areas, these rules would prove inadequate. In the first place, the nonproliferation norm largely ignored the technical problem that existed regarding the duality of nuclear technology. As the Acheson-Lilienthal report observed decades earlier, the pathways to the development of peaceful nuclear energy and a nuclear weapons program are "interchangeable and interdependent". For all intents and purposes, the NPT glosses over this reality, promising signatories the sovereign right to peaceful nuclear energy, and yet remaining distinctly ambiguous on how a safeguards regime is to distinguish between peaceful and military applications without examining

the intent of the state in question. As technology has developed, this problem has grown increasingly acute. As we will see in the following chapters, certain technologies raise red flags regarding the intention of a state, and yet, they are not explicitly disallowed in the NPT. This is a problem difficult for the bureaucracy to surmount, and undermines the efficacy of the safeguards regime.

Secondly, in an operational sense, the safeguards process that evolved in association with the NPT was very tightly defined and did not allow for the comprehensive analysis of "full scope"[112] nuclear activities within a state. While clearly the preference of member states, and distinctly tied to the specific context within which the nonproliferation norm developed, the process, while unobjectionable, was also less effective.

At the same time, certain critical aspects of the larger process had been left completely undefined. No clear mechanism existed in the event a state was found to be non-compliant with their NPT obligations. It was simply assumed that the Board of Governors would reach a finding and the UN Security Council would respond. How they should respond was never fully considered, leading to an ad hoc, and in many ways poorly conceived, reaction to the revelation of an Iraqi weapons program.

Taken together, these weaknesses would allow a small country with a determined government to subvert the system and come just shy of developing a secret nuclear weapon. The way in which this happened, the response of the international community, and the lessons learned for the Secretariat, are the subject of the following chapter.

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[112] Full scope refers to the entire nuclear fuel cycle, from front to back end, material acquisition to disposal.

**Chapter 4:  Undermining Legitimacy – Divergence and the UNSCOM Experience**

On January 16, 1991, a coalition of thirty-four nations, led by the United States

and the United Kingdom, began an air campaign to reclaim Kuwait, invaded in August of

1990 by neighboring Iraq.[1]  Approximately one month later, coalition ground forces

entered Kuwait and expelled a largely defeated Iraqi Army.  The operation, sanctioned by

the UN Security Council, lasted less than two months and proved overwhelmingly

successful.  With comparatively little loss of life, the coalition forces drove the Iraqis out

of Kuwait and back across the border, and on March 3, 1991, the Safwan accords were

signed, terminating the conflict.[2]  As a result, Saddam Hussein was required to

comprehensively disarm and surrender to international authorities WMD and ballistic

missile[3] stockpiles for "destruction, removal or rendering harmless"[4].  Little did the

international community realize that in the coming months, international inspectors

appointed by the UN Security Council would discover an advanced, and heretofore

entirely secret, nuclear weapons program.

Iraq, a signatory to the NPT and under IAEA safeguards, exposed a significant

weakness in the safeguards regime as conceived under the NPT and as operated by the

Secretariat:  dedicated cheating by small actors in the system.   While it is both true and

fair to say that the NPT safeguards were never designed to catch this type of deceptive

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[1] Saddam Hussein justified his actions as a response to Kuwait's illegal theft of Iraqi oil via "slant drilling" – or the drilling of non-vertical wells from across the border.  These allegations were never substantiated.  See:  Hayes, Thomas, C., "Confrontation in the Gulf:  The Oilfield Lying Below the Iraq-Kuwait Dispute" *New York Times*, September 3, 1990.
[2] For more on the Persian (or First) Gulf War, please see Finlan, Alastair, *The Gulf War 1991: Essential Histories* (Oxford:  Osprey Publishing, 2003).
[3] With a range over 150 kilometers.
[4] UN Security Council Resolution 687, Section C.

behavior, the violation of a norm that had become deeply, if not perfectly, internalized galvanized the international community to react swiftly and with astonishing unity. Predictably, the U.S. led the charge to disarm Iraq, loudly declaiming the flaws in the existing system of safeguards and advocating a separate body, under direct Security Council oversight, to be charged with the task of locating and destroying Iraqi WMD caches, as well as verifying and monitoring Iraqi disarmament. This new body, the United Nations Special Commission (UNSCOM) would not be hindered by the same restrictions under which the NPT safeguards system operated. Iraq, after all, was a defeated country and expected to comply unconditionally with all Security Council requests. This would allow the participating states to experiment with a new style of inspection, monitoring and oversight, "fixing" the weaknesses they perceived within the existing IAEA safeguards regime. And the Secretariat, while not leading the UNSCOM mission, would assume responsibility for the nuclear portfolio under the new body's mandate. This experience would challenge many of the operational practices inculcated by the Secretariat, and place the bureaucracy's conservative, anti-confrontational style under the spotlight. From this experience, both the U.S. and the IAEA would learn valuable lessons, specifically about the trade-offs to be made between legitimacy, effectiveness and the exercise of public authority.

It is important to note at the very beginning, however, the important differences that exist between NPT safeguards and the UNSCOM inspectorate, especially in terms of the scope of their separate missions. This is not a distinction that can be overlooked and it will be clarified in greater detail further in this chapter. That said, the purpose of this comparison is primarily to consider approaches to a common, if not perfectly similar,

problem, in other words, to evaluate the processes and overall character of the two very different approaches to inspection and monitoring.  In this light, a comparison proves very useful, and helps to clarify the importance of operational process and its relationship to public authority.

To begin, the first half of this chapter will examine the evolution of the Iraqi nuclear weapons program, a review of the pre-emptive strike against Iraq's Osiraq nuclear facility, the subsequent expansion of the Iraqi nuclear weapons program, including the exploitation of loopholes in the nuclear exports regime, and the state of Iraqi nuclear weapons development at the start of the Persian Gulf War.   The second half of the chapter will explore the revelation of Iraq's weapons program, in particular, the operation of the UNSCOM organization and the extent to which the processes advocated by the U.S. both increased the efficiency and undermined the legitimacy of its disarmament and verification mission.

## Iraq's Nuclear Ambitions

*Early Program Details*

Iraq's interest in nuclear technology began, as with many other developing countries, in the early years of the Atoms for Peace program.  In 1956, Iraq received a library of de-classified documents from the Manhattan Project, information that would later prove useful in the construction of its uranium enrichment program.[5]  In the early 1960s, Iraq purchased their first research reactor from the Soviet Union.  An IRT 5000 "pool type" reactor designed "for experimental research in the field of nuclear and solid

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[5] Barnaby, Frank, *How Nuclear Weapons Spread:  Nuclear Weapon Proliferation in the 1990s (Operational Level of War)*, (London:  Routledge, 1994), p. 87.

state physics and activation analysis", the IRT 5000 posed a low proliferation risk and would be destroyed in the first Gulf War.[6]

In 1968, Iraq signed the NPT, ratifying the treaty in 1969. Nevertheless, the intent of Iraq's nuclear program would come increasingly under scrutiny, particularly in light of its attempts to expand into the area of nuclear power production, and specifically its bids to acquire technologies related to the production and re-processing of plutonium.

In the early 1970s, in a program to further develop the Atomic Energy facility at al-Tuwaitha, the Iraqi government began to review a number of possible nuclear reactors for purchase from various nuclear supplier states. These included a French designed 500 megawatt gas cooled power reactor with a graphite moderator that would use natural uranium as fuel[7], and a Canadian produced Candu nuclear reactor that utilized heavy water as a moderator and natural uranium as fuel.[8] Both reactors would allow Iraq to produce significant amounts of plutonium – the graphite style reactor being the general type utilized by at least two of the nuclear powers to produce plutonium for their nuclear weapons programs, and the Candu reactor being the same style employed by India to fuel its "peaceful" nuclear explosion. Both the French and the Canadians turned down the Iraqi proposals, possibly as a result of the new export controls in place following India's nuclear test.

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[6] IRT 5000 Reactor, Description, available at World Wide Web address: http://www-ns.iaea.org/projects/iraq/tuwaitha/irt5000.asp.
[7] Vandenbroucke, Lucien, "The Israeli Strike Against Osiraq: The Dynamics of Fear and Proliferation in the Middle East" *Air University Review* (September/October, 1984), available at World Wide Web address: http://www.globalsecurity.org/wmd/library/report/1984/vanden.htm.
[8] Albright, David, Berkhout, Frans and Walker, William, *Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities, and Policies,* SIPRI Monograph, (Oxford: Oxford University Press, 1997) p. 343. The Iraqis would also approach the Italians in the late 1970s in a bid to purchase a Cirene reactor. The Cirene reactor would also allow them to produce quantities of weapons grade plutonium. See Vandenbroucke for additional details.

Realizing that the new increase in export controls designed to limit proliferation made the purchase of plutonium producing power reactors unlikely,[9] the Iraqis reconceived their efforts and resumed their focus on nuclear research. They did not, however, give up their pursuit of a reactor that could produce plutonium. In 1976, they would purchase two research reactors from France: a small Isis model training reactor, and an Osiris model research reactor, dubbed Osiraq[10] by the French, and Tammuz by the Iraqis. The Osiris, a large materials test reactor, could power up at anywhere between forty and seventy megawatts, and operated on highly enriched uranium. Thus, while significantly smaller than the power reactors they previously sought, the Osiris reactor could produce weapons grade material, either through diversion of the enriched uranium, or through small-scale production of plutonium.[11] Its selection, however, was curious, if considered in light of the existing Iraqi nuclear program. At the time, it was noted that an Osiris style reactor, designed with "the principal aim…to carry out tests and irradiate the fuel elements and structural materials of power stations"[12] was an improbable choice for a country without a nuclear power program.[13] Adding to the concern, the Iraqis resisted French efforts to provide a reactor model that utilized lower enriched uranium, insisting instead upon the less proliferation resistant facility that utilized highly enriched fuel.[14]

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[9] Iraq turned down France's counter offer of a light water power reactor, as a substitute for the graphite moderated reactor. See Vandenbroucke for additional details.

[10] Osirak, per the French spelling; a combination of Osiris and Irak (Iraq).

[11] Vandenbroucke.

[12] Information Bulletin, Osiris Nuclear Reactors and Services Department, Nuclear Energy Directorate, Division for Nuclear Activities, Saclay, available at World Wide Web address: http://www-cad.cea.fr/rjh/Add-On/osiris_gb.pdf.

[13] The purpose of the research carried out at such a facility being to examine the long-term influence of intense radiation to the materials used in nuclear power plant construction.

[14] Evron, Yair, *Israel's Nuclear Dilemma* (New York: Cornell University Press, 1994), p. 26.

In 1979, the Italian's would sell Iraq "pilot" facilities for the separation of plutonium and the refining of uranium. In addition, Iraq would begin to approach several countries, including Portugal, Brazil, and Nigeria for quantities of natural uranium, and West Germany for depleted uranium metal.[15] Taken together, these activities appeared distinctly suspicious. Further complicating matters, Saddam Hussein was publicly quoted as stating that Iraq sought to be the first Arab state to "attempt at nuclear arming".[16] The evidence in support of Iraq's illegal intentions began to appear damning.

And yet, the true extent to which Iraq was in pursuit of such a goal throughout the 1970s, much less the likelihood of their success, continues to be a matter of debate. This debate will be addressed, briefly, in a following section. Nevertheless, the perception that Iraq was in serious pursuit of a nuclear weapon would result in a dramatic response from neighboring Israel, and prompt the first instance of pre-emptive counter-proliferation against a nuclear threshold state. The attack on the Iraqi Osiraq reactor would present a serious, and arguably justified, vote of "no confidence" in the IAEA's execution of nuclear safeguards. It would not, however, seriously alter the system.

### The Bombing of Osiraq

As the Iraqi nuclear program advanced, neighboring states Israel and Iran began to take a more active interest in Iraqi activities. With Iraq refusing to recognize Israel's right to exist, and relations with Iran rapidly deteriorating, both states had a vested interest in retarding Iraqi efforts to acquire weapons of mass destruction. Israel in particular would instigate a campaign to undermine the potential for Iraqi nuclear

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[15] Evron, p. 27. See also Frank Barnaby, *How Nuclear Weapons Spread* (London: Rutledge, 1993).

[16] Burrows, William E. and Windrem, Robert, *Critical Mass* (New York: Simon and Schuster, 1994), p. 37.

weapons development.  In a series of controversial incidents culminating in Israel's

bombing of the Osiraq nuclear facility, Israel decided to preemptively eliminate a

potential Iraqi nuclear threat, putting under the spotlight the existing system of nuclear

safeguards operated in support of the NPT.

*The Israeli Conspiracy?*

On April 6, 1979, in the south of France, two of the reactor cores destined for the

Osiraq reactor were seriously compromised in an act of sabotage initially attributed to

radical environmentalist elements.  Later, planning for the attack would be credited to the

Israelis, who remain ambiguous on the matter.  Both reactor cores would be irreparably

damaged, significantly slowing progress on the delivery of the Osiris reactor.[17]

In a seemingly unrelated incident, Egyptian nuclear physicist, Dr. Yahya el-

Meshad, was found murdered in his hotel room while working in Paris.  Meshad, who

trained in the Soviet Union, acted as a consultant for the Iraqis in the development of

their nuclear program.  He played a key role in the negotiation and delivery of weapons

grade fissile material, specifically highly enriched uranium, provided by the French in

support of the Osiraq reactor project.  Meshad's murderer was never caught, but Israeli

complicity has frequently been suspected.[18]

At the same time, the start of the Iran/Iraq war would inadvertently contribute to

Israeli concerns regarding Iraq's nuclear intentions.  On September 30, 1980, Iranian

pilots bombed the Tuwaitha facility housing the Osiraq reactor.  While likely an accident,

and inflicting minimal damage, the Iraqi's used the incident to remove French technicians

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[17] Snyder, Jed C., and Wells, Samuel F., *Limiting Nuclear Proliferation* (Cambridge:  Ballinger Publishing Company, 1985), p. 3.
[18] Snyder, p. 20.

and deny IAEA inspections under the auspices of ongoing security concerns. In the period immediately following, evidence came to light that indicated Iraq may have diverted up to twenty-six pounds of highly enriched uranium fuel. With Israeli nuclear scientists publicly speculating that Iraq could, and likely would, acquire a nuclear weapon within one to two years, and French government officials resisting Israel's demands to suspend assistance to the Iraqi program until discrepancies could be reconciled, the Israeli government became increasingly convinced that an important window of opportunity was closing. It would still be possible, prior to the introduction of fissile materials into the reactor, to destroy the target without fear of a major radioactive incident, in which fallout could threaten substantial portions of the Middle East. Further, attacking a safeguarded facility would likely result in serious political consequences for the Israelis. As safeguards are initiated only upon the initial feeding of fissile material into the reactor, up until that point was reached, there would be scope for action. Finally, the Iraq nuclear program, currently concentrated in a single desert facility, remained acutely vulnerable. It was still possible to deal the program a knockout blow before Iraq crossed the threshold and acquired a nuclear device.[19]

And so, on June 7, 1981, Israel acted upon its suspicions and unilaterally eliminated the Osiraq reactor. In a lightning strike that established the controversial counter-proliferation doctrine that emphasized pre-emptive action in the face of incipient but unverified threat, Israel would publicly challenge the IAEA and the Secretariat's success as a trusted international authority. It would also establish a precedent that has become increasingly popular, albeit questionably effective.

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[19] Snyder, pp. 20-25.

*International Reaction*

The response to the Israeli's strike on Osirak was swift if ultimately limited in effect. The United Nations Security council condemned Israel's actions, but fell short of agreeing on punitive consequences.[20] The IAEA also condemned Israel, and the response of member states within the General Conference was significantly more dramatic. With Sigvard Ecklund equating the attack on Osiraq with an attack on the IAEA system of safeguards, members voted to suspend technical assistance to Israel and possibly revoke Israeli membership unless Israel agreed to IAEA monitoring of its own nuclear facilities. The following year, a vote on Israeli credentials prompted the US and UK to walk out of the General Conference meeting, with the US suspending its IAEA membership for five months, bemoaning the extent to which political retribution influenced the decisions of the body's membership.[21] It would seem, based upon the depth, breadth and strength of the international response to the Israeli attack, that the legitimacy of IAEA safeguards had been well established.

Nonetheless, the Israeli strike did highlight the structural weaknesses inherent in the execution of the safeguarding mission, and it did prompt the international community to consider the question of ongoing support for the safeguards system. Restricted access, lack of funding and a limited pool of inspectors complicated the mission with which the bureaucracy had been tasked. Even the United States, founder and stalwart supporter of NPT safeguards, was beginning to publicly recognize the inadequacies of the regime in its current form. As Jeanne Kirkpatrick, U.S. Ambassador to the UN admitted, " It is

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[20] Vandenbroucke.

[21] Simpson, Fiona, "IAEA Special Inspections After Israel's Raid on Syria" *Bulletin of the Atomic Scientists* (February 10, 2008).

surely not unreasonable to raise serious doubts about the efficacy of the Non-Proliferation Treaty safeguards system".[22]  As a result, new emphasis was placed upon the resources at the Secretariat's disposal.  Ultimately, however, little changed in terms of either funding or process, a lost opportunity for both the IAEA's sponsors and the bureaucracy.

*Truth and Unintended Consequences*

And yet, the basic question - were the Iraqi's pursuing a nuclear weapons program – remained unanswered.  It would seem, in light of later revelations, that they likely were.[23]  But were they genuinely close to success?  Here is where experts continue to disagree.  At the time, both France and the Secretariat argued that Iraq would have had little opportunity to engage, unobserved, in the types of activities that would be necessary to divert enough fissile material to make a nuclear weapon.  As France revealed following the Israeli attack, French scientists would be on site, observing Iraqi experiments until 1989.  Further, the French would only deliver precise quantities of HEU to the Iraqis, making it difficult, if not impossible, to divert "militarily significant" quantities of material without compromising the ongoing operation of the reactor. [24]

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[22] Blix, Hans, *Disarming Iraq:  The Search for Weapons of Mass Destruction* (London: Bloomsbury Publishing, 2004) p. 19.

[23]  Even still, this contention is not without controversy.  In the years directly following the first Persian Gulf War, Iraqi defector, Khidir Hamza, purportedly the lead physicist in charge of Iraq's clandestine nuclear program, provided extensive detail that would seem to verify a nuclear weapons program dating back to the early 1970s.  However, Hamza was little known in the West prior to the Gulf War, and while a number of very credible experts in the field initially collaborated (and published) with Hamza, most have since repudiated many of his accounts. As David Albright, co-author of several well known articles with Hamza, founder of the Institute for Science and International Security, and a leading expert on the Iraqi nuclear program concludes on his website, he can no longer endorse Khidir Hamza as a credible source.  Thus, while most evidence does point to an early clandestine nuclear program supported by Saddam Hussein, it is possible that both its importance and success have been exaggerated.

[24] Lewis, Paul, "France Says Iraqis Couldn't Have Built A-Bomb Undetected" *New York Times* (June 18, 1981).

Further, in a statement delivered to the IAEA Board of Governors in Vienna on June 12, Sigvard Ecklund maintained that "diversion of fuel elements or of undeclared plutonium produced at low rates cannot be technically excluded but would be detected with very high probablity". Very high probability, in this case, is defined by Ecklund as a "full guarantee".[25]

Today, in light of recent events in Iraq, the bombing of Osiraq has come under renewed scrutiny. Credible scientists, including physicist Richard Wilson at Harvard University, call into question Israel's interpretation of the threat, finding greater sympathy with the Secretariat's and the French account.[26] That said, it is also true that IAEA safeguards operated under strict, and well-known, parameters, resulting in limited visits by international inspectors scheduled well in advance. With the French distinctly self-interested actors who remained outside the NPT, and who generally looked with suspicion upon many of the assumptions at the heart of the non-proliferation regime, it is not outside the realm of the possible that dedicated cheating could have, and likely did, take place regardless of their purported supervision.

What is generally not a topic of debate, however, is the Iraqi response to the Osiraq bombing. The Israeli bombing of the Iraq nuclear complex may have profoundly handicapped Iraq's early efforts to develop a nuclear weapon, but it certainly did not end them. Instead, it resulted in two unforeseen, if largely predictable consequences. In the first place, the attack diverted the world's attention from Iraq as a potential threshold

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[25] "Text of Report on Iraqi Reactor", *New York Times* (June 18, 1981).

[26] For more, see Wilson, Richard, "Incorrect, Incomplete or Unreliable Information Can Lead to Tragically Incorrect Decisions", available at World Wide Web address: http://www.physics.harvard.edu/~wilson/publications/OSIRAK(2); and Keller, William W. and Gordon R. Mitchell, "Midweek Perspectives: The Osiraq Illusion" *Pittsburgh Post-Gazette* (June, 7, 2006).

state, a conclusion that would eventually prove shortsighted.  More importantly, however, Israel's actions humiliated and enraged the new Iraqi President, Saddam Hussein.  After the attack, Hussein "responded to the destruction of Osiraq by rehabilitating an important nuclear scientist from prison, increasing research personnel more than 15-fold and moving the entire Iraqi nuclear program underground."[27]  And despite an increasingly bitter and costly war with Iran, funding for the nuclear program increased throughout the 1980s, becoming a central part of the Iraqi military program.

*Acquiring the Components for a Clandestine Program*

How then, did the Iraqi's acquire the materials necessary to develop a nuclear weapon in light of the increased export controls discussed in Chapter Three?  Focusing on the creation of indigenous capabilities, Iraq attempted several different paths to the acquisition of a weapon.[28]  Because the Electro-Magnetic Isotope Separation (EMIS), or "Calutron", program required the least outside assistance, it was the most fully developed.[29]  Using an approach first conceived by the U.S. Manhattan Project during the 1940s[30], Iraq invested between four and eight billion dollars to manufacture a uranium enrichment capability.[31]  It is fair to say that no one within the scientific or political community imagined the Iraqis pursuing a technology that was, albeit workable, so dated and expensive.

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[27] Keller and Mitchell.

[28] The Iraqis continued with the exploration of plutonium production following the bombing of Osiraq, but eventually suspended the program.

[29] *Iraqi Nuclear Weapons Guide*, Federation of American Scientists, November 3, 1998, at World Wide Web address: http://www.fas.org/nuke/guide/iraq/nuke/program.htm.

[30] The materials of which had been provided to the Iraqis via the Atoms for Peace program.

[31] *Iraqi Nuclear Weapons Guide*.

That said, the creation of such a program would have been impossible without the acquisition of key components from abroad. While the Iraqis couldn't purchase a facility in its entirety, they could purchase and assemble the parts. With the export control regime essentially in hiatus over the 1980s, and with few, if any, restrictions on the development of nuclear technology for peaceful purposes, Iraq was able to approach countries throughout the world and purchase their program piecemeal. By far the largest contributor to the Iraqi program was West Germany, accounting for approximately half of the critical equipment purchases that supported weapons development in Iraq. That said, the US, UK, Switzerland, Brazil, Italy, Austria, France, Belgium and Japan all sold Iraq components vital to the construction of their nuclear program.[32] This highlights the inevitable problem with "dual use" products – products that aren't explicitly designed with a military application, but may be used in the production of various weapons systems. As an article in the NY Times notes, "the goods sought for military value may just as well be produced by a supercomputer manufacturer or biotechnology company as by a munitions maker",[33]and therein lies the problem. For instance, the same article goes on to describe the following:

> "A Western bolt found in an Iraqi missile is not necessarily a sign of complicity. A bolt has many peaceful uses, too. But the picture provided by the Wisconsin Project suggests just how instrumental such dual use trade can be. Italian technology allowed Iraq to extract plutonium, and high performance Swiss presses gave it the ability to make nuclear weapons parts. Most of what Iraq needed to extend the range of its Scud missiles came from Germany. American computers were used in virtually all Iraqi missile and nuclear sites."[34]

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[32] Jehl, Douglas, "Who Armed Iraq? Answers the West Didn't Want to Hear" *New York Times* (July 18, 1983).

[33] Ibid.

[34] Ibid. For more information on the Wisconsin Project on Nuclear Arms Control, including the text of the report referenced above, see World Wide Web address http://www.wisconsinproject.org/.

Consequently, it is difficult in a liberal democracy that embraces market principles for the government to regulate the trade of goods that may or may not be used in the production of outlawed technologies, especially if the technologies can be used for either peaceful or military purposes. In an age of globalized trade, the task of state governments, much less international institutions, is greatly complicated by the complexity of the environment and the rigidity of the rules that govern technologies long since surpassed, if not made obsolete. Recognizing this simple reality, Iraq chose to pursue a technology that few would have seriously considered a threat, dedicated significant resources to its production, and utilized dual-use, readily available component parts to advance their nuclear ambitions. In doing so, they were able to successfully create a secret complex of nuclear weapons facilities that far surpassed the single site declared to and monitored by the Secretariat. In fact, over twenty facilities would be identified in the wake of the Persian Gulf War.[35] The discovery and dismantlement of these facilities would fall to the United Nations Special Commission, or UNSCOM. Their task, unsurprisingly, would be neither simple nor straightforward.

## UNSCOM: The Trade off Between Legitimacy and Effectiveness

It is possible, therefore, that from its inception, the Iraqi nuclear program focused on the development of nuclear weapons technology. With the Israeli bombing of the Osiraq nuclear facility, however, Iraq found its plan to produce weapons grade plutonium significantly impaired. And yet, contrary to the assumptions of the international

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[35] For a complete inventory of the weapons of mass destruction identified in Iraq during the UNSCOM mission, see Cordesman, Anthony, "Weapons of Mass Destruction in Iraq" *CSIS Report* (September 20, 1999), available at World Wide Web address: http://www.csis.org/index.php?option=com_csis_pubs&task=view&id=1248. Details of the nuclear program can be found on pages 12-13.

community, Iraq did not give up on its ambition to produce nuclear weapons. Instead, it started a clandestine program that required imagination and a loose system of nuclear export controls. Thus, the extent of the Iraqi program was a complete surprise to the international community when it was discovered shortly after the U.S. invasion of Iraq in 1991. Many, particularly the Americans, immediately concluded that this was a failure on the part of the Secretariat to detect Iraq's clandestine activities. But as Ambassador Jozef W. Scheffers observes: "While it is easy to blame the IAEA for not being able to detect Iraq's nuclear weapons programme, it should be remembered that its mandate has always been interpreted very restrictively."[36] In fact, the Secretariat had access to only one declared nuclear facility in Iraq, and "the Agency did not feel able to wander around member states on the off chance that some clandestine activity might be discovered."[37]

Nevertheless, the U.S. and other member states, as well as the Secretariat itself,[38] rightly concluded that reforms to the existing system would be needed.[39] The extent to which the system would be reformed, and in what specific ways, had yet to be determined. The UNSCOM experiment would significantly influence those revisions.

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[36] Scheffers, Jozef W., "Summary of Conference Proceedings: Non-Proliferation and Related Arms Control Issues" in Kreijen, Gerard et al, *State, Sovereignty, and International Governance* (Oxford: Oxford University Press, 2002) p. 144.

[37] Walker, John R., "The UNSCOM Experience: Orientation" in Kreijen, Gerard et al, *State, Sovereignty, and International Governance* (Oxford: Oxford University Press, 2002) p. 90.

[38] According to Laura Rockwood, Principle Legal Officer and Section Head for Nonproliferation at the IAEA, the Secretariat had begun discussions regarding the revision of the nuclear safeguards regime in the late 1980s. That said, as Demetrios Perricos, acting Executive Chairman for UNMOVIC, UNSCOM's successor, notes, the revision of the nuclear safeguards regime is an "issue of will by the member states involved".

[39] Dean, Jonathan, p. 139.

*The UNSCOM Mandate*

On April 3, 1991, the United Nations Security Council (UNSC) passed Resolution 687. Resolution 687 set the terms for a ceasefire between Iraq and the U.S. and coalition forces, bringing to a close the first Gulf War. Part of these conditions included the elimination of Iraqi nuclear, chemical, and biological weapons systems, as well as long-range missiles of over 150 kilometers. It also established the UNSCOM inspectorate, which would take charge of the chemical and biological portfolios, and devolved to the IAEA responsibility for the nuclear portfolio.[40] The Secretariat and UNSCOM were to work jointly to assist Iraq in fulfilling its obligations under the ceasefire. The mission itself was not expected to last much beyond three to six months.[41]

Under this arrangement, UNSCOM and IAEA inspectors would work side by side, under the auspices of Resolution 687 and through UNSCOM headquarters in New York. And yet, significant differences existed between the UNSCOM mission and the safeguards mission with which the IAEA bureaucracy was familiar. In the first place, the scope of the UNSCOM mission dramatically exceeded traditional nuclear safeguarding. As Rolf Ekeus, first Executive Chairman of UNSCOM describes "The UNSCOM mandate has two major components: the identification and elimination of proscribed weapons and the means for their delivery; and, designing and implementing a system for ongoing monitoring and verification of Iraq to prevent it from acquiring the prohibited items again."[42] For IAEA inspectors, the first half of the new mandate would be entirely new. That said, there is no reason to think that the Secretariat was not qualified to carry

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[40] S/RES/687, April 8, 1991.
[41] Interview, Ewen Buchanan, Public Relations Director, UNMOVIC, October 14-1, 2004.
[42] "Ambassador Rolf Ekeus: Leaving Behind the UNSCOM Legacy in Iraq" *Arms Control Today* (June/July 1997), at World Wide Web address: http://www.armscontrol.org/act/1997_06-07/ekeus.asp

out the disarmament tasks associated with Resolution 687.  In fact, the IAEA's

experience in South Africa, which will be discussed in the next chapter, demonstrated

just how well the bureaucracy learned to execute this portion of the mission.

Secondly, and perhaps of more relevance when making a comparison between the

two organizations, the mandate given to the UNSCOM inspectorate under Resolution 687

far exceeded the mandate given to the IAEA under the NPT.  Specifically, UNSCOM

was allowed:

- Unrestricted freedom of entry and eit without delay or hindrance of personnel, property, supplies, equipment, spare parts and other items as well as means of transport, including expeditious issuance of entry and exit visas;
- Unrestricted freedom of movement without advance notice within Iraq of the personnel of the Special Commission and its equipment and means of transport;
- The right to unimpeded access to any site or facility for the purpose of the on-site inspection (pursuant to the mandate) whether such a site be above or below ground…Any number of sites, facilities or locations may be subject to inspection simultaneously;
- The right to request, receive, examine and copy any record, data, or information or examine, retain, move or photograph, including videotape, any item relevant to the Special Commissions activities and to conduct interviews;
- The right to designate any site whatsoever for observation, inspection or other monitoring activity and for storage, destruction or rendering harmless; (*items described in paragraphs 8, 9, 12 of UNSCR 687*)
- The right to install equipment or construct facilities for observation, inspection, testing or other monitoring activity and for storage, destruction or rendering harmless; (*items described in paragraphs 8, 9, 12 of UNSCR 687)*
- The right to take photographs, whether from the ground or from the air, relevant to the Special Commission's activities;
- The right to take and analyse samples of any kind as well as to remove and export samples for off-site analysis;
- The right to unrestricted communication by radio, satellite or other forms of communication.

Further, Iraq was to:

- Provide at no cost to the United Nations…all such promises as may be necessary for the accommodation and fulfillment of the functions of the Special Commission;
- Without prejudice to the use by the Special Commission of its own security…ensure the security and safety of the Special Commission and its personnel.[43]

This is extremely important, because the UNSCOM mission operated under conditions that would be impossible to duplicate within a normal arms control regime. This was well recognized by members of the inspectorate, as Colonel Douglas Englund, an American member of the UNSCOM team observed:

> "UNSCOM has had an easy ride. The Security Council provided definitions which are very broad, covering weapons components and subsystems thereof, production and repair facilities, etc. It also decided that these definitions shall be interpreted by UNSCOM as the executive subsidiary body of the Council. We, therefore, do not face many of the problems encountered in traditional arms control and disarmament initiatives. No problems for us, coping with bitter superpower arguments over whether toxins are BW or CW or whether the laboratories at Sverdlovsk can be inspected. *We decide*, and it is for Iraq to comply."[44]

This capacity to control the environment in which inspections took place, despite concerted Iraqi resistance[45], allowed UNSCOM to observe activities, collect information and materials, and interview relevant individuals in a way that went well beyond the scope of any other control regime. This is something that simply cannot be duplicated

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[43] While UNSCR 687 authorized UNSCOM to carry out inspections and eliminate Iraqi WMD programs/stockpiles, the specifics of the rights and responsibilities (of UNSCOM and Iraq) were detailed in a series of letters between the UN Secretary General, the Executive Chairman of UNSCOM and the Minister for Foreign Affairs of Iraq. These bullets are drawn specifically from those letters, described in a "Basic Facts" sheet, which can be found at World Wide Web address: http://www.un.org/Depts/unscom/General/basicfacts.html.

[44] Englund, Col. Douglas, "Lessons for Disarmament from the Experiences of UNSCOM" in Kreijen, Gerard et al, *State, Sovereignty, and International Governance* (Oxford: Oxford University Press, 2002) p. 96.

[45] For more information on Iraq's obstruction of the weapons inspection and disarmament process, see Kay, David "Denial and Deception Practices of WMD Proliferators: Iraq and Beyond" *The Washington Quarterly,* Vol. 18 No. 1 (1994), p. 85.

outside of this "experiment", and therefore must be considered when applying lessons learned to the IAEA's safeguards model, which is governed as much by the political requirements of its member states as by the technical requirements of the inspectorate.

A third and final difference between UNSCOM and the existing IAEA regime related to its financing and the provision of resources. In the beginning, UNSCOM depended entirely upon donations from member states to finance its operations, and the seconding of personnel directly to UNSCOM from a limited number of countries with the technical expertise to provide weapons inspectors. Later, operations would be funded through the Oil for Food program, begun in 1995 as a way to mitigate the effects of economic sanctions on the Iraqi people.[46] Either way, UNSCOM did not suffer for a lack of resources, especially with the U.S. a highly motivated supporter of the program. The IAEA, on the other hand, operates on a regular budget set by its member states, as well as a "Technical Cooperation Fund" through which contributions to the IAEA can be made. As a result, the Secretariat, like many international organizations, has historically, and continues to be, chronically short of funds. In the short term, this enabled the UNSCOM inspectorate to utilize resources long denied to the IAEA's bureaucracy. Ultimately, however, the direct provision of money, personnel and technical support to UNSCOM undermined the legitimacy of its largely successful efforts. This trade off will be examined later in the chapter.

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[46] All work related to the UNSCOM mission, including the IAEA element, was funded through this mechanism, although the IAEA personnel were international civil servants, hired by and compensated through the IAEA. See also "Ambassador Rolf Ekeus: Leaving Behind the UNSCOM Legacy in Iraq" *Arms Control Today*, June/July 1997, at World Wide Web address: http://www.armscontrol.org/act/1997_06-07/ekeus.asp

*"Effective" Inspections:  Early UNSCOM Successes*

Early on, some within the Bush administration questioned the wisdom in

entrusting the nuclear portion of the UNSCOM portfolio to the IAEA.[47]  Rather, it was

argued, the newly constituted UNSCOM should assume responsibility for all of the tasks

articulated in 687, as the Secretariat's conservative approach to inspection had proven

ineffective in the past.[48]  Although this suggestion did not come to pass, initially, this

concern seemed justified to some.  According to David Kay, the first postwar inspections

"began with the old IAEA cooperative inspection model of asking the Iraqi authorities to

take the inspectors where they wanted to go."[49]  While this may be true, from the very

first inspection, the IAEA inspection team made significant discoveries.   In conjunction

with American scientists who actually participated in the Manhattan Project, the IAEA

team, led by Dmitri Perricos, discovered the EMIS/Calutron separation system during the

very first inspection.

Hans Blix describes that first year of the UNSCOM inspectorate as

"spectacular".[50]  After the first inspection, which established beyond any doubt the nature

of the Iraqi nuclear program, a series of high profile stand-offs between the Iraqis and the

inspection teams drove home to the IAEA the utility of intelligence in targeting sites for

inspection.  The most daring of these confrontations was headed up by American

weapons inspector David Kay, a strident critic of the IAEA and its approach to

safeguarding.  Nevertheless, David Kay did demonstrate how effective a more aggressive

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[47] Blix, *Disarming Iraq:  The Search for Weapons of Mass Destruction* (London:  Bloomsbury Publishing, 2004) pp. 20-21.
[48] Dorn, David, "Nuclear Weapons Proliferation:  A Case Study" in Kreijen, Gerard et al, *State, Sovereignty, and International Governance* (Oxford:  Oxford University Press, 2002), p. 139.
[49] Kay, David, p. 317.
[50] Blix, Hans, p. 23.

style of inspection could be.  As a case in point, Kay led some of the most stunning, and successful, early missions within Iraq.  In one particularly memorable instance, Kay's team caught the Iraqis escaping an inspection facility with a truck full of calutrons.  Deciding to pursue, the inspectors managed to photograph the illegal equipment in the trucks, despite the Iraqis firing upon the team.  These photos would eventually prove decisive in convincing the Iraqis to come clean about their uranium enrichment program.[51]  Additional successes would include finding the plans for the Iraqi nuclear weapons program, as well as many other key documents, that "yielded much insight" into Iraqi activities.  That said, UNSCOM, despite their more aggressive style, made "no significant finds of hidden weapons".[52]  And the Iraqis, despite their obligations under Resolution 687, would mount an extensive, and often successful, campaign of denial and deception that challenged the inspectors despite the extent to which they had access to Iraqi facilities.

*Denial and Deception:  The Art of Iraqi Noncompliance*

It is well known that Iraqi compliance with its obligations under UNSCR 687 often left much to be desired.  From the very beginning, Iraq objected to the guidelines proposed by UN Secretary General Javier Perez de Cuellar defining the operational parameters of UNSCOM.  It required threats of renewed military action from the Security Council to convince the Iraqis to comply.[53]  While the issue of compliance is not the

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[51] Interview, Ewen Buchanan, Public Information Officer, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.  See also, Hans Blix, *Disarming Iraq*, Ch. 1.
[52] Blix, p. 28.
[53] Tucker, Jonathan B., "Monitoring and Verification in a Noncooperative Environment:  Lessons From the U.N. Experience in Iraq" *The Nonproliferation Review* (Spring/Summer, 1996), p.2.

subject of this thesis, it cannot come as a surprise that the Iraqis went to great lengths to cover up their extensive WMD programs.

At the start, Iraq attempted to obscure the reality of its activities. Throughout the process, incomplete and misleading declarations would complicate the task of UNSCOM analysts. Dubbed "cheat and retreat", Iraq would deny illicit conduct until the team presented it with overwhelming evidence. Only then would Iraq admit to the activity, making "another partial admission, indicating at each stage that they were making a full disclosure".[54] The success of this behavior improved over time, with the Iraqis becoming more and more adept at anticipating the evidence that the team would provide. In fact, as weapons inspector Jonathan Tucker notes, "The end result of this process was that Iraq's declarations came increasingly to resemble Western intelligence assessments: in effect, the Iraqis told UNSCOM and the IAEA what they already knew."[55]

Another tactic utilized throughout the campaign would be confrontation, intimidation and the impediment of inspections. From threatening phone calls to sabotage against UNSCOM assets, the inspectors were hounded at their offices, on the streets, and during the on site inspections. Notorious multi-day stand-offs between the inspectors and the Iraqis made public the most egregious of these events, and yet, despite the negative publicity, the tactic often accomplished that which was intended. As UNSCOM Deputy Chairman Charles Duelfer observed, a multi-day delay likely allowed the Iraqis to destroy whatever incriminating evidence was to be found on the site.[56]

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[54] Tucker, p.5.
[55] Ibid.
[56] Tucker, p. 6. See also Barkho, Leon, "U.N. Team Enters Building in Baghdad" *The Washington Post* (March 10, 1996).

In addition, the Iraqis would become increasingly successful at counterintelligence. While the initial finds by UNSCOM inspectors were spectacular, after the first year and a half, little of substance was produced. This was at least partially due to the fact that the Iraqis became better at predicting the sites that UNSCOM would visit, using surveillance and infiltration of the organization to compromise the team's targets. This was a difficult lesson for many associated with the UN and the Secretariat to learn. Unlike professionals in the military and intelligence communities, international civil servants were unaccustomed to the standard information security procedures commonly utilized at the state level, as "such measures are entirely foreign to the organizational culture of the United Nations, which fosters the free and open exchange of information."[57]

However, the use of intimidation and counter-intelligence practices may have ultimately backfired on the Iraqis, and led to an important shift in the operational processes employed by professionals associated with the UN and the IAEA bureacracy. "Intimidation only stiffened the resolve of the U.N. agencies and caused them to adopt more aggressive tactics", an experience that would prove important to the reform of NPT safeguards. Further, inspectors and analysts evolved a new approach that allowed them to create the contextual framework necessary to evaluate Iraqi declarations.

> "U.N. analysts learned to piece together bits of information from a wide range of sources, including aerial and satellite imagery, confidential trade data from Western companies that supplied materials and equipment for Baghdad's WMD programs before the Gulf War, the ongoing monitoring of Iraq's imports of sensitive technology, and reports by Iraqi defectors."[58]

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[57] Tucker, p. 7.
[58] Tucker, p. 10.

This new approach to information collection and analysis would help to shape a new type of assessment that focused on the creation of comprehensive country profiles, which would be advocated by the Secretariat during the 93 + 2 reforms. The specifics of these changes will be addressed in the following chapter.

Taken together, these experiences would clearly influence the direction of safeguards reform, generally in a positive way. However, Iraqi intransigence also led the inspectorate to rely more and more heavily upon the national intelligence agencies that provided them with critical information. The temptation for the intelligence community to exploit this relationship would ultimately prove too much, and lead to disastrous consequences for the UNSCOM mission.

## Legitimacy and Process

There is little question, in light of UNSCOM's initial successes, that access to U.S. intelligence, specifically provided by the CIA to the UNSCOM teams via U.S. inspectors, helped to uncover many of the critical components of the Iraqi weapons program. Hans Blix, witnessing this reality, became convinced that intelligence, when utilized properly, could become an essential part of the inspections process.[59] And yet, the issue of intelligence, its collection and its use, ultimately undermined the UNSCOM mission to such an extent that it was arguably the single greatest factor responsible for de-legitimating the UNSCOM inspectorate. How this happened is particularly instructive, as it speaks directly to the connection between "right process" and the exercise of authority.

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[59] Interview, Ewen Buchanan, Public Information Officer, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.

*Undermining Legitimacy:  The Absence of "Right Process"*

To understand how the UNSCOM mission fell off track, it is necessary to recall the manner in which resources were provided to the inspectorate.  Interested member states, particularly the U.S., seconded people, volunteered equipment and provided access to regional military facilities in order to facilitate the execution of the inspections process.  While this makes sense on one level, as the UNSCOM inspectorate was initially conceived to be a short-term operation, it creates significant problems on another.  There was no effort made to balance the burden of responsibility, or imbue the mission with an explicitly international character; instead, UNSCOM was part and parcel reliant upon a very few, very powerful state actors.  That these state actors were also the winners of the Iraq war is important to note.

While these arrangements greatly streamlined the execution of the UNSCOM mission, eliminating such obstacles as training inexperienced personnel in order to create a "balanced" inspectorate, it created a process that made short shrift of key legitimating influences, particularly, impartiality. There was no question, from the start of the mission to its finish, that the U.S. was a dominant force in the organization and execution of UNSCOM inspections.  And this, in all fairness, contributed to the early successes of the inspections process.  Having access to the resources of the world's only superpower, as well as the world's largest intelligence infrastructure, surely enabled the inspection teams to accomplish a great deal in a short period of time.  That said, the fact that the UNSCOM mission dragged on for far longer than anyone anticipated, eventually becoming a vehicle for U.S. intelligence collection, undercut the accomplishments of the inspectorate.  In addition, the lack of an institutionalized process made it very difficult, in the final days of

the mission, to account for and substantiate these accomplishments. These two issues

will be explicated further in the following sections.

*Hijacking The Inspectorate: National Interest vs. International Mandate*

There is little evidence to demonstrate that the U.S. initially intended to utilize the

UNSCOM inspectorate in the execution of its own national security interests.[60] Over

time, this simply seemed to happen, perhaps because the U.S. government grew frustrated

by the intransigence of the Iraqis, perhaps because Resolution 687 did not specifically

place constraints upon the U.S. regarding the extent to which it could influence and

control the inspection process. It is possible, of course, that shifts in the political climate

in Washington D.C., specifically calling for Iraqi regime change, had begun to manifest

on an operational level. Certainly, the now well-known letter sent to President Bill

Clinton from the neo-conservative alliance "Project for the New American Century"

expressed precisely this ambition.[61] And the Clinton administration successfully lobbied

for passage of the Iraq Liberation Act in 1998, legislation that explicitly supported regime

change in Iraq. These actions reflected the growing consensus that something must be

done to break the stalemate on Iraq, a consensus that had been forming for quite some

time. It is not unreasonable, therefore, to conclude, that seeing such an opportunity, the

U.S. would take advantage of it, anticipating the future need for accurate intelligence on

the ground in Iraq.[62]

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[60] "Spying on Saddam: UNSCOM's Relationships With Western Intelligence Agencies" *Frontline*, WGBH Educational Foundation, Interview with David Kay, retrieved at www.pbs.org/wgbh/pages/frontline/shows/unscom/experts/faustian.html.

[61] For the complete text of the letter, see World Wide Web address: http://www.newamericancentury.org/iraqclintonletter.htm.

[62] The execution of Operation Desert Fox in December of 1998 would seem to corroborate this conclusion.

Regardless, it is clear that UNSCOM inspections eventually became a means through which the U.S. entered Iraq and carried out operations entirely separate from those being carried out in support of disarmament and safeguarding. While the U.S. has refused to acknowledge or discuss its actions in Iraq at the end of the UNSCOM process, evidence in support of this contention is compelling.[63] More than one UNSCOM weapons inspector interviewed in October of 2004 recounted inspections in which unknown U.S. personnel joined the teams as they entered Iraq, only to "disappear" shortly after the mission was on the ground.[64] This was facilitated by the fact that U.S. military bases were often the final staging and debriefing points for inspection missions prior to entering and immediately after exiting Iraq.

Specific allegations include U.S. intelligence technicians, embedded within UNSCOM, installing antennas to intercept Iraqi military communication sites, piggybacking their signals intelligence collection (SIGINT) within a legitimate UNSCOM program designed to transmit radio signals monitoring arms installations and research facilities throughout Iraq. [65] While the U.S. has denied that this occurred, when asked if such an espionage program would damage the credibility of U.S. participation in future nonproliferation efforts, James Rubin, the former State Department spokesman, made this response "The Iraq case was a unique case in history…UNSCOM never has

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[63] Despite allowing access to their facilities, specifically the library, officials at the State Department were reluctant to discuss the UNSCOM mission, beyond emphasizing the "failure" of the mission to conclusively disarm Saddam Hussein and verify the absence of WMD in Iraq. It is important to note, however, that these research trips took place in the early aftermath of the second Iraq War, and the Bush administration, still hoping to find WMD in Iraq, had a specific political interest in minimizing the successes of UNSCOM.

[64] Interviews, Kay Mereish, Chief, Biological Operations and Planning and Peter Prosser, Analyst; UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.

[65] Gellman, Barton, "U.S. Spied on Iraqi Military Via U.N." *Washington Post* (March 2, 1999), p. A01.

been seen as a precedent, nor need be seen as a precedent, for other nonproliferation

efforts around the world."[66] In addition, Ambassador Thomas Pickering, when asked if

information collected by the U.S. through UNSCOM had been utilized in the targeting of

certain sites in support of Operation Desert Fox, replied:

> "I can't confirm that, but I can tell you that a whole plethora of information was
> built up over a long period of time, including photography, including by personnel
> presence on the ground, including information from other countries, which alerted
> UNSCOM to activities going on that they might want to inspect, and I would not
> want in any way at all to particularize the information that was gained from one
> particular source and then allocated to one particular set of actions." [67]

 In other words, yes.  The problem, of course, is that the use of "personnel presence on

the ground" by the U.S. to collect information in support of a mission that is clearly not

linked to the UNSCOM mandate undermines the legitimacy of the entire disarmament

and verification operation.  As Richard Butler, Executive Chairman of UNSCOM (1997

onwards), has acknowledged, it is unlikely that their respective countries upon return

from Iraq would not debrief inspectors.[68]  This, however, is entirely different from

actively utilizing the UNSCOM inspection mechanism as a means through which

unrelated information could be acquired.  And that is precisely what the U.S. did.

> "They have all kinds of equipment overhead.  They have readily available cover
> for human agents.  There's an international trade embargo on Iraq, so there's no
> businessmen coming in and out, and no flights in and out.  They don't have
> academic exchanges and so on.  They don't have all the usual covers that they
> use.  Here they're given the opportunity, on a periodic basis, to include
> Americans on UNSCOM inspection teams, and to carry large amounts of

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[66] Gellman, p. A01.

[67] *The NewsHour with Jim Lehrer*, Interview with Ambassador Pickering (transcript), January 11, 1999, retrieved at www.pbs.org/newshour/bb/middle_east/jan-june99/pickering_1-11.html.

[68] "Spying on Saddam:  UNSCOM's Relationships With Western Intelligence Agencies" *Frontline*, WGBH Educational Foundation, Interview with Richard Butler, retrieved at www.pbs.org/wgbh/pages/frontline/shows/unscom/experts/faustian.html.

equipment and to build things and leave them in Iraq.  The temptation was simply too great."[69]

Finally, David Kay makes this observation:

"I think it was a Faustian bargain.  The intelligence communities of the world had the only expertise that you could use if you were unmasking a clandestine program…The longer it continued, the more the intelligence agencies would, often for very legitimate reasons, decide that they had to use the access they got through cooperation with UNSCOM to carry out their missions."

Unfortunately, while the reasons for subverting the UNSCOM mission may have seemed legitimate to the CIA, there were clear consequences for the inspectorate.  The greatest of these would eventually be the ejection of UNSCOM from Iraq, and this compromised one of the most important aspects of the verification process:  access.  One thing that the Iraq case made extremely clear to everyone involved was the importance of access to the facilities in question.[70]  While intelligence, utilized properly, can reveal or target possible clandestine facilities, this information is never certain until it has been tested through direct observations, environmental sampling and other techniques that *must* be conducted on site.[71]  There is no doubt that intelligence has the potential to be a

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[69] "Spying on Saddam:  UNSCOM's Relationships With Western Intelligence Agencies" *Frontline*, WGBH Educational Foundation, Interview with Barton Gellman, retrieved at www.pbs.org/wgbh/pages/frontline/shows/unscom/experts/faustian.html.

[70] The cases in North Korea and South Africa would later reinforce this conclusion.

[71] The IAEA describes environmental sampling as the following: "Environmental sampling for safeguards is based on the premise that every nuclear process, no matter how leak tight, emits small amounts of process material to the environment. This material can settle on equipment and surfaces within the buildings and can be transported outside to deposit on vegetation or soil or be carried into the water systems. The quantities of nuclear material emitted are well below concern from a health physics and safety standpoint; however, analytical techniques exist that can detect and measure these extremely low levels of nuclear material which are indicative of the process from which they derive."  For more information, see IAEA-SM-367/10/01, "Environmental Sampling for IAEA Safeguards:  A Five Year Review".  Another emerging field that has contributed to this effort is nuclear forensics, in which scientists conduct "chemical, isotopic, and morphological analysis of interdicted illicit nuclear or radioactive materials and any associated materials. They are also supporting…nuclear attribution, which is the challenging discipline of combining input from nuclear and conventional forensics to identify the source of nuclear and radiological materials and determine their points of origin and routes of transit."  Definition from

critical tool in the nonproliferation effort, but it cannot be fully relied upon unless it is corroborated on the ground. If you consider the reliability of information along a continuum, at one end would fall intelligence, providing the least level of reliability, and on the other end, information gleaned from on site inspections of a nuclear facility. Because UNSCOM's legitimacy was compromised, they ultimately lost their ability to operate in Iraq, making it impossible to assess with any degree of confidence Iraq's weapons programs.

Of course, it is equally true that limited access to nuclear facilities, as articulated under the IAEA's NPT system of safeguards, is perhaps just as problematic. Thus, to insure the most reliability, access to the entire nuclear fuel cycle is necessary, and this type of inspection, referred to as a "full scope" inspection, would be the goal of the revised safeguards regime negotiated in coordination with the Secretariat from 1993-1997. These safeguards will be discussed in detail in the following chapter.

It is important, of course, to recognize that the final ejection of the UNSCOM inspectorate from Iraq was essentially a political move. The allegations of espionage against the U.S. were simply the means through which the Iraqis justified their actions – actions that had long been at odds with the UN disarmament and verification mission. However, because these allegations had more than a hint of truth to them, the Iraqis were able to successfully create doubt regarding the execution of the UNSCOM mandate, and this ultimately compromised the legitimacy of UNSCOM as an international and impartial body. In turn, the work that UNSCOM had carried out over a period of approximately eight years would remain unfinished, leaving the question of Iraqi WMD

Lawrence Livermore National Laboratory, available at World Wide Web address: http://www-cmels.llnl.gov/?url=science_and_technology-chemistry-nuclear_forensics.

unresolved. And this perhaps, was the greatest tragedy. Thus, it is worth investigating the specific aspects of the process that were compromised in order to fully understand the particular variables that most clearly contributed to this result.

*Loyalty, Competition and Confusion: Problems With Little Process*

It is important to recall that the UNSCOM mandate was initially conceived to be a short-term response to a comparatively limited problem. When Resolution 687 was passed, the extent of the weapons programs had yet to be revealed and no one anticipated the degree to which the Iraqis would seek to subvert the inspection mission; thus, the information collection, analysis and dissemination processes that UNSCOM operated were ad hoc and evolved over time. And because no one anticipated a disarmament and verification effort that would last for multiple years, no processes were articulated in advance to counter certain problems well known to international organizations: the problems of loyalty, competition and confusion. These three problems, while separate, feed upon each other, and compromise both the legitimacy and the efficiency of an organization.

The issue of loyalty within an international organization is always a potent one. As institutions are made up of many member states, each with a unique national identity and interest, it is inevitable for problems to result, especially if an individual is beholden to two masters: both state and organization. While this duality cannot ever be fully eradicated, in many institutions, it is minimized through the creation of an "international civil service". In the best-case scenario, an individual would be compensated solely by the international organization, in the full expectation that their future career lies not with their home country, but with the institution they choose to serve. In this way, success is

not tied to loyalty to the state, but instead to international civil service, creating an equity and impartiality that can be translated into operational legitimacy. Again, this mechanism is imperfect. Anyone familiar with international organizations can point to numerous instances where nationality has trumped impartiality. Nevertheless, insulating bureaucrats from the vicissitudes of home country politics can be profoundly important when an organization seeks to claim legitimacy and exercise authority.

UNSCOM, because it was intended to be a short-term enterprise, did not follow this model, instead relying upon member states to "second" their citizens to the inspectorate. The very term "second" implies the order in which an individual's loyalty is intended to lie: first to the home state and only later to the international organization, in this case, UNSCOM. All of the members of the UNSCOM team, save the inspectors from the IAEA, were seconded directly from their own state to the mission. Thus, they received compensation directly from their home state and anticipated their future careers not with UNSCOM, but with their home governments. As one UNSCOM inspector noted, "At UNSCOM, there was no boss, your boss was your country and loyalty lies with the job that cuts the check."[72] This, in turn, resulted in "petty jealousies", as state interests competed for information.[73] For instance, when one state acquired intelligence, it may have only been shared with inspectors of specific nationalities. And the "inner circle" at UNSCOM was made up primarily of American, British and Canadian

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[72] Interview, Kay Mereish, Chief, Biological Operations and Planning, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.
[73] Interview, Ewen Buchanan, Public Information Officer, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.

inspectors.[74]  As a result, it was not uncommon to find one inspector spying upon another

inspector in order to acquire information to send back to their home government.[75]  This

resulted in an atmosphere of competition and secrecy that gave way to information stove

piping, preventing the effective management of UNSCOM's overall operation.  It was

difficult at any one time for any single person to understand the totality of UNSCOM's

moving parts, and frequently possible for one section to have information that might, if

available to the entire team, have been useful to the mission at large.[76]  This created a

certain level of confusion that worked directly against the UNSCOM mandate, and

arguably resulted in UNSCOM's inability to fully account for Iraq's weapons programs

in 1999.  For despite the long-term nature of the mission, and the absence of substantive

discoveries after 1995, when UNSCOM eventually delivered its single comprehensive

review and major analysis of Iraq in January of 1999, only the nuclear portfolio was

satisfactorily complete, having been "closed" in October of 1997 when the IAEA

declared:

> As reported in detail in the progress report dated 8 October 1997…and based on
> all credible information available to date, the IAEA's verification activities in
> Iraq, have resulted in the evolution of a technically coherent picture of Iraq's
> clandestine nuclear programme. These verification activities have revealed no
> indications that Iraq had achieved its programme objective of producing nuclear
> weapons or that Iraq had produced more than a few grams of weapon-usable
> nuclear material or had clandestinely acquired such material. Furthermore, there

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[74] "Spying on Saddam:  UNSCOM's Relationships With Western Intelligence Agencies"
*Frontline*, WGBH Educational Foundation, Interview with Barton Gellman, retrieved at
www.pbs.org/wgbh/pages/frontline/shows/unscom/experts/faustian.html.

[75] One particularly memorable instance of insider spying took place when a French inspector
discovered the details of Operation Cabbage Patch under strictly confidential circumstances.
Shortly thereafter, Scott Ritter, an American inspector, observed a memo (in French) on Rolf
Ekeus's desk directed to the French Defense Ministry labeled Operation "Le Cabbage Patch".

[76] The UNSCOM sections were divided up by weapons specialty:  nuclear, chemical and
biological, with some nationalities represented within only one section.

are no indications that there remains in Iraq any physical capability for the production of weapon-usable nuclear material of any practical significance.[77]

Thus, the IAEA completed its mission under the UNSCOM mandate, albeit this was aided by the early focus of UNSCOM's efforts on the Iraqi nuclear program.

It is worth noting two things at this point. Number one, when Iraq called for the ejection of American inspectors from UNSCOM, claiming (perhaps correctly) that the CIA had infiltrated the UNSCOM inspectorate, Iraq made clear that *all* IAEA inspectors would remain welcome – including the Americans. While Hans Blix acknowledges that this was very likely a political stunt, it does point to the fact that a qualitative difference existed between members of UNSCOM directly seconded to the mission, and IAEA inspectors who were members of an international civil service.[78] In terms of legitimacy, to whom the inspectors owed their loyalty mattered.

Number two, when the UNSCOM inspectorate ground to a halt after its inspectors were ejected in 1998, only the IAEA team produced a portfolio that adequately addressed the status of nuclear weapons in Iraq. Now, there are practical reasons for this, including the fact that Iraq manufactured both chemical and biological weapons and deployed them throughout the country. While the Iraqi nuclear program was advanced, it had yet to produce a weapon, thus once the inspectors identified the major production facilities, it was possible to account for the majority of critical components that fed into the nuclear fuel cycle and dismantle them. That said, the IAEA team was more accustomed to rigorously accounting for its information collection, and they could utilize their facilities

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[77] Sixth Consolidated Report of the Director General of the International Atomic Energy Agency Under Paragraph Sixteen of UNSC Resolution 1015 (1996), available at World Wide Web address: http://www.nci.org/i/iaea10-8-98.htm.
[78] Blix, p. 34.

in Vienna for the analysis of that information.  UNSCOM, on the other hand, did not do "a lot of analysis or putting things down on paper".[79]  And because UNSCOM's approach to information collection and analysis was extremely competitive, it was also more than a little confused, without a clear process for the evaluation and dissemination of information.  This undoubtedly had a negative effect upon the team's ability to account for chemical and biological weapons in Iraq, once again highlighting the importance of process in terms of both legitimacy *and* effectiveness.

In early 1999, the UN Security Council decided to review the status of UNSCOM and consider options for continuing the disarmament and verification mission in Iraq under different auspices.  On December 17, 1999, UNSCOM's mission was transferred to a new UN body, the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC).  Hans Blix, the former Director General of the IAEA and the only candidate all five Security Council members could agree upon, would lead the new body.[80]  Unsurprisingly, his first priorities were to create a process through which UNMOVIC could re-gain the legitimacy that UNSCOM had so clearly lost.  To do this, he immediately addressed a number of the issues discussed above:  he instituted an international civil service, he created a specific and secure channel for the acquisition of intelligence from national intelligence agencies (including an end to the "two way street" model that characterized UNSCOM), and he institutionalized the process for the collection, analysis and dissemination of inspection information.  In fact, the first major

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[79] Interview, Ewen Buchanan, Public Information Officer, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.
[80] Blix, p. 44.

task undertaken by UNMOVIC was to review and organize the information collected by UNSCOM, a chore that took several years.[81]

Ultimately, UNMOVIC would have little opportunity to test its new "model" in Iraq. Given only three and a half months to conduct inspections prior to the American led invasion, UNMOVIC found itself with too little time to thoroughly review the status of Iraqi weapons programs after a hiatus of over three years.[82] Ironically, however, their initial assessment would prove accurate, much to the embarrassment of the Bush administration.

*Implications*

The experience of UNSCOM in Iraq testifies to the importance of organizational autonomy and procedural due process in the maintenance of international public authority, regardless of an agent's status or capability. Initially perceiving the Iraqi revelation as a means to experiment and improve upon the conservative style of inspections practiced by the IAEA's Secretariat, the lack of generally accepted rules, and a disregard for procedural right conduct, ultimately resulted in US activities completely de-legitimating UNSCOM's activities. This allowed Iraq to justifiably object to the presence of UNSCOM on Iraqi territory, despite the fact that Iraq was clearly guilty of subverting that very same process. This proved to be a truly unfortunate result, as UNSCOM met with some significant successes, not least of which was the IAEA's ability to "close" its nuclear portfolio.

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[81] Interview, Ewen Buchanan, Public Information Officer, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.
[82] Interview, Demetrios Perricos, Acting Executive Chairman, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.

Thus, it can be argued that: 1. procedural due process is a critical factor in the construction and maintenance of legitimate public authority at the international level, and 2. the actions of the organization carrying out said processes are not incidental to the political agreement negotiated by state actors. Considering the fact that UNSCOM was established through a unanimous resolution of the UN Security Council, and considering that the mission had the material support of some of the most powerful state actors, it is clearly false to conclude that power alone can legitimate authority. In fact, the UNSCOM experience indicates the exact opposite. US political power was not only insufficient, its misuses were inadvertently instrumental to the failure of the UNSCOM mission. And it was the autonomy of the IAEA's inspectorate, acting as an independent agent beyond the scope of US national interest, that allowed the IAEA to maintain its legitimacy in the face of UNSCOM's collapse.

That said, the IAEA's Secretariat learned valuable lessons regarding the dysfunctions of a well-entrenched bureaucracy, including the dangers inherent in complacency. The Secretariat realized it would be necessary to transform both its bureaucratic culture, as well as its safeguards process, if it was to successfully carry out its safeguarding mission. The IAEA inspectors tasked to UNSCOM learned to be less conservative, less trusting and more assertive in the conduct of their duties. At the same time, their long-term experience with the rigorous collection of information, and the degree of separation from the national interest of their home countries, allowed them to avoid the worst excesses of the inspectors operating under the authority of their own governments.

In the end, therefore, it is possible to conclude that IAEA legitimacy proved more resilient than may have been previously estimated. While the Agency still faced a profound challenge with the revision of its safeguards regime, in many ways, the erosion of U.S. faith in the IAEA's inspections process, and the revelation of an illegal nuclear weapons program in Iraq, did not prove fatal to either the Secretariat's legitimacy or the exercise of its public authority. In fact, the IAEA emerged from the UNSCOM debacle relatively unscathed, but with a far better appreciation for the importance of a more comprehensive, and at times aggressive, inspections regime. These lessons were clearly applied when the Secretariat and the Board of Governors embarked upon the 93 + 2 process to negotiate and implement a full scope system of nuclear safeguards. Without the experience in Iraq, reform of the system may not have evolved in the manner in which it did. This process, its origin, its evolution, and its outcome, are the subject of Chapter Five.

## Chapter 5:  Reconstructing Legitimacy – The 93 + 2 Process


Rebuilding legitimacy in the face of the Iraqi nuclear program revelations would require a substantive review of the inspectorate's practices and the appropriate processes associated with nuclear safeguarding.  Revising these procedures necessitated a shift in the "rules of the game", reconceptualizing the manner in which both the Secretariat and international society defined the right process of safeguarding.  The Iraqi case, however, would not be the only incident to influence the development of the new safeguards regime.  During approximately the same time period two additional events challenged and further affirmed the bureaucracy's experience in Iraq. In North Korea, new technologies and the use of member state intelligence would significantly enhance the Secretariat's ability to assess the correctness of the North Korean declarations, successfully identifying inaccuracies in North Korea's first submissions.  In South Africa, the revelation of a former nuclear weapons program, destroyed by the F. W. de Klerk government prior to the abandonment of apartheid, would challenge the Agency to create a "complete" account of South Africa's current, and former, nuclear activities. Taken together with the UNSCOM operation, these experiences convinced the Secretariat and the IAEA Board of Governors that a more comprehensive evaluation of member state nuclear programs based upon the concept of "completeness" was now unavoidable.  This assessment would necessarily involve significantly broader means of information gathering and assessment, and require the bureaucracy to balance the need for greater effectiveness with its well-established, and generally successful, legitimation strategies.

This chapter will begin with an assessment of the extent to which IAEA legitimacy had to be rebuilt after 1991 and the exposure of the Iraqi nuclear weapons program. Next, the IAEA's experiences in North Korea and South Africa will be considered. These two cases, in addition to the Iraqi case, directly influenced the negotiation of a new process, a process that would be less transparent and more subjective than any of the previous safeguards arrangements. Following this, the new safeguards process itself will be analyzed, with particular attention paid to the Secretariat's role in the negotiation of the 93 + 2 process, as well as the specific ways in which the new process varied from the former NPT safeguards negotiated twenty years earlier. In addition, I will attempt to contextualize these changes, specifically the extent to which they reflect the bureaucracy's unusual position as a trusted public authority. Finally, I will explore implementation issues associated with the revised safeguards regime, specifically as they relate to the long-term legitimation strategies and the maintenance of international public authority..

## Improving Correctness, Establishing Completeness

*Rebuilding Legitimacy*

Following the revelation of an Iraqi nuclear weapons program, the IAEA faced significant challenges to its legitimacy; institutionally, as a matter of expertise, and as it related to the model and practice of safeguarding. Institutionally, the expansion of the IAEA's safeguarding mission had historically been a vehicle for the expansion of the Secretariat's legitimacy and authority. Safeguarding, be it for good or ill, was arguably the most visible mission carried out by the IAEA, and a significant, if not the only, task

for which it was responsible.   However, with this critical and highly publicized failure to successfully execute its safeguards mission, the long-term viability of the organization came into question.  If safeguards were not reliable, if they could not be trusted to verify treaty compliance, how would that affect the future of the NPT, and by association, the IAEA?  Would the Secretariat be able to maintain its status as a trusted agent if its judgment couldn't be relied upon? And if safeguards couldn't be fixed, would the IAEA be able to outlive their demise?[1]

At the same time, the legitimacy of the Secretariat's expertise was dealt a blow. Based on their expert opinion, the inspectorate had repeatedly verified the peaceful nature of Iraqi nuclear activities, despite the existence of a long-term program to acquire nuclear weapons.  While hindsight is twenty-twenty, it is fair to ask why the leading experts in nuclear safeguarding, housed within an institution dedicated to research and support for the development of nuclear technology, remained largely convinced that Iraqi assertions regarding the peaceful intent of their nuclear program were correct.  And should respect for the expertise of the Secretariat be called substantively into question, it would seriously jeopardize the Agency's identity, which arguably remained central to the maintenance of their legitimacy as an international public authority.

Finally, the IAEA faced doubts about its particular model of safeguarding, and the overall efficacy of its safeguarding process.  While the conservative, technically oriented approach favored by Agency inspectors had allowed the IAEA to successfully navigate the complex "human factors" originally identified in the Acheson Lilienthal report, it also created a process that was defined by its deference to the spirit of cooperation, and not by

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[1] Porth, Jacqueline, "NPT's Long-Term Viability Linked to Verification Regime" USIA document no. 950424, 4/24/1995.

a culture of healthy skepticism.  Further, the emphasis on narrow and highly objective measures of verification, versus more wide reaching and subjective analysis, limited the Agency in its ability to comprehensively assess the status of a member state's declarations.

Taken together, it is clear that the IAEA had a pressing need to reconstruct the foundations upon which its authority rested, and to do this, they would have to fix the holes in the existing safeguards regime.  That would be no small task, and it would require a strong director general, and much of the political capital that the Secretariat had accrued to date.

*The North Korea Experience:  Expanding Information Sources*

The North Korean nuclear program began in the mid 1950s with the assistance of the Soviet Union. The focus of the nuclear program would be in Yongbyon, about 60 miles north of Pyongyang.  Here, a small nuclear research reactor, provided by the Soviets, started operation in the late 1960s.  Under IAEA safeguards, the experiment in nuclear development did not appear to merit significant concern beyond routine aerial surveillance.[2]  In 1980, however, U.S. satellites identified suspicious activities at the Yongbyon site, including the enlargement of an area close to the original reactor that likely indicated an additional reactor under construction. [3]   This development proved to be the start of a long and still unresolved dispute between the U.S. and the North Koreans

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[2] Mansourov, Alexandre Y., "The Origins, Evolution and Current Politics of the North Korean Nuclear Program" *Nonproliferation Review*, vol. 2, no. 3 (1995), pp. 25-26.
[3] Gallucci, Robert L., Daniel B. Poneman and Joel S. Wit, *Going Critical:  The First North Korean Nuclear Crisis* (Washington, D.C.:  Brookings Institution Press, 2004), pp. 1-2.

over the nature of the North Korean nuclear program and the acquisition of nuclear weapons.[4]

It is not really terribly surprising that North Korea would choose to pursue a nuclear weapons option. The Korean peninsula played host to numerous conflicts throughout the twentieth century, the most recent of which, the Korean War, ended in a ceasefire, and not a permanent peace. From the 1950s onward, the U.S. subtly (and sometimes not so subtly) used nuclear weapons as instruments of deterrence against North Korea, both during the active conflict, and later in response to North Korean aggression.[5] With failing confidence in the Soviet alliance and having been rebuffed repeatedly by the Chinese, India's peaceful nuclear test pointed towards a viable path for the acquisition of a nuclear weapon.[6] By the mid-1970s, North Korea determined to pursue an independent nuclear weapons program, exploiting loopholes in the poorly regulated nuclear exports regime and building upon existing knowledge gleaned through the operation of its first nuclear research reactor. In 1985, when the Soviets finally convinced North Korea to become a member of the NPT, North Korea had at least one facility capable of producing limited quantities of weapons grade fissile material, with another, significantly larger facility, under construction.[7]

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[4] For an historical analysis of North Korea's nuclear program, see Mazarr, Michael, *North Korea and the Bomb* (New York: St. Martin's Press, 1995) and Hayes, Peter, *Pacific Powderkeg: American Nuclear Dilemmas in Korea* (Lexington: Lexington Books, 1991). For current likely capacity, see Hecker, Siegfried S., "Report on North Korean Nuclear Program" *Center for International Security and Cooperation*, Stanford University (November 15, 2006).

[5] For a more detailed history of relationship between the US and North Korea, see: Lee, Yur Bok and Patterson, Wayne, *Korean-American Relations: 1866-1997* (Albany: State University of New York Press, 1998).

[6] Gallucci, et al, pp. 3.

[7] Gallucci, et al, pp. 3-4.

When a state accedes to the NPT, it becomes necessary for the state and the IAEA to conclude a comprehensive safeguards agreement. Under NPT rules, this process is given eighteen months for negotiations to be conducted and concluded. In the case of North Korea, an administrative glitch considerably extended this process. Having initially received the wrong safeguards protocol from the IAEA, the first eighteen months passed with little to nothing having been accomplished. While the IAEA eventually identified the mistake, another eighteen months passed without an agreement, and then another eighteen. Ultimately, over five years would pass before the North Koreans honored their pledge to bring their nuclear programs under IAEA safeguards. During this period, fissile material production continued apace.[8]

In May of 1992, North Korea submitted its first declaration under the newly signed safeguards agreement. Hans Blix, Director General of the IAEA, spent a week touring the declared facilities in preparation for the first inspections. The following inspections, however, revealed irregularities between the North Korean submissions and the observations and measurements of the inspection team. Unfortunately for North Korea, the Secretariat was already applying lessons learned from the Iraq experience. The North Koreans didn't anticipate gains in technology provided for the first time to the IAEA by U.S. intelligence agencies.[9] In addition to satellite images and full briefings by the CIA, improvements in environmental sampling suggested that North Korea had been reprocessing uranium and recovering plutonium in significantly larger quantities and for a longer period of time than they'd admitted in their first declaration.[10]

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[8] Dolley, Steven and Paul Leventhal, "The North Korean Nuclear Crisis", *Nuclear Control Institute*, at World Wide Web address: www.nci.org/n/nkib1.htm.
[9] Interview, Demetrios Perricos, acting Executive Chairman for UNMOVIC (October 14, 2004).
[10] Interview, Demetrios Perricos, acting Executive Chairman for UNMOVIC (October 14, 2004).

It cannot be emphasized enough the extraordinary nature of this new relationship between the IAEA and the CIA. Without a doubt, both sides continued to express distinct unease with the cooperation. On the one hand, the State Department had to convince the CIA to collaborate with the IAEA, as the CIA feared for the security of the information that was being provided, as well as its ultimate use. For the IAEA, the very word intelligence engenders discomfort. Despite spending a week at IAEA headquarters in Vienna, in which I interviewed over a dozen members of the safeguards division, no one would speak openly of intelligence. Euphemisms, such as "information from third parties" were commonplace, but the deep-seated unease with which the Agency approached its relationship with the intelligence community continues to be revealing.

That said, this coordination, which very likely built upon early interactions between UNSCOM and the CIA at the beginning of the UNSCOM mandate, revolutionized the IAEA's ability to inspect and verify. In particular, as in Iraq, national technical means[11] provided vital guidance in targeting facilities for inspection, and flagging potential areas of concern.[12] And the less well-known technology, environmental sampling, made it possible to more comprehensively construct a picture of nuclear operations at the inspected nuclear facilities – in essence, allowing the inspectors to test key measurements provided by the member state. Despite the two agencies mutual

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[11] National technical means refers primarily to IMINT, or image based intelligence, usually acquired via satellite or other aerial collection devices, such as unmanned aerial vehicles or surveillance aircraft (AWACs, P-3s).

[12] As noted in the previous chapter, however, national technical means are somewhat limited in their utility once a state anticipates their use, as the state can often counter this type of surveillance, particularly if the facility or area of concern is small or easily concealed from overhead.

discomfort with each other, the CIA initially provided the IAEA with access to both of these technologies.[13]

As a result of the information gleaned through this collaboration, Blix requested the IAEA's first special inspection, an out of cycle visit to a safeguarded facility triggered in the event that a state's declaration cannot be verified. While the NPT had always allowed for such an occurrence, the Secretariat had yet to exercise this authority, in line with its more conservative approach to nuclear safeguarding. However, feeling the pressure of their failure in Iraq, the bureaucracy adopted a decidedly more hard line approach to the situation in North Korea. Blix, determined to carry out special inspections, brought the case to the Board of Governors, and in an emergency meeting convened on February 22, 1994, the inspectorate revealed the evidence against the North Koreans. These satellite photos, which clearly exposed the nuclear waste sites to which the Secretariat demanded access, marked the first instance in which information acquired from a member state was utilized to make a case against another member state. Needless to say, the North Koreans objected to the use of such intelligence. Blix, however, refused to dismiss the evidence as it substantiated the on site observations of the inspectors. [14] This set an extremely important precedent that would later be institutionalized in the Additional Protocol, legitimating the use of national technical means, particularly when it

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[13] Since that time, the IAEA has built is own environmental sampling capabilities. For more information on the IAEA's environmental sampling program, see Cooley, J., E Kuhn and D. Donohue, "The IAEA Environmental Sampling Programme" *IAEA Symposium on International Safeguards*, IAEA-SM-351/182, Vienna (October 1997). For specific details on the types of technologies used in environmental sampling, see D. Donohue, "Tools for Nuclear Inspection", IAEA Information Series, Division of Public Information, 04-46161/FS Series 3/03/E. NTM, however, requires significant infrastructure, and the Agency continues to rely upon member states, and increasingly, private industry, for access to IMINT.

[14] Interview, Demetrios Perricos, acting Executive Chairman for UNMOVIC October 14, 2004.

correlated with or substantiated information acquired from other, more traditional sources.

And yet, while access to member state intelligence, particularly aerial surveillance, proved essential when determining the correctness of the North Korean declaration, it was necessarily limited when determining the completeness, or scope, of the North Korean nuclear weapons program. The determination of completeness, as the IAEA discovered in Iraq, requires extensive access to the entirety of a state's nuclear weapons facilities, something the North Korean government refused to allow. Thus, to this day, the extent of the North Korean program remains unverified. The virtual reconstruction of the South African nuclear program, however, would drive this point home even further, validating the lessons learned in both Iraq and North Korea.

*The South Africa Experience: Re-Constructing Completeness*

South Africa is a country rich in natural resources, among which is a significant quantity of naturally occurring uranium. Thus, it is unsurprising that the South Africans relied upon uranium enrichment as a central component of their nuclear weapons program. Unlike Iraq, South Africa pursued a comparatively low cost program, focusing their long-term development on enrichment technologies and a gun-type weapons design[15]. As was the case in India, South Africa also acquired technological assistance, as well as material, from both the United States and Europe via Atoms for Peace in the 1950s and 1960s. As the apartheid regime became increasingly isolated, however, the

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[15] Gun style or implosion weapons are generally less complicated to construct than fission and thermonuclear designs. While South Africa did explore these alternatives, as well as limited plutonium production, the majority of resources were eventually devoted to less complicated alternatives. See David Albright, "South Africa's Secret Nuclear Weapons" *ISIS Report* (May 1994), http://www.isis-online.org/publications/southafrica/ir0594.html for a complete description of the evolution of the South African nuclear weapons program.

international community cut off open assistance for South Africa's nuclear development. Nonetheless, the South African government successfully exploited "clandestine networks" in the West for the procurement of nuclear supplies well into the 1980s. In addition, Israel proved an important partner, covertly exchanging technical suppor for uranium. The extent of this collaboration is still not fully known, but it may have included assistance in actual weapon design.[16] By 1979, South Africa had built its first device, and by 1989, they had successfully constructed six nuclear weapons, with enough stored material for a seventh.[17] However, when F.W. de Klerk came into power in 1989, he began to move his country towards the long awaited process ending South Africa's system of apartheid, normalizing relations with the rest of the international community. Part of this transition period included the secret destruction of the nuclear weapons program and ascension to the NPT. As a result, when South Africa submitted its first declaration to the Agency as a member state, their nuclear weapons program had been completely eradicated.

Because the South African government had yet to publicly reveal the true direction in which their nuclear program had progressed, the first inspections didn't look for an existing weapons program, per se, although the Secretariat suspected such a program existed. Instead, they focused on two tasks, inventorying and accounting for declared nuclear materials, as well as an analysis of the material itself. In the process of this accounting and analysis, "apparent discrepancies" were catalogued, seeming to

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[16] . See Albright, David, "South Africa's Secret Nuclear Weapons" *ISIS Report*, May 1994, http://www.isis-online.org/publications/southafrica/ir0594.html; and Burrows, William E. and Windrem Robert, *Critical Mass: The Dangerous Race for Superweapons in a Fragmenting World* (New York: Simon and Schuster, 1994).
[17] Albright, David, "South Africa's Nuclear Weapons Program", remarks at the Institute for Science and International Security, Gregory Koblentz, rapporteur, (March 14, 2001).

suggest an unaccounted for quantity of uranium.  While this discrepancy was eventually

resolved, in the process of its resolution, the IAEA began a comprehensive process of

material accounting at the facility under question.[18]

At the same time, the quantity of material inventoried by the inspectorate proved

substantial.  Considering that South Africa had long been suspected of having a

significantly well-developed nuclear program, the amount of material seemed to indicate

that a nuclear weapons "option" might have been a reality.[19]  Yet again, with the help of

member state intelligence, the inspectorate began to take environmental samples at

suspect facilities.  Through environmental sampling, the inspectors were able to collect

samples and test them for nuclear material, using advanced analytical techniques to

establish the origin, and type of nuclear process from which the material was derived.[20]

This confluence of events may have motivated the South African government to come

clean, and in early 1993, President de Klerk admitted publicly to the programs existence.

As observed by Von Baeckmann, Dillon and Perricos " It is significant to note that on the

day of the declaration, two members of the IAEA team were present at the Atomic

Energy Corporation (AEC), Pelindaba.  They were carrying out follow-up actions

directed towards the clarification of the 'apparent discrepancy'".

This surprise announcement completely changed the scope of the verification

mission underway.  Overnight, the IAEA went from ascertaining the correctness and

completeness of an existing, nominally peaceful, nuclear energy program, to virtually

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[18] Von Baeckmann, Adolf, Gary Dillon and Demetrios Perricos, "Nuclear Verification in South Africa" *IAEA Bulletin*, vol. 37, no. 1  (January, 1995), http://f40.iaea.org/worldatom/Periodicals/Bulletin/Bull371/baeckmann.html.
[19] Ibid.
[20] IAEA-SM-367/10/01, "Environmental Sampling for IAEA Safeguards:  A Five Year Review".

reconstructing an extinct nuclear weapons program.[21]  To do this, the Secretariat had to

examine each and every step of the weapons development process, recreating after the

fact the history of South Africa's nuclear weaponization.  This required inspection of all

facilities relevant to the construction of a nuclear weapon, from the acquisition of

material to the test sites prepared for the assembled warheads.  To accomplish this, the

Agency focused intensively on seven objectives, carried out over a five-month period of

time.  Over this period, the inspectorate was "to:

- Gain assurance that all nuclear material used in the nuclear weapons programme had been returned to peaceful usage and had been placed under IAEA safeguards;
- Assess that all non-nuclear weapons specific components of the devices ha been destroyed; that all laboratory and engineering facilities involved in the programme had been fully decommissioned and abandoned or converted to commercial non-nuclear usage or peaceful nuclear usage; that all weapons-specific equipment had been destroyed and that all other equipment had been converted to commercial non-nuclear usage or peaceful nuclear usage;
- Obtain information regarding the dismantling programme, the destruction of design and manufacturing information, including drawings, and the philosophy followed in the destruction of the nuclear weapons;
- Assess the completeness and correctness of the information provided by South Africa with respect to the timing and scope of the nuclear weapons programme, and the development, manufacture, and subsequent dismantling of the nuclear weapons;
- Consult on the arrangements for, and ultimately to witness, actions at the Kalahari test shafts to render them useless;
- Visit facilities previously involved in or associated with the nuclear weapons programme and to confirm that they are no longer being used for such purposes;
- Consult on future strategies for maintaining assurance that the nuclear weapons capability would not be regenerated."[22]


It is fair to say that no previous experience of the IAEA's proved more

instrumental in defining the bureaucracy's new approach to completeness than this

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[21] Interview, Demetrios Perricos, acting Executive Chairman, UNMOVIC, UN Headquarters, NY, NY, October 14, 2004.

[22] Von Baeckmann, et al, p. 4 of 7.

experience with South Africa.  In the process of reconstructing a nuclear weapons program from beginning to end, the inspectorate faced a reality articulated by Acheson-Lilienthal over forty years earlier – each step of a nuclear program needs some degree of monitoring in order to achieve any confidence that material is not being diverted to the construction of illegal weapons.   At the same time, the feasibility of such an undertaking would be heavily dependent upon both the access granted the inspectors to facilities within a member state's territory and the tools at the inspectorate's disposal.  In the best of worlds, the IAEA would be granted unlimited access, with full transparency into the operation of the program in question.  When this could not be achieved, the Secretariat would have to fill in the gaps, using less sure methods of information collection; in other words, intelligence – both open and closed source.

This reality pointed to a significantly different style of inspecting from the system first constructed under the NPT, and a momentous shift in the Agency's approach to nuclear safeguarding.  The revision of the NPT safeguards regime, hereafter referred to as the 93 + 2 process, would attempt to institutionalize this new focus, crafting a "right" process that would be both legitimate and effective.  The extent to which the Secretariat successfully accomplished this argues persuasively in favor of their evolution as a legitimate international public authority.

**93 + 2**

In May of 1997, the IAEA Board of Governors approved a Model Additional Protocol to supplement the existing comprehensive safeguards agreements (CSAs) originally negotiated with each member state under the NPT (INFCIRC/153).  Unlike the

NPT negotiations in 1970, however, the IAEA bureaucracy played a major role in advancing and implementing these revisions. The Secretariat, headed by Director General Hans Blix, formed a "special task force" in May of 1993, "to lead the reform efforts by developing a coherent and strengthened comprehensive safeguards regime."[23] In fact, the revision efforts were christened "93 + 2" to reflect the Director General's desire to negotiate and test a new safeguards protocol before the NPT Review Conference scheduled for 1995. Thus, Blix pushed to put into practice a series of measures designed to strengthen the existing safeguards regime, largely informed by the Agency's experiences in Iraq, North Korea and South Africa. While the new protocol would not, in fact, be in place to meet this deadline, there is little question that from start to finish, the Secretariat, led by Director General Blix, would play a lead role in crafting an expanded set of safeguards.

It is not surprising then, that negotiation for the Additional Protocol would not divide along Cold War lines, or NWS vs. NNWS; instead, it would be the product of the Secretariat's expertise in the arena of nuclear safeguarding, particularly the more recent experiences in Iraq, North Korea and South Africa. This is not to say that the Secretariat was able to dictate their demands to the Board of Governors or to member states; this was by no means the case. In fact, a faction of member states, and some within the bureaucracy itself, resisted an extensive revision to the safeguards regime. For instance, the topic of reform arose before the Iraqi revelation, and met with distinct disinterest. That disinterest would become active disagreement with the proposed changes by a small

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[23] Cameron, Jason, "Cyberspace and Outer Space: Transitional Challenges for Multilateral Verification in the 21st Century" *Fourteenth Annual Ottawa NACD Verification Symposium*, Symposium Proceedings, Montebellow, Quebec, Canada (March 12-15, 1997), p. 195.

but vocal minority within the Agency.[24]  Richard Hooper, previously Section Head for Statistical Analysis in the Department of Safeguards and a member of the Iraq Action Team, would steer the successful reform efforts that ultimately overcame those objections.

That said, the Agency, led by Blix, was "extremely successful" in advancing their ideas. By the 1995 target date, the Board had approved "the Director General's plan to proceed immediately with the implementation of those measures deemed to be within the legal authority provided by existing CSAs."[25]  Blix also led the charge to insure that the Additional Protocol, while more intrusive in character, retained the spirit of cooperation, and not confrontation, that had so characterized the Agency's safeguarding prior to this point.

Thus, in coordination with the Standing Advisory Group on Safeguards Implementation (SAGSI)[26], a small core group of staff within the Agency and a handful of member state experts wrote the text of the Additional Protocol.[27]  Yet again, this process differed significantly from the writing of the model CSA twenty-seven years earlier.  While the member states played an important role, technically approving each stage of the document in draft, the negotiation was steered primarily by the Director General and safeguards experts within the Secretariat and the SAGSI.[28]  The result was a

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[24] Interview, Laura Rockwood, Principle Legal Officer and Section Head for Nonproliferation, IAEA Headquarters, Vienna, Austria, (February 2, 2002).

[25] Hooper, Richard, "The IAEA's Additional Protocol" *Disarmament Forum*, vol. 3 (1999), p. 11.

[26] The SAGSI is an advisory group made up of member states to advise the Board on issues relevant to nuclear safeguards.

[27] Ibid, p. 11.

[28] Interview, Laura Rockwood, Principle Legal Officer and Section Head for Nonproliferation, IAEA Headquarters, Vienna, Austria, February 2, 2002.  See also Rockwood, Laura, "Session 6: The Model Additional Protocol:  A Contribution to Global Nonproliferation Objectives" *IAEA*

document that fell somewhere between the more restricted system of existing NPT

safeguards and the "anything goes" model embraced by the UNSCOM inspectorate.  It

concentrated on three specific expansions: a thorough, formal and regularized review and

assessment of *all* nuclear activities conducted by NPT signatories, both declared and

undeclared; the expansion of on-site access within a state for the safeguards inspectorate;

and the utilization of all forms of information available to determine the "completeness"

of a state's declarations.  Taken together, these enhancements substantively changed the

IAEA's approach to nuclear safeguarding.  Each will be described in detail below.

*A New Hypothesis*

As Richard Hooper, IAEA Programme Manager for the 93 + 2 task force notes,

under INFCIRC/153, "the Safeguards System based on nuclear material accountancy is

directly analogous, both in concept and in the basic procedural elements, to a financial

accounting system."[29]  Thus, "the Additional Protocol…can be characterized as an effort

to transform IAEA inspectors from accountants to detectives"[30] – keeping in mind, of

course, that in future, inspectors would be expected to carry out both functions.

As described in Chapter 3, NPT safeguards focused upon the idea of Material

Balance Areas, points at which IAEA inspectors could measure nuclear material within

the facility to determine whether or not significant quantities of the material were being

diverted to non-peaceful purposes.  This measuring technique was designed to verify the

correctness of a member state's declared inventory, without being excessively intrusive,

*Regional Seminar on the Protocol Additional to Nuclear Safeguards Agreements*, Lima, Peru, (December 4-7, 2001).

[29] Hooper, p. 8.

[30] Hirsch, Theodore, "The IAEA Additional Protocol:  What It Is and Why It Matters", *The Nonproliferation Review* (Fall/Winter 2004) p. 143.

or to unnecessarily encroach upon the sovereign right of the state to conduct legitimate nuclear activities. So, in the same way that an accountant audits the books of a business for irregularities without interfering with the day-to-day operations of the company, the IAEA inspectors audited the operation of a nuclear facility for diversion of nuclear material. At no point was the inspection process designed to look for or verify the existence (or non-existence!) of undeclared nuclear facilities. The sum total of the process focused solely upon the activities and facilities acknowledged via state declarations. There were no procedures in place to alert the inspectors' attention and divert it elsewhere should an undeclared facility exist, even should such a thing be desirable – which, for the majority of member states and many IAEA inspectors, it was not. [31]

Thus, the revision of NPT safeguards substantially changed the hypothesis that IAEA inspectors utilized in order to determine the verification of a state's NPT obligations. Instead of testing to insure that "no diversion" of declared materials had occurred, instead, the focus shifted to verification that "there are no undeclared nuclear activities."[32] Without question, this is a substantially larger and more complicated task, one that would necessarily impose a greater obligation upon the bureaucracy to further infringe upon the sovereign territory of a member state's nuclear program. Each aspect of the nuclear process that could result in proliferation would have to be monitored, and

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[31] The Director General, Hans Blix, and members of the Secretariat, began to address the issue of special inspections, and their more regularized use, prior to the Iraqi revelations. In 1991, the DG asked the Board to affirm the right of the Agency to use such inspections as laid out under the model CSA. This right was confirmed in 1992, but the Agency was clearly aware of the limitations in the system prior to Iraq. That said, many inspectors did not wish to see their roles change in a substantive way, and found the process of revision potentially threatening. (Interview, Vilmos Cserveny, Director of the Office of External Relations and Policy Coordination, IAEA Headquarters, Vienna, Austria, February 2, 2004).
[32] Hooper, p. 11.

that included an expansion of oversight to include "source material acquisition,

conversion, fuel fabrication, enrichment, power reactors, research reactors, heavy water

production, reprocessing HEU and plutonium, and weaponization".[33]  Instead of a

"facility by facility" process, safeguards must take into consideration the "state as a

whole".[34]

Obviously, expanding the scope of safeguards to cover such a vast array of

activities could pose a significant burden to the inspectorate without an equally

significant expansion of resources.  Considering the fact that the IAEA had operated on a

zero growth budget for most of the time it executed its safeguards mission, this posed a

considerable problem.[35]  As a result, during the 93 + 2 negotiations, the Secretariat found

it necessary to create a system that would "reduce the need for routine inspections to such

an extent that the net cost of applying safeguards will not increase, despite the growing

workload."[36]  To do this, the revised safeguards would be "wide and shallow"[37], wide in

the sense that the bureaucracy would use all the information at its disposal to monitor the

totality of a state's nuclear programs, but shallow in the sense that detailed examination

of facilities beyond limited, routine inspections would be reserved for those states' whose

country profiles had been red-flagged.  In this way, the inspection burden for many

countries actually diminished, while those countries of proliferation concern would be

subject to greater scrutiny.[38]

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[33] Cameron, p. 201.
[34] Hooper, Richard, "The Changing Nature of Safeguards" *IAEA Bulletin*, vol. 45, no. 1 (June, 2003), p. 9.
[35] Fischer, David "Nuclear Safeguards:  Evolution and Future" *Verification Yearbook* (2000), p. 52.
[36] Ibid, p. 52.
[37] Cameron, p. 201.
[38] Cameron, p. 201.

**Creating a New Information Process**

This wide and shallow system, while arguably an efficient way to utilize limited Agency resources, would also require the Secretariat to be more subjective in its process of information collection and analysis. This new approach to member state evaluation necessitated the creation of country officers within the safeguards operations division, each of which would act as an expert on the specific country under their purview. These country officers, in conjunction with facility officers (from the inspectorate), an officer from the Safeguards Concepts and Planning committee, and support from the members of the Division of Safeguards Technology[39], would come together in a State Evaluation Working Group to write an annual State Evaluation Report.[40] These reports would then collate all of the information collected by the various safeguards divisions and "attempt to identify any instance wherein the information might suggest the conduct of activities inconsistent with the state's declarations to the IAEA and any requisite actions".[41] In the case that such an inconsistency is identified, the Additional Protocol provides considerable new opportunities for inspectors to investigate, or dig "narrow and deep."[42] These new authorities make up the majority of the Additional Protocol, and significantly expand Agency access to nuclear facilities within a member state.

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[39] The Division of Safeguards Technology is responsible for open source information collection and analysis.
[40] Lepingwell, John, Malcolm Nicholas and Victor Braguine, "Strengthening Safeguards Through Open Source Information Collection and Analysis" paper presented at the *INMM Annual Meeting* (July 2003).
[41] Cameron, p. 201.
[42] Cameron, p. 202.

*Complementary Access*

As witnessed in both Iraq and South Africa, in order to attain a complete accounting of a state's nuclear activities, it was necessary to have comprehensive access to facilities involved in all aspects of the nuclear development process. 93 + 2 goes a long way towards creating that expanded access for Agency inspectors. Under the first system of NPT safeguards, the idea of a "special inspection" was designed to afford out-of-cycle admission to a nuclear facility in unusual or extraordinary circumstances. As discussed earlier, this particular tool wasn't utilized until the early 1990s, and became associated with IAEA investigations into member state "cheating". Because the inspectorate wanted a mechanism it could activate regularly without invoking the specter of previous, high profile cases, it was decided to re-name out-of-cycle inspections "complementary" inspections, a less confrontational term that would imply a standard verification practice applied routinely in order to verify lesser discrepancies short of cheating.[43] Complementary access would be granted to a wide range of facilities, and would "be requested to assure the absence of undeclared nuclear material and activities and to resolve questions relating to the correctness and completeness of the information provided pursuant to Article 2 or to resolve an inconsistency relating to that information."[44] Complementary access would not replace the existing system, but rather add to it.

As laid out in the Additional Protocol, the first step in creating full scope safeguards would be for the member state to provide information declaring *all* nuclear facilities, including a range of facilities not covered by INFCIRC/153. These additional

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[43] Hirsch, p. 147.
[44] Rockwood, "Session 6…", p. 3.

facilities could be considered as three separate groups:  jointly located buildings on an already declared nuclear site that are not covered by INFCIRC/153, separate sites with fuel cycle related nuclear material not covered by INFCIRC/153, and sites with fuel cycle related components, but no nuclear material.[45]  Each of these categories must be covered in a state's additional declaration, required within 180 days after the Additional Protocol comes into force.[46]  Each of these categories is treated differently in the degree to which access is afforded the Agency under Article 5 of the Additional Protocol.

In the first category, which covers un-safeguarded facilities on a site already within IAEA purview, inspectors would have considerable access.  The Secretariat would be provided with a general description, maps and relevant design details for all buildings on site.  Further, inspectors could carry out short notice inspections at these facilities, generally within a 24 hour period, but conceivably in as short as two hours should it be deemed necessary.   Thus, as the cases in Iraq and North Korea demonstrated, co-located facilities that are involved in proliferation activities would no longer be beyond the reach of the Secretariat.  Inspectors would have access to these facilities as a matter of course, greatly minimizing the opportunity for a state to embed illegal activities within a declared nuclear facility.[47]

The second category, separate sites involving nuclear material that are not covered by INFCIRC/153, opens up the inspection process to nuclear fuel cycle activities

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[45] Article 2, *Model Protocol Additional to the Agreement(s) Between State(s) and the International Atomic Energy Agency for the Application of Safeguards*, INFCIRC/540, September, 1997.  See also Hirsch, pp. 145-152.

[46] Each Additional Protocol is negotiated directly with a member state using the Model Additional Protocol as a template.  As of June 13, 2007, the Board had approved 121 Additional Protocols, 112 had been signed by the member state, and 82 had entered into force.

[47] Hooper, "The IAEA's Additional Protocol", p. 14.  See also Hirsch, pp. 145-152, Rockwood, "Session 6….", p. 4-5, and Van Moyland, Susanna, "The IAEA's Programme 93 + 2" *Verification Matters*, (Londong:  VERTIC, 1997) p. 8-9.

at the front-end and close of the process; for instance, uranium extraction facilities, or waste facilities in which INFCIRC/153 safeguards have been terminated.   Unlike the first category, the information requirements for these facilities are somewhat less detailed.  Instead of in depth descriptions of the facility's operations, maps and/or design details, the Secretariat is simply provided with "the location, operational status, and estimated annual production capacity, as well as the current production of such mines and plants for the state as a whole."[48]  Nonetheless, inspectors do have access to these facilities to "assure the absence of undeclared nuclear material and activities"[49], given at least 24 hours notice.

The final category provides oversight into facilities that exist within the state, manufacture or trade key components in support of the nuclear fuel cycle, but may not be under the state's direct authority.  These facilities are primarily associated with private industry, thus, in many cases, access to these facilities is limited.  Therefore, states are asked to "make every reasonable effort" to provide the Agency with relevant information, or, when necessary, limited access, in order to "resolve a question relating to the correctness and completeness of the information provided pursuant to Article 2".[50]

In addition, the IAEA is given the right to collect environmental samples in locations not declared by the state.  While the inspectorate may be limited in their access to specific buildings in an undeclared area, techniques such as swipe sampling, in which inspectors collect "dust" from locations around the facility provide "tell-tale elemental or

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[48] Hirsch, p. 146.
[49] Article 5a(i), INFCIRC/540.
[50] Article 5b(ii) and 5c(ii), INFCIRC/540.

isotopic 'signatures'".[51]  These signatures can help to reveal clandestine activity, as can

"air samples and samples of vegetation."[52]  There is also a contingency in Article 9 for

the use of wide area environmental sampling (WAES), an emerging technology that has

the potential to provide "substantial information about a state's nuclear activities over a

broad area."[53]  However, due to the fact that the technology is still in the process of

development, and likely to be controversial, the Board of Governors must approve any

application of WAES prior to its use.[54]

## Where's the Predicament?

Thus, it becomes apparent that the revised safeguards regime rests upon two very

distinct pillars.  The first pillar is based upon a new system of information collection and

analysis that uses all available information sources in order to cast a "wide but shallow"

net over the totality of nuclear activities within a state, the product of which will be an

evaluation report designed to red-flag certain activities and signal when more intensive

examination may be required.  In such a case, the second pillar of the system kicks in,

complementary access, in which IAEA inspectors have significantly expanded rights

regarding the observation, measurement and sampling of nuclear fuel cycle related

facilities and activities.

Where, then, lies the predicament?  The answer to this question is complicated –

because, in fact, no controversy has emerged, despite indications that it might have been

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[51] Donohue, D. "Tools for Nuclear Inspection", IAEA Information Series, Division of Public Information, 04-46161/FS Series 3/03/E,  p 1.
[52] Donohoe, p. 2.
[53] Hirsch, p. 152.
[54] Article 9, INFCIRC/540.

otherwise.[55]  The Additional Protocol, like the safeguards agreement preceding it, lays

out detailed guidelines regarding the information requirements of member states, as well

as the rules directing the conduct of inspections within a state – clearly elaborating the

second safeguards pillar within the treaty document.  And yet, like INFCIRC/153, the

Additional Protocol does not spell out the means by which the Agency will collect

information, or cast a "wide and shallow" net, in order to initially *detect* undeclared

programs beyond routine and regularized inspections.  This concern was not, of course,

an issue under INFCIRC/153, as the arrangement focused upon the diversion of nuclear

material at declared nuclear facilities and nothing else.  The Additional Protocol,

however, is entirely concerned with the detection of undeclared nuclear facilities, thus the

fact that these procedures have been left unspecified within the model protocol is

potentially problematic.   The Secretariat's response, to create a process that resembles

for all practical purposes a traditional intelligence cycle utilized by both intelligence and

policy analysts, is unusual.[56]  It is also potentially problematic as the IAEA cannot create

an intelligence service of its own, beyond the acquisition of information that is "open

source" or publicly available.  It is simply beyond the rules of right conduct for an

international bureaucracy to carry out clandestine intelligence activities against its own

member states, and thus the Secretariat would have to rely upon those very same member

states for information acquired through national technical means, and other sources.   If

considered in light of the major arguments that dominated the negotiation of

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[55] Moyland, pp. 10-11.
[56] A traditional intelligence cycle is "the process of developing raw information into finished intelligence for policymakers" and consists of five separate phases:  planning and direction, collection, processing, analysis and dissemination.  For more on the intelligence process see: Clark, Robert, M. *Intelligence Analysis:  A Target Centric Approach* (Washington, D.C.:  CQ Press, 2006).

INFCIRC/153, this move towards a more subjective, less technical, and intelligence driven process, is noteworthy. The specifics of that process, as they have evolved over the last decade, are worth further consideration, if the potential for controversy is to be fully understood.

*Beyond the Field: Open Source Information Sources*

There are three main sources of information utilized by the Secretariat in the construction of a state evaluation report: information collected from the field via on-site inspections, open source information culled using information technologies, and third party information, provided by member states in support of the safeguards mission.[57] The Additional Protocol extensively treats the acquisition of information from the field. It says nothing at all about the other two forms of information acquisition.

Open source information, long a means through which intelligence agencies and private industry have analyzed and evaluated the world around them, would seem to be the least controversial of the two. The very term implies transparency, conjuring visions of a benign process for the collection of information - available to everyone, if only we had access to the appropriate tools and the manpower necessary to do the job. This, however, would be a very inaccurate picture to draw. Open source information collection and analysis, having witnessed a surge in popularity with the advent of the internet, is arguably a very flawed, if potentially very useful, means through which information can be acquired. At least two interview subjects at IAEA headquarters involved in upper management expressed genuine concern over the extent to which it is currently being

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[57] As alluded to earlier, the IAEA prefers to refer to any intelligence provided by member states as "third party information" – a euphemism designed to avoid the controversial nature of the source.

utilized to construct state evaluation reports. One declined to be quoted publicly on his concerns.

The pitfalls associated with open source information, however, are increasingly well known. Recognizing the sheer magnitude of the information to be collected, as well as the questionable provenance of much of that information, two critical de-legitimizing factors associated with open source information can be identified: quantity and quality.[58]

The sheer quantity of information available to be collected and analyzed, using readily available, off the shelf (OTS) information technologies can be overwhelming. As a result, separating the wheat from the chaff in open source collection can be a challenge. To further complicate the problem of volume, is the problem of value: beyond the fact that it is often difficult to determine the difference between propaganda and truth, there is also the issue of sourcing. With relative ease, a single piece of information can be reproduced across the internet, existing in multiple locations, but traced to a single, original source. This results in a problematic effect: multiple citations that magnify the importance of potentially minor incidents. Thus, at the end of the day, there can be serious difficulties in relying too heavily upon open source collection and analysis as a measurement for undeclared nuclear activities.

As a result, the IAEA has chosen to approach the cultivation of open source information collection in the same vein as it has approached its work in the field: through regularized processes designed to minimize the weaknesses listed above. To do this, the Secretariat, through the Division of Safeguards Information Technology - Information Support Services (SGIT), has formed two new offices: the Information Analysis Unit

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[58] Interview, Jacques Bautes, Head, UN Iraq Nuclear Verification Office, IAEA Headquarters, Vienna, Austria (February 3, 2004).

(IAU) and the Satellite Imagery Analysis Unit (SIAU).  The IAU has ten analysts and seven information assistants who share "primary responsibility" for the collection and examination of open source information.  The SIAU, with four staff members, works in close coordination with the IAU, and collects open source IMINT, increasingly available through private, non-governmental sources.  Together, they are responsible for the maintenance of the Open Source Information System database, which collects open source information on a daily basis and houses it for later use.  In addition, they do country specific research on each member state in support of the state evaluation process, contributing significant quantities of background information on political, economic and social issues, as they are relevant to the design and implementation of a nuclear fuel cycle.  Finally, the Director General receives a daily briefing by SGIT on "the most important safeguards news of the day."[59]

In an effort to address the problems of quantity and quality, the SGIT follows a series of protocols.  Because information can be "indirect and circumstantial", in each case, the SGIT will:  scan for and collect a "large number and wide variety of sources"; "look for multiple types of (preferably independent) evidence", and "correlate with other information from state declarations, inspections, and imagery."[60] That said, the division admits that it may be necessary to expand certain sources in order to acquire the types of information that will be most useful in the preparation of state evaluation reports. A number of sources need further cultivation, including scientific and technical information,

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[59] Leppingwell et al, pp. 1-3.
[60] Leppingwel et al, pp. 4-6.

industrial infrastructure information, searching the "deep web"[61], regional-specific

information and multilingual information.[62] Nevertheless, while the addition of more

specialized sources will help to address the issue of quality, it also, inevitably, adds to the

problem of quantity.  Thus, in some ways, open source information collection can result

in a classic "Catch-22" situation.

These open source capabilities, however, are an area of significant growth in

nuclear safeguarding.  Through open source information collection, the bureaucracy can

collect a vast amount of data that gives insight into the political environment and

capabilities of member states.  And contrary to the traditional viewpoint expressed by the

Secretariat, which prefers to emphasize only technical evidence it can verify, open source

information can be utilized to investigate a state's intent to produce nuclear weapons.  As

John Lepingwell, Chief Information Officer for SGIT notes "inevitably one has to look at

motives whether you like it or not."[63]  And this is the area that makes some within the

bureaucracy most uncomfortable.  As the upper level management officer who preferred

to remain anonymous observed, the vast majority of information collected and assessed

comes primarily from Western sources.  As a result, the extent to which this information

is biased, even if cross-validated with other (primarily Western) sources, becomes

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[61] The deep web refers to the part of the web that has not been indexed through search engines such as Google.  In order to access this information, special tools are required.  SGIT is now subscribing to services that provide these tools.

[62] As former U.S. intelligence officer Robert David Steele noted in an address to the World Affairs Council in Washington, D.C., "If one cannot work in 29 plus languages on a 24/7 basis -- that is in real time and near real time, -- one is not serious. Print and broadcast media are actually the smallest part of the open source universe. Untapped perceptions, oral histories, informal exchanges, limited edition local publications, pre-prints, and geospatial as well as imagery information of all kinds -- including photos from cells phones with geospatial positioning system information -- this is the larger open source universe."  Obviously, such a comprehensive approach is beyond the Agency's limited budget.

[63] Interview, John Lepingwell, Chief Information Officer, Section for Information Support Services, Division of Safeguards Information Technology, IAEA Headquarters, Vienna, Austria (February 3, 2004).

problematic.  For instance, a major resource utilized by SGIT for base level information in preparation of the state evaluation report is the CIA World Factbook.  Regardless of the professional quality of this publication, questions of neutrality are legitimate.

Nonetheless, despite these misgivings, open source collection and analysis at the Secretariat continues to expand.  It is, without a doubt, a useful way to build a "complete picture" of a state's infrastructure beyond the official declaration, without significantly expanding the IAEA's budget. It can also be utilized as an important tool in the search for actionable information to verify the peaceful nature of a state's nuclear fuel cycle.[64]  And as of this writing, the potential legitimacy problems associated with the use of open source intelligence seem to be of more concern to those within the Agency, than without. And perhaps, that is why member states trust the IAEA to utilize these particular tools.

*Beyond the Field:  Third Party Sources of Information*

The use of third party information, or intelligence collected by a member state and utilized in the state evaluation of another member state, is probably the most controversial form of information employed by the Agency.  It is also, generally, the least common, and brought into play only when questions of irregular activities arise.  Clearly, the IAEA's experience with intelligence has been decidedly mixed, on the one hand proving vital in the identification of undeclared facilities in North Korea and Iraq; on the other, seriously undermining the UNSCOM mission, ultimately contributing to the ejection of the inspectorate from Iraq.

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[64] Interview, John Lepingwell, Chief Information Officer, Section for Information Support Services, Division of Safeguards Information Technology, IAEA Headquarters, Vienna, Austria (February 3, 2004).

When referring to third party information, most of the time one is referring to national technical means, or information collected via overhead surveillance, using satellites, unmanned aerial vehicles or surveillance aircraft. National technical means have been utilized in support of arms control since the earliest Cold War arms control initiatives. An essential way to verify US and Soviet treaty obligations under the SALT and START treaty regimes, surveillance technology is comparatively common, albeit extensively fielded by only a limited number of states. The quality of the technology varies significantly from state to state, and the US, arguably, has the most advanced capabilities.

That said, the Additional Protocol does not address the issue of third party information at all; therefore, it would be rather imprudent to assume that IMINT, or imagery intelligence, is the only type of third party information the Agency could utilize, should a member state choose to provide something further. That something could include SIGINT, or signals intelligence, which tracks electronic and telecommunications, or HUMINT, human intelligence, which includes any and all information acquired through a state's clandestine services. To utilize such information, however, would be exceptional, as most state intelligence services would resist sharing sensitive information with an organization that does not share security protocols, or, similar operational goals.[65]

In addition, third party information is vulnerable to questions regarding the intentions and credibility of the source. The exploitation of the UNSCOM inspectorate by the US is a perfect example of a state's perceived national interests overriding the greater goal of the mission, and all third party intelligence is generated in pursuit of state-

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[65] Interview, James Corcoran, Senior Officer for Outside Information, UNMOVIC, UN Headquarters, NY, NY (October 15, 2004).

based national interests.[66]  Nevertheless, it would be easy to assume that technically derived intelligence such as IMINT is less subject to manipulation, and therefore more easily legitimated than other forms of intelligence.  The misuse of satellite imagery, however, as demonstrated in Colin Powell's now infamous power-point presentation to the UN Security Council in preparation for the second war in Iraq, surely points to the fallacy in this conclusion.

This presents the IAEA with a distinct conundrum.  As the Agency does not possess its own intelligence service, and therefore must rely upon the intelligence provided by interested member states, it must grapple with the use of "finished" intelligence, or intelligence that has already been processed and analyzed by the member state.  This has had serious repercussions, particularly in light of unresolved nuclear disputes.  The lead up to war in Iraq is probably the most obvious example, and the extent to which the US government manipulated intelligence in its effort to build a case against Iraq is still a matter of controversy.  But continuing situations in Iran and North Korea point to the ongoing nature of this problem for the IAEA and its inspections regime.  For instance, officials at the IAEA observed that "most U.S. intelligence shared with the U.N. nuclear watchdog agency has proved inaccurate and none has led to significant discoveries inside Iran."[67]  Further, the US government has "cherry picked" intelligence to buttress its own case, while withholding evidence that would aid the IAEA and its inspectors.  For example, the House Intelligence Committee issued an analysis of Iran's nuclear program that "took a number of analytical shortcuts that present the Iran threat as

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[66] Because national security priorities determine targeting, intelligence provided by member states can't help but be influenced by the perceived threats and strategic priorities of the state's national government.
[67] "UN Calls Data on Iran's Nuclear Aims Unreliable" *Los Angelos Times* (February 25, 2007).

more dire – and the Intelligence Community's assessments as more certain – than they are."[68] This prompted the IAEA to respond in writing to the Bush administration, "calling parts of the document 'outrageous and dishonest' and offering evidence to refute its central claims".[69]

At the same time, the US government shares intelligence with the IAEA only when it is in the interest of the US to do so. For instance, when the Israelis bombed a Syrian site in 2007 under the auspices of preemptively targeting an illegal nuclear installation, the US ignored pleas by the Secretariat to share intelligence on the site in question. As Syria is a signatory to the NPT, and has concluded a safeguards agreement with the IAEA,[70] evidence of noncompliance would be vital for the Agency in its assessment of Syrian nuclear programs. Nonetheless, despite a personal plea by the Director General, the US refused to disclose the evidence in question.

Thus, the use of third party information, regardless of its quality, is potentially a divisive issue for any verification regime. Surprisingly, this has not been the case with the implementation of the Additional Protocol. The reason for this could be the precedent set by Hans Blix, when he insisted upon utilizing IMINT in support of the Agency's case against North Korea in the early 1990s. To some extent, the Board settled the issue by approving the legitimacy of third party information when it upheld Blix's

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[68] The report also attacked the integrity of the Director General Mohammed El Baradei, prompting some to speculate that the US was maneuvering for El Baradei's replacement. This would prove unsuccessful, and El Baradei and the IAEA would win the Nobel Peace Prize in 2005. Linzer, Dafna, "U.N. Inspectors Dispute Iran Report by House Panel" *Washington Post* (September 14, 2006).
[69] This evidence, ironically, would be echoed by the US intelligence community's own assessment of Iran's nuclear ambitions in the 2007 National Intelligence Estimate targeting Iranian nuclear capabilities and intentions. For a copy of the report, see World Wide Web address: http://www.dni.gov/press_releases/20071203_release.pdf.
[70] Although not an Additional Protocol.

position. [71]  Further, the Agency has handled the information entrusted to it with professionalism, refusing to allow a "two way street" to develop along the lines of the UNSCOM experience.  There has never been a documented instance of leaking intelligence to the media or the public by the Secretariat.  In this way, the bureaucracy has both reassured member states as to the integrity of its process, while encouraging national intelligence agencies to trust the Secretariat as a reliable partner.[72]

It is also possible that by leaving out specific guidelines and criteria for information collection when negotiating the Additional Protocol the Secretariat managed to avoid a politically explosive issue altogether.  This may partially explain the inspectorate's reluctance to discuss intelligence, and its role in the safeguarding process, without employing euphemisms, such as "third party information."  If no one publicly acknowledges the practice, everyone can simply continue to tolerate it.  If this is the case, however, it is possible that the issue remains unresolved, and could pose a threat to the Secretariat's legitimacy in the future.

This leads to an important question, one that is difficult to answer due to the bureaucracy's reluctance to discuss the existence, much less the use, of intelligence provided by member states.  How is that intelligence handled?  Are there bureaucratic and managerial protocols in place similar to those established for open source information?   Is there a process designed to interpret and contextualize "third party" intelligence, in which the objectives of the source are identified and set aside?  And as is certainly possible, if direct confirmation of the information is unavailable from other

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[71] Pellaud, Bruno, "The Future of the IAEA's Safeguards System" *Uranium and Nuclear Energy: 1994 – Proceedings of the Nineteenth International Symposium held by the Uranium Institute* (London:  Uranium Institute, 1994) p. 110.
[72] Interview, Vilmos Cserveny, Director of the Office of External Relations and Policy Co-ordination, IAEA Headquarters, Vienna, Austria, February 2, 2004.

parties, how much credence is given to the information, in light of the political agenda under which it was likely provided?  At this point, it is probably fair to assume that all third party information utilized by the Secretariat is carefully examined and assessed by Agency staff.  That said, there is no acknowledged or identifiably transparent process for its handling, at least so far as this author is aware, and while that allows the Secretariat to avoid a potentially divisive subject, should the inspectorate mistakenly build a case against a member state upon an exaggerated or false report, the consequences in terms of legitimacy would certainly be great.

### Implementing the Additional Protocol And Beyond

A final area that must be considered is the implementation of the Additional Protocol, and the progress to date on member state ratification and implementation of the new agreement.  While the Protocol opened for signature over a decade ago, the number of member states who have yet to sign and bring the Protocol into force continues to be an issue, especially in light of the fact that acceding to the expanded regime is voluntary.[73]  With 188 states party to the NPT, 125 have negotiated Board approved agreements with the Secretariat.  Of those 125, 117 have been signed.  Of the signed Protocols, only 88 are in force.[74]  This, however, represents a significant improvement upon the situation compared to the period directly following the negotiation of the Protocol.  Without the consistent support of the United States, including the willingness

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[73] In fact, 30 NNWS have yet to implement INFCIRC/153, or the original comprehensive safeguards agreement negotiated in 1972.  See World Wide Web address http://www.iaea.org/Publications/Factsheets/English/nptstatus_overview.html for an updated status of these countries.

[74] "Strengthened Safeguards System:  Status of Additional Protocols", updated as of May 30, 2008, available at World Wide Web address: http://www.iaea.org/OurWork/SV/Safeguards/sg_protocol.html

on the part of the Americans to negotiate their own Protocol, as well as to exert pressure

upon their allies to do the same, it is possible that progress to date would be significantly

more limited.

The U.S., as a nuclear weapons state, is in no way compelled to place its civilian

nuclear facilities under the oversight of the IAEA or its safeguards regime.  However,

since the negotiation of the NPT, both they and the British have consistently done so in

an effort to minimize perceptions of inequity between the NWS and the NNWS.  This

position helped the NPT to gain acceptance among states concerned that IAEA

inspections could unfairly disadvantage their civilian research programs, should the NWS

not be subject to similar restrictions.[75]  Similar support proved necessary following the

successful negotiation of the Model Additional Protocol, and U.S. willingness to

implement a correspondingly expanded safeguards regime persuaded a number of

otherwise reluctant states to sign and bring comprehensive safeguards into force.

Thus, on June 12, 1998, the U.S. signed an Additional Protocol with the IAEA

and promptly submitted the agreement to the U.S. Senate for ratification.  Unfortunately,

as is typical in American politics, the Senate has yet to pass legislation confirming the

Protocol, although they replied with advice and consent in 2004.  Regardless, U.S.

support for the Protocol has been consistent and strong, and the agreement between the

U.S. and the IAEA includes all of the same provisions as stipulated in the Model

Protocol.[76]  As Theodore Hirsch notes, "The U.S. Additional Protocol is designed to

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[75] "Agreement Between The United States Of America And The International Atomic Energy
Agency For The Application Of Safeguards In The United States (And Protocol Thereto)",
Background Brief, Air University, Maxwell-Gunter Air Force Base, available at World Wide
Web address: http://www.au.af.mil/au/awc/awcgate/acda/usiaea1.htm.
[76] An important exception being, of course, those facilities deemed critical to national security, or
facilities involved in their nuclear weapons program.  Thus, even the expanded safeguards regime

maximize its symbolic value", legitimating the expanded authorities entrusted to the IAEA by accepting them (in spirit, if not in law!) in application to their own programs.[77]

Further, the IAEA has implemented a comprehensive "action plan" to provide outreach regarding the protocol and its implementation.  This outreach has included a series of "interregional, regional and sub-regional conferences" to help states prepare for the new system of safeguards.  This effort has been increasingly successful, and combined with earlier Agency efforts, has resulted in a significant uptick in the number of states signing and ratifying the convention since 2005.[78]  That said, the Agency hasn't been required to test many of the new mechanisms embedded in the Protocol.  Of the 72 states identified by the IAEA as having "significant nuclear activities", only 47 have applied full scope safeguards through INFCIRC/540, and none of the threshold states are among them.

This points to two additional challenges to the inspection regime beyond the successful reform and implementation of NPT safeguards.  While the Additional Protocol clearly expands the Secretariat's authority, it does not, and cannot be expected to address the continuing problem of states that refuse to accede to the NPT, much less implement a system of comprehensive safeguards.  The gray zone in between compliance and non-compliance continues to exist, and this bedevils the IAEA as it calls into question the extent to which the current safeguards regime can truly regulate proliferation.  Further, the Additional Protocol, while a significant improvement over the system of safeguards

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in the U.S. is not comprehensive, nor is it intended to be, as the U.S. is a legal nuclear weapons state.

[77] Hirsch, pp.152-159.

[78] "Plan of Action to Promote the Conclusion of Safeguards Agreements and Additional Protocols" Update September 2008, available at World Wide Web address: http://www.iaea.org/OurWork/SV/Safeguards/sg_actionplan.pdf.

initially institutionalized under the NPT, cannot guarantee compliance by a member state. As was clearly demonstrated by the UNSCOM experience in Iraq, a state dedicated to defeating inspections and monitoring, even under conditions that allowed for unlimited access to the entirety of the state's nuclear facilities, can still be successful. The new Protocol cannot possibly duplicate the conditions imposed upon Iraq, even if cheating within the regime is suspected. Thus, the new system continues to be vulnerable to deceit, regardless of the expanded rights guaranteed to the IAEA under INFCIRC/540.

*Implications*

Despite considerable challenges to its authority, by 1997, the Secretariat had successfully guided the revision of the NPT safeguards regime through the negotiation of an Additional Protocol. Calling upon their experiences in Iraq, North Korea and South Africa, the Additional Protocol significantly expanded the access granted to IAEA inspectors during the conduct of on-site inspections. Further, the Secretariat devised a process, unspecified within the Protocol, to increase the ability of the Safeguards Division to detect the existence of undeclared nuclear facilities and programs within a member state's territory. Unlike the INFCIRC/153 negotiations, in which the bureaucracy played little role, this program was heavily influenced by the Secretariat, specifically the Director General, Hans Blix. It would seem clear then that the Secretariat had achieved a level of independent autonomy by the 1990s, and this autonomy was both positive and critical to the conduct of the 93 + 2 negotiations. And in the end, despite the fact that the revised safeguards were significantly more subjective and potentially more controversial, the Secretariat's legitimate position as an international public authority helped them to navigate the politically charged issue of intelligence as a means

of treaty verification and acquire a vital tool in the form of third party information, increasing the potential of the safeguards regime to be effective over the long term. Thus, it is fair to conclude that bureaucratic autonomy is not doomed to produce dysfunction, and bureaucratic culture can be overcome, if slowly. It also speaks to the kind of bureaucratic culture that may be most useful in the creation of legitimate public authority at the international level, and that culture is embedded in the acquisition of substantive authority through the exercise of technical expertise. This substantive authority can lead to procedural authority, but key to that transformation is the attainment of trusted agency, and trusted agency is rooted in the execution of a consistent right process.

However, despite the Secretariat's success as a public authority, initial implementation of the treaty was not straightforward, and it would take the combined efforts of the Secretariat and key member states, including the US and Britain, to begin socializing NPT signatories to accept an expanded system of nuclear safeguards. It is worth noting that neither the Secretariat nor its powerful sponsors could demand compliance, once again underlining the limits of power as a legitimating force.

And as of today, the implementation of the Additional Protocol has not been an unqualified success; it still depends upon the extent to which the Protocol will be applied and actualized by member states. This phase of the process has continued to be problematic for the Secretariat, and as of this writing, the full implementation of the Additional Protocol has yet to be realized. This points to certain limits in the extent to which an international organization can exercise public authority within international society. For although the Secretariat, without question, has acquired a demonstrable level

of authority over the period of its existence, its authority is both limited and imperfect. This may point to a threshold in the potential of international organizations as independent agents within international society.  This subject, and other "lessons learned", will be further explored in the following concluding chapter.

**In Conclusion**

The evolution of the IAEA's Secretariat as an international public authority, elaborated throughout the course of this thesis, demonstrates both the complexity and the challenge inherent in the creation and maintenance of legitimacy by an international organization expected to implement policy at the international level.  This evolution proved to be a long-term process, taking place over a period of more than fifty years.  In that time, the legitimacy of IAEA safeguards and their executor the Secretariat emanated and evolved from a number of sources, sources that shifted as the bureaucracy acquired a distinct identity, gained norms to support its activities, expanded its goals and missions, articulated and refined a right process and earned and re-earned independent autonomy as a trusted public agent in the face of numerous challenges.  This evolution, however, continues.  Experience to date can help to inform the ongoing maintenance and evolution of the Secretariat's public authority, as well as at the handful of other international organizations currently engaged in the implementation of multilateral policies at the international level.  Further, should the increasing number of global issues prompt the formation of new organizations faced with similar challenges, the experience of the Secretariat as a legitimate public authority could provide constructive, if not definitive, lessons upon which to model the establishment and maintenance of legitimacy and authority.

This final chapter will consider these lessons in three separate parts, each part focusing on a different phase of the legitimation process that helped to create the Secretariat's independent autonomy.  In the first part, the role of identity and expertise will be considered, the second will review the role of norms and their development, and

the third will examine the evolution of right process.  In each section, a brief summary of the Secretariat's experience in the acquisition and preservation of legitimacy and authority will be reviewed.  Following this, an appraisal of the implications of this evolution, as they relate specifically to the IAEA, will be considered.  Finally, inferences will be drawn from those lessons that could apply beyond the IAEA, to international organizations writ large.  At the very end, a concluding piece will summarize and highlight main findings, and contemplate future lines of inquiry.

## Identity, Expertise and Legitimacy

The successful founding of the IAEA can be traced to the determined interest of the US in the wake of WWII.  In response to its acknowledged responsibility following the creation of the first atomic bomb, and in the midst of an increasingly hostile, if cold, conflict between itself and the USSR, President Eisenhower leveraged American power to establish an international body conceived primarily to lessen the risk of arms racing between the Americans and their Soviet adversaries.  And yet, Eisenhower's vision of a fissile material bank did not emerge, and early on, long-term prospects for the Agency looked dim.  The Secretariat did begin implementation of its newly negotiated system of safeguards, triggered by Japan's request for nuclear assistance in 1958.  Still, the number of "clients" in need of IAEA assistance remained relatively few, until the US intervened and transferred responsibility for the oversight of its multiple bi-lateral nuclear assistance arrangements to the IAEA.   As one of the few providers of nuclear material assistance, recognizing the IAEA as the proper authority for the verification and monitoring of such materials endowed the bureaucracy with responsibility, and obligated states interested in the acquisition of such materials to accept the Secretariat's jurisdiction over the

verification of their peaceful nuclear programs. This system was not universal, of course, and limited only to those who voluntarily entered into agreements, either directly with the US[1] or moderated through the Secretariat itself. Nonetheless, it established an important precedent, and initially endowed the safeguards regime with legitimacy. Unfortunately, attempts by the US to directly control the affairs of the IAEA through the appointment of the first Director General, Sterling Cole, embroiled the Secretariat in the political tensions of the ongoing Cold War. It wouldn't be until the bureaucracy began to articulate its own identity under the second Director General, Sigvard Ecklund, that the IAEA would begin to emerge from the shackles of Cold War competition. Thus, power was a necessary, but insufficient, long- term legitimator for the Agency. It would take the development of the Agency as *an* authority, through the evolution of an independent identity, to begin to solidify the IAEA as an organization *in* authority, beyond the political control of its biggest patron, the U.S.

Ecklund would do this by re-focusing Agency attention on its central mission, the promotion of peaceful nuclear development, and he would skillfully utilize diplomacy behind the scenes to lessen the tensions that characterized much of the interaction that took place between member states on the Board of Governors. He developed the Secretariat as a body with a distinctly apolitical approach, necessarily engaged with the politics that influenced the organization, yet grounding the influence of the Secretariat in its technical expertise. And it is through technical expertise that the bureaucracy began to create its own identity and actively engage with society as an advocate and resource for the development of the peaceful atom. In this way, the Agency began to create a

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[1] And its allies, as the spread of nuclear technology enabled a select number of other countries to provide nuclear assistance. The Soviet Union would not require IAEA safeguards on its own bilateral transactions.

measure of autonomy beyond the point at which powerful state interest was the only, or defining, legitimating influence.

*Implications for the IAEA*

There is little question that the IAEA's evolution as the leading international expert in and advocate for peaceful nuclear development formed an essential component of the Secretariat's identity, separate from that of its founding member states. The Secretariat's expertise has allowed it to expand its public authority, including its designation as the principal organization responsible for the execution of safeguards under the NPT, its acquisition of new responsibilities in the area of nuclear safety, and its successful advocacy for, and negotiation of, a full scope safeguards regime. It is critical to note, however, that this identity was rooted in, and continues to be defined by, the bureaucracy's ability to remain distinctly apolitical. This is not entirely straightforward, as with the acquisition of autonomy, comes the acquisition of independent interests. These interests can enhance the Secretariat's status as a trusted agent, or undermine it, depending upon the extent to which they support or compromise the bureaucracy's standing as an expert authority. And because the IAEA does not represent a single interest, it is capable of acting as a politically neutral third party, moving beyond the borders of a member state's sovereign territory, often literally. As demonstrated in the UNSCOM case, there is a difference between an international civil servant and a representative of a competing state, even if that representative has been "seconded" in support of a larger mission.

Thus, it is exceedingly important that the IAEA not compromise its political neutrality. This does not mean that the Agency cannot, or should not, formulate interests

or engage in politics.  It can, and often must, do so in order to execute its mission.  What is must not do, however, is engage in political advocacy for or against any specific state.  In its simplest sense, the Agency cannot take sides.   Because its status as a trusted agent is tied to its technical and apolitical expertise, identity must be rooted in its mission, and not in a particular political viewpoint.

This may seem self evident, and the Secretariat, if not the member states, has done a fairly respectable job over the past fifty years in its efforts to avoid political advocacy.  However, the temptation to move beyond the realm of the technical, and actively promote a specific political agenda, exists.  This may be especially true in the wake of the Secretariat's successful implementation of the 93 + 2 process, followed approximately one decade later with the acceptance of the Nobel Peace Prize in 2005.  The Agency has proven its effectiveness in the arena of diplomacy and negotiation, and Mohammed El Baradei and the IAEA rightly received recognition "for their efforts to prevent nuclear energy from being used for military purposes and to ensure that nuclear energy for peaceful purposes is used in the safest possible way".[2]  However, the Director General's recent pursuit of a more overtly political versus technical strategy has the potential to undermine the Agency's neutrality.  While beyond the timeframe covered by this thesis, the Director General's activities in 2007 and 2008 are noteworthy.  In the first instance, El Baradei negotiated an agreement with Iran that resulted in fairly uniform condemnation in Western capitals. French Foreign Minister Bernard Kouchner even went so far as to remind the Director General that the IAEA was in charge of the technical, and

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[2] "The Nobel Peace Prize 2005", text at World Wide Web address: http://nobelprize.org/nobel_prizes/peace/laureates/2005/.

not the political side of the issue.[3]  In the second case, the Secretariat swiftly expressed

support for the recent landmark nuclear deal between the U.S. and India, validating an

arguably controversial agreement before it had gained the full support of the Board of

Governors.[4]  This marks an intriguing development for the Secretariat, in which a more

politically active Director General seeks to use the Agency's public authority to directly

influence the international environment.  This, however, clearly calls into question the

Secretariat's neutrality, and without this neutrality, the role of the bureaucracy as

"neutral" technical expert may be compromised.  If this is the case, the Secretariat could

lose an important and legitimating aspect of its identity.  Therefore, the bureaucracy

should probably approach such experiments with caution, if at all, recognizing that the

limits imposed upon its actions are the very limits that foster trust and partially endow it

with the legitimacy to function as a public authority at the international level.

*Implications Beyond the IAEA*

In addition to the observations described above, additional inferences regarding

the influence of experience on the legitimation of public authority on international

organizations writ large can be considered.  Perhaps the most complex of these is the

issue of identity formation.  It was clearly in the long-term interest of the IAEA to

cultivate an identity independent of its member states.  And yet, that it was able to do so

is the result of a combination of situational circumstances, including:  the collective

interest in and support for peaceful nuclear development; a broad mission statement that

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[3] Specifically, Director General El Baradei concluded an agreement with Iran See "French
Minister to IAEA Chief: Listen to the West" *New York Sun*, February 13, 2008.
[4] For more information on the U.S.-India nuclear deal, see "The U.S.-India Nuclear Deal"
*Backgrounder*, Council on Foreign Relations, available at World Wide Web:
http://www.cfr.org/publication/9663/.

gave the bureaucracy focus and direction beyond member state national interests; and the influence of specific players who steered the Secretariat in what proved to be a fortuitous and necessary direction:  technical expertise.  The ability of an existing, or even new, organization to comprehensively mimic this experience is likely problematic.  Additionally, if you consider that it is very rarely in the short-term interest of a state to promote the formation of an international organization's independent identity, the question of public authority exercised beyond the state is significantly complicated.  That said, it is worth noting that the Secretariat benefited from cultivating itself as *an* international expert on nuclear matters, broadly understood, allowing it to expand its mission base in a way that was consonant with its charter.  This expansion proved effective and presented the Secretariat with the opportunity to apply its authority across a wider spectrum, in areas such as nuclear safety.  Further, the bureaucracy's dedication to the technical over the political enhanced the potential for a trusted relationship with those states most important to the safeguard regime's success:  the states who placed their nuclear facilities under IAEA safeguards.  Accordingly, it may be useful for an international organization actively involved on the ground to hew to a determinedly technical program as a means of creating substantive authority, leaving the negotiation of political issues and the formation of a political agenda to its member states and governing body.

And it is the early acquisition of substantive authority by the Secretariat that is particularly noteworthy, and has interesting implications for the acquisition and maintenance of legitimate public authority by international organizations writ large.  For the Secretariat, substantive authority proved to be a necessary condition prior to the

acquisition of procedural authority through the articulation of a nonproliferation norm, enshrined in a nonproliferation treaty. Substantive authority rooted in technical expertise allowed the Secretariat to create trusted agency prior to that act, and it is this trusted agency that continued to sustain the bureaucracy in the face of challenges to the nonproliferation regime itself. Unlike domestic government, where legitimacy often emanates from trust in a well-defined system, there is no trusted "system" per se upon which an international organization can rely to back up its authority. At the domestic level, agents such as the police do not have to prove their expertise in order to enact rules and issue commands; a vast and well-institutionalized system of law establishes that authority for them. In the absence of such concrete law at the international level, a not uncommon state of affairs, substantive authority can sustain an organization, and in the case of the IAEA, assist in the creation of the procedural authority that placed the Secretariat *in* a position to enact rules and issue commands. Both of these lessons seem broadly applicable, even if the extent to which an organization is able to acquire independent identity is limited by circumstances.

Another less complex and eminently practical way in which international organizations can enhance an independent identity is to cultivate a genuinely international, and in-house, civil service. The formation of a civil service is by no means a perfect solution – few people can completely ignore their national allegiances. Nonetheless, the processes of organizational development function in such a way that it is not unusual for staff to begin to identify strongly with the organizations for which they work, especially if that organization has a clear mission and a strong sense of identity. As proponents of bureaucratic politics frequently observe: where you stand is where you

sit.  While this has both positive and negative implications in terms of policy formation, it can also be a unifying influence, promoting organizational cohesion and shared identity.  Further, the creation of a civil service can insulate bureaucrats from many of the negative consequences associated with "disloyalty" when their compensation and advancement is dependent not upon the home state, but upon the international organization with whom they are employed.

Thus, a few concrete lessons can be taken from this specific case, particularly in light of the UNSCOM experience discussed in Chapter Four.  First of all, international organizations responsible for the implementation of multilateral policy should, whenever possible, cultivate an independent civil service.  Secondly, although it may be more expensive to do so, the civil service should not consist of nationals "seconded" to the organization or paid by the home country.  Further, it should be possible for civil servants to build a career within the organization, and not assume that long-term advancement is dependent upon their allegiance to the home state.  Finally, it is important for an international civil service to have broad representation from amongst its member states. This can be, in some cases, beneficial in a practical sense, as an UNSCOM inspector observed during an interview.  He noted that the Westerners on the team initially found it difficult to believe that the Iraqis could have produced an advanced nuclear weapons program under such comparatively primitive conditions (specifically referencing the inspected facilities).  It wasn't until a colleague from the developing world admired at length those same facilities that he realized the extent to which the resources routinely at his disposal had limited his ability to accurately assess the Iraqi initiative.  That said, there is inevitable disparity in the quality of applicants from member state countries,

particularly in light of the inequities in human capital development. In that case, the formation of an international civil service will generally require significant recruitment and training initiatives. This creates additional budgetary concerns, and makes the goal even more difficult to properly implement.

## Norm Development

The evolution of a nonproliferation norm would take over a decade, require extensive socialization at the state level, and the cooperation and support of two critical states: the US and the Soviet Union. Originally begun in the General Assembly with a proposal from Ireland, the nonproliferation norm would at first be a response to vertical proliferation in the form of superpower arms racing. Energized by Soviet concerns over the transfer of nuclear authorities to U.S. allies in Europe (especially West Germany), and recognizing that disarmament as a practical reality was unlikely to be viable, early supporters of a comprehensive international solution to the problem of proliferation slowly refined the goals for a nonproliferation treaty through a series of resolutions in the General Assembly. The superpowers, coming on board in response to increased concerns over horizontal proliferation, began to negotiate with a few key allies behind the scenes, in an effort to establish a base political settlement prior to opening the proposal for wider debate. As the superpowers were resolving their own issues, however, the process of socialization continued, and the nonproliferation norm evolved two distinct faces: a prohibition against the development of nuclear weapons, and an emphasis on the sovereign right of member states to develop peaceful nuclear technology. The superpowers, whose national interests were best served in limiting the spread of nuclear arms beyond the existing five nuclear weapon states, supported this "balance of

obligations", institutionalizing the existing status quo in return for a guaranteed right to, and support for, peaceful nuclear development.

Little did the superpowers anticipate, nor did they fully grasp, the ramifications this expanded understanding of the nonproliferation norm would have upon the system of safeguards established under the NPT and entrusted to the IAEA. On the one hand, it successfully imposed nuclear celibacy upon those states ascending to the treaty. On the other hand, it created the conditions under which a highly technical, if minimally intrusive, system of safeguards could be implemented. And the NNWS, having coordinated on a number of issues in the process of negotiating the NPT, had significant influence upon the articulation of a safeguards document, as well as a move to expand the Board of Governors. While the wealthy states with advanced nuclear programs ultimately benefited the most from these developments, it marked an important shift. For the first time nuclear weapon states did not solely define the parameters of right conduct on the issue of nuclear politics.

Implementation of the treaty, however, would prove more problematic. A number of states on the "threshold" of achieving a nuclear weapons capability would remain outside the treaty, and in 1974, India, a holdout, would cross that threshold with a "peaceful" nuclear test. The fact that peaceful nuclear explosions remained a legal right enshrined within the NPT would point to a larger problem for the treaty: reconciling the advance of technology with the institutionalized understanding of "peaceful" development, negotiated over a decade during the socialization of the nonproliferation norm. While peaceful nuclear explosions would quickly fall out of favor, having few practical applications despite early optimism regarding their use, other activities, such as

plutonium production and uranium enrichment, would prove far greater challenges to the NPT's initial understanding of the boundaries defining right conduct in the production and use of nuclear technology.

*Implications for the IAEA*

The institutionalization of a nonproliferation norm, and the subsequent designation of the IAEA as the primary body responsible for treaty verification, institutionalized the procedural authority necessary for the Secretariat to act as a legitimate public authority. While early focus on the development of technical expertise helped the Agency to create an identity separate from its early sponsors, institutionalizing the boundaries of right conduct within international law substantiated the IAEA's safeguarding mission in a way that state power and substantive authority could not. The Secretariat was no longer simply an expert on, but an institutionalized authority in the monitoring and verification of appropriate behavior as defined by the NPT.

That said, the development and defense of norms is a complicated task, and the socialization of a nonproliferation norm was significantly influenced by the political conditions under which it came to fruition. Legitimacy, as observed by Ian Clark, is historically variable, and the articulation of a legitimate nonproliferation norm would prove no different. The Secretariat's work towards the promotion of peaceful nuclear technologies in the years leading up to the NPT's negotiation very likely influenced international society's preference for a sovereign right to peaceful nuclear development. And while the nonproliferation norm has been institutionalized through the NPT, it continues to be subject to socialization – and interpretation – by members of international society. The Secretariat can influence this process. What it cannot do is operate outside

the legal boundaries laid out by the NPT.  Where these boundaries are unclear, or shifting, the bureaucracy's mission is greatly complicated.

How best, then, can the Secretariat continue to influence the nonproliferation norm?  The most certain way would be to continue to build upon the activities that allowed the bureaucracy to influence the evolution of the norm in the first place.  As the leading international authority in the field of nuclear technology, the Secretariat can appeal to its expertise when it chooses to promote those viewpoints central to its mission: peaceful nuclear development and the safeguarding of nuclear materials.  In this capacity, it can utilize the "bully pulpit" to influence the agenda, prioritize issues and explain technical subjects critical to the improvement of important nuclear problems.  The Director General's work to limit the production of fissile materials, and support for multinational fuel cycle arrangements,[5] are examples where the Secretariat uses its expertise to further the development of normative constraints beyond the scope of the existing NPT framework, in essence, acting as a norm entrepreneur.  This type of socialization can be effective over time, although it requires the support and cooperation of key players within international society, as did the emergence of the nonproliferation norm itself.  Further, it is in the bureaucracy's best interest to do so, as the development of clear rules that are institutionalized and consistently applied surely are preferable to their ad hoc articulation and application.  As the body responsible for verifying treaty

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[5] For details on such a program, see LaMontagne, Stephen A., "Multinational Approaches to Limiting the Spread of Sensitive Nuclear Fuel Cycle Capabilities" Belfer Center for Science and International Affairs (April 5, 2005), available at World Wide Web address: http://belfercenter.ksg.harvard.edu/publication/2121/multinational_approaches_to_limiting_the_spread_of_sensitive_nuclear_fuel_cycle_capabilities.html?breadcrumb=%2F; and Mueller, Harald "Short-term Steps on Multinational Fuel Cycle Arrangements:  Screening Through the Proposals" Paper presented at the "Special Event" on the occasion of the IAEA General Conference (September 25, 2006).

compliance, the Secretariat finds itself in a dubious position when it is expected to operate under circumstances where boundaries are either unclear, or have yet to gain full acceptance by member states, especially if they are not implemented in a way that is fair or equitable (while beyond the scope of this thesis, the current situation with Iranian uranium enrichment comes to mind.).

*Implications Beyond the IAEA*

Because norms matter, and the institutionalization of norms can help in the overall success and maintenance of international organizations, it is important to better understand how the ongoing interpretation of a norm affects public authority. Based upon the Secretariat's experience, it seems that a major barrier to the ability of an organization to adapt in the face of normative change is inflexibility within a political settlement. The NPT is over 35 years old, and yet there is no accessible mechanism within the treaty to account for changes in nuclear technology. The right to a peaceful nuclear explosion continues be part of the document, albeit as a "dead letter" and an anachronistic reminder of the relatively incomplete understanding of nuclear power at the time of the treaty's negotiation.[6] While this hasn't seriously undermined the safeguards regime, the issue of unregulated fissile material production could.

If we recognize that the boundaries of right conduct will shift over time as norms continue to evolve, it seems sensible to ensure that mechanisms exist to allow for flexibility within any political settlement, at least in so far as its practical application is concerned. The first IAEA safeguards agreement allowed for this when it recognized that specific safeguarding arrangements would vary depending upon the facility to be

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[6] In addition, the Comprehensive Test Ban Treaty, or the CTBT, outlaws all nuclear explosions, peaceful or otherwise.

inspected and future advancements within the field. Nonetheless, such a mechanism would require a high level of trust, something that is difficult to create within international society. This trust, as I have argued, can be earned. It cannot, however, be assumed or assured. Therefore it is necessary to create processes that build and reinforce trust. Thus it is to right process as a final aspect of legitimacy that we now turn.

### Right Process

The evolution of right process began early in the Secretariat's execution of nuclear safeguards. Entrusted with the verification of nuclear supplies and technology provided to member states by the US and through its activities as a clearing house for nuclear materials, the Secretariat chose a deliberately anti-confrontational style in its approach to nuclear safeguarding that would circumvent many of the "human factors" predicted by the nuclear experts who authored the Acheson Lilienthal report shortly following the explosion of the first atomic bombs. This mindset would only be reinforced through the explicitly technical safeguards regime conceived under the NPT in 1970. And for several decades, such an approach would prove largely successful, allowing the bureaucracy to operate within the sovereign territory of member states, while efficiently executing the tasks laid out for them within the strict parameters of INFCIRC/153. During this period of time, the Secretariat would expand its mission, further extending its authority as the chief international organization in charge of nuclear affairs.

And then, in the wake of the first Gulf War, the NPT and the bureaucracy's approach to nuclear safeguarding would be tested with the revelation of a secret Iraqi nuclear weapons program. The Secretariat would assist in the UNSCOM mission to

disarm Iraq, and help to insure that Iraq's weapons of mass destruction were completely destroyed. Responsible for the nuclear portfolio, the IAEA would be challenged to assume a more aggressive approach to detection and monitoring of the Iraqi nuclear weapons program, as Saddam Hussein executed an elaborate campaign of deception and denial in an attempt to undermine the ability of the inspectorate to carry out UNSCOM's mission. However, while Hussein must bear the final responsibility for UNSCOM's failure, the United States, whose subversion of the UNSCOM mission in the pursuit of their own national interests, surely contributed to the eventual de-legitimation of the inspectorate's process, and presence, in Iraq. Combined with their experiences in North Korea and South Africa, the Director General of the IAEA would emerge from the early 1990s with a new goal: the reformation of the safeguards process under the NPT. The lessons learned from UNSCOM, in particular regarding the importance of "right process", would color these negotiations, and the system that would eventually result in an Additional Protocol.

*Implications for the IAEA*

Throughout its history, the Secretariat has executed a number of separate processes in the performance of its safeguarding mission. Beginning with the "Agency's Safeguards" as articulated under INFCIRC/26, through the "Model Additional Protocol" laid out in INFCIRC/540, the Agency has evolved an approach to safeguarding that it has refined and reformed - testing several different processes along the way. What is difficult to deny is that the articulation of a "right process", at least for the IAEA's Secretariat, has proved critical to the formation and maintenance of its legitimacy and the

successful execution of its public authority.  Important lessons can be drawn from these experiences.

Perhaps most useful was that the consistent exercise of right process, a process that was widely perceived to be legitimate by those to be governed by it, resulted in a tangible benefit for the Secretariat:  it enhanced the status of trusted agent established early on in its career, which allowed the bureaucracy significant autonomy and latitude to operate within a state's sovereign territory, without overtly undermining (or directly challenging!) the state's claim to sovereign authority.  When critics initially expressed concern that the IAEA's bureaucracy would acquire too much power should it be handed an expanded safeguarding mission under the NPT, the charge was answered by looking at its past conduct.  Few serious objections were raised on either side of the Cold War divide,[7] and the  Secretariat found its authority institutionalized under the NPT.  It successfully executed NPT safeguards for close to twenty years, and in doing so, routinized its role as an international, and trusted, public authority.

Next, the Secretariat's experience with the UNSCOM inspectorate would lead to several practical observations that would figure prominently in a revised safeguards regime.  First, and most importantly, UNSCOM demonstrated that in the absence of a right process, legitimacy can be irreparably compromised.  And with the loss of legitimacy comes the loss of authority – and the ability to execute a mission successfully. This highlights the relationship between access and right process.  Ultimately, access to nuclear facilities must be the primary objective of the inspectorate, for it is only through on site verification that any degree of certainty can be achieved.  And yet, even in an environment such as UNSCOM, where the inspectors encountered few legal barriers to

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[7] Possibly yet another testament to its successful identity as an apolitical expert.

their investigations, violating process resulted in their ejection from Iraq. Thus, although clearly articulated processes can slow down the performance of inspections, they ultimately help to increase the likelihood that inspections will take place. Without inspections, reliable verification is untenable.

Secondly, a key lesson learned, and implemented, in the Additional Protocol involved information acquisition and security. While UNSCOM testified to the important role intelligence can play in the detection of clandestine programs, the Secretariat observed first hand the importance in creating processes that would validate, verify and keep secure such information. With the expanded scope and increased subjectivity of the Additional Protocol, such processes will likely prove indispensable, as high standards are essential should the bureaucracy utilize information that is at times controversial and subject to manipulation by the state provider. Thus, the Secretariat should ensure that such processes exist for all forms of information utilized in the "detection" process, both open source, and information provided by third parties.

Finally, while extensive protocols can at times be an obstacle to the timely intervention and implementation of safeguards, they can also, in some arenas, result in increased effectiveness. One of the ironies of the UNSCOM experience was that it was largely successful. Unfortunately, disorganization in the process undermined the inspectorate's ability to collect, organize, analyze and disseminate conclusions effectively. Only the nuclear portfolio was satisfactorily closed, and it was, not inconsequentially, authored by the IAEA. Thus, clearly articulated processes versus ad hoc initiatives can produce greater organization, which in turn, can result in greater effectiveness.

*Implications Beyond the IAEA*

That being said, there is a genuine and inevitable trade off to be made between right process and the ability of an organization to be effective. In so much that expertise implies impartiality, process demands it. The IAEA, and very likely most international organizations, must meet a higher standard in "following the rules". Often, these rules seem to limit the extent to which an organization can act. And yet, the rules and their consistent and equitable application form the backbone of the legitimacy that gives rise to international public authority. Thus, it is unlikely that any organization, much less the IAEA, will ever be perfectly effective, even if they are perfectly legitimate.

Organizations are not states, they do not have sovereign rights, they do not exercise hard power and they cannot appeal to national interests to justify abrogating the role, rules and processes that define and delimit their authority. In that sense, while international organizations can achieve a degree of autonomy, and do exercise a level of independent authority, they will always be limited in their ability to do so. Nevertheless, if the experience of the IAEA's Secretariat is in any way indicative, the potential for international organizations to occupy positions of authority and successfully implement international policies, while incomplete, is promising. And that alone seems compelling reason to further consider the cultivation and maintenance of legitimacy and its relationship to the exercise of public authority at the international level.

*Concluding Thoughts*

It would seem that despite assertions to the contrary, the experience of the IAEA demonstrates the extent to which legitimacy and the exercise of independent public

authority can be relevant at the international level. It can also, when exercised responsibly, be a very good thing. While claims that power ultimately defines conduct within an international system continue to be broadly endorsed, the IAEA's system of nuclear safeguards testifies to a rules based society, an imperfect society, but a society nonetheless in which both states and organizations can enact rules and issue commands. Yes, power undoubtedly played a role in the founding of the IAEA, and its initial establishment as a nuclear authority. It would seem, however, that state power alone was not enough to endow the Secretariat with the autonomy necessary to successfully exercise public authority. It would take additional influences, specifically the creation of an independent, subjective authority rooted in technical expertise, the evolution of mission specific norms institutionalized in the Nonproliferation Treaty, and the articulation and practice of a right process, to allow the Secretariat to realize its potential as an autonomous and trusted public authority. And it is this trusted agency that enabled the Secretariat to re-establish its legitimacy despite serious challenges to its authority and direct the reform of its nuclear safeguards process.

As we contemplate greater interdependencies that increasingly penetrate the shell of Westphalian sovereignty,[8] the experiences of the Secretariat demonstrate one route through which an international organization, entrusted with the execution of a mission that is genuinely global in character, can establish, acquire and expand the legitimacy and independent autonomy necessary to act in an authoritative manner, beyond the point at which state power is the defining variable.

However, it is also apparent that the authority to which the IAEA's Secretariat lays claim is limited, in the sense that it is not comparable to the authority wielded by a

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[8] Thanks to William Walker for this particularly evocative turn of phrase.

state, even a weak one.  IAEA authority, if it emanates from identity, norms and processes, can ultimately be compromised if it significantly departs from its established identity, the observation of accepted rules, or the execution of right processes.  Unlike a state, the Agency has no right to exist beyond its ability to successfully execute the mission with which it has been tasked, and the extent of its autonomy is limited to the confines of that environment.  This, if anything, is the most notable finding in this study. For while the IAEA as an international organization demonstrates the potentials inherent in the exercise of public authority, potentials that have arguably been underestimated by many practitioners of international relations, it also reveals the limitations intrinsic to that authority.  The extent of those limits, however, have yet to be clearly defined, and the IAEA continues to explore the possibilities, and pitfalls, in the exercise of public authority at the international level.

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