

CHAPTER 11

FINANCING IAEA VERIFICATION OF THE NUCLEAR NONPROLIFERATION TREATY

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Introduction.

Nations spend billions on defense, but the amount the international community spends to finance International Atomic Energy Agency (IAEA) verification of the Nuclear Nonproliferation Treaty (NPT) in all states is only \$120M/year.¹ The provisions for financing IAEA programs are set out in the Statute of the Agency, and that arrangement has proven to provide adequate funds to sustain the program and to bring the effectiveness of the safeguards system to its current capabilities.

The IAEA enjoys enormous international prestige and is held up within the United Nations (UN) family as a model of efficient operation. Now that the Democratic People's Republic of Korea (DPRK) has carried out a nuclear test, is there an opportunity to reconsider whether the Agency should be asked to do more, and whether added investments in it would help to bolster the nonproliferation regime?

There may be a number of areas where the Agency might take on additional capabilities or improve its current performance if the Agency had additional money, and in some cases, additional authority. DPRK provides a clear justification for the types of activities mentioned, and I am optimistic that should the Director General ask for significant safeguards expansions and upgrades, the funding will be forthcoming. To my

mind, the Director General should convene a council of wise men to assist in determining how best to respond in this matter.

In addition to the areas addressed earlier today, the Agency needs to replace its Safeguards Analytical Laboratory and wishes to accelerate the turnaround time for environmental samples. It needs to implement advanced data visualization systems to analyze and evaluate the streams of data arising from open source information analysis and other modern safeguards methods. It should also bolster the NPT regime by: (1) strengthening international norms against proliferation; (2) assuring the human capital needed to carry out the myriad tasks associated with implementing the nonproliferation regime; (3) facilitating or even stimulating the global expansion of nuclear power while providing compelling advantages to states to refrain from acquiring sensitive nuclear technologies; (4) developing and deploying nuclear power systems tailored to the needs and challenges of the developing areas of the world—where future problems are most likely to emerge; and (5) beginning constructive steps in relation to the disarmament commitments of the nuclear-weapons states parties to the NPT, and extending that enterprise to include all states possessing nuclear weapons.

These roles could have fundamental and significant impacts on international security; they would cost from tens of millions to billions of dollars or Euros per year to realize.

Financing IAEA Safeguards: Existing Practice.

Under paragraph 2 of INFCIRC/153, the Agency is *obligated* to ensure that safeguards will be applied

in accordance with the terms of the safeguards agreements. Safeguards in non-nuclear-weapons states concluded pursuant to INFCIRC/153 must be applied; member states must pay the fees assessed under the provisions of the IAEA Statute² as part of the regular budget to ensure that the Agency is able to meet its obligations. All other IAEA programs are voluntary in nature and depend upon the availability of adequate resources to be carried out.

The existing financial system provides a reliable funding stream for the regular budget assessments once established; the challenges arise in:

- defining just what safeguards are actually necessary to meet these obligations, and,
- the difficulty in achieving increases in the regular budget when additional activities, staff or equipment are considered necessary.

During the long lean years, the Safeguards Department lived on zero real growth, coping by introducing technical innovations that improved verification coverage and quality – equipping inspectors and inspection systems with computers and getting facility operators to make their declarations on computer media that can be read by inspector-computers at the facilities during inspections. The Safeguards Department also gained efficiencies by deploying its inspectors increasingly through regional offices as a way to increase the days an inspector can actually spend inspecting, by reducing or cutting out inspection activities that are optional (such as in nuclear-weapons states) and by changing the safeguards rules and procedures to either reduce the requirements or to find alternative means to secure the assurances needed. Pierre Goldschmidt managed to

secure a substantial increase in the regular safeguards budget, but it took years before the Board was finally convinced.

The regular budget for financing the IAEA is governed by the provisions set out in the Agency's Statute, which each member state accepts. Each year, as safeguards is a mandatory program, budget estimates of what it will cost to meet the required verification activities are prepared, based on guidance from the director general and a sense conveyed informally from the Geneva Group.³ Sometimes the guidance comes first, sometimes it is a reaction representing what the director general senses the traffic will bear. Following internal consultations and adding the required shares to support the management activities and other costs, the director general presents the budget to the Program and Budget Committee of the Board in May of each year. When the Committee is satisfied, it recommends the budget to the Board, and when it is satisfied, the Board submits the recommended budget to the General Conference for its approval.

Budget increases are resisted for a host of reasons. National treasuries always have competing demands. In addition to resisting expenditures simply due to competing demands, IAEA member states are normally not seeking to expand the power of international organizations, as sooner or later the power and influence they achieve might be exercised against a state's national interests. Preventing mission creep remains an active concern. Also, achieving an increase in the regular IAEA safeguards budget also involves maintaining some sort of balance with contributions to technical cooperation. Moreover, when cuts in other programs have been proposed as a means to provide additional money for safeguards, the director general has refused.

There are ways to mobilize a consensus to demonstrate that additional capabilities are needed. The director general convenes wise-men meetings from time to time; there are internal and external audit requirements (financial and programmatic) to assure that the ship remains on course. The U.S. General Accounting Office carries out independent program reviews to determine for the U.S. Congress that its appropriations are providing the capabilities it seeks.

All things considered, the Agency's verification capabilities are today vastly superior to where they stood when the NPT came into force, or when Iraq and the DPRK first violated their nonproliferation undertakings.

Extrabudgetary Contributions.

In addition to the regular budget, the IAEA relies on extrabudgetary contributions from its member states. In 2005, member states provided extrabudgetary contributions in the amount of \$130,863,115 to the Agency in cash and in kind.⁴ Most of this is for the Technical Cooperation Fund, but some of it goes to the Safeguards Department—not for mandatory inspections, but for equipment or inspections in nuclear-weapons states, for example. The U.S. voluntary contribution to the IAEA in 2006 was \$49.5 million; \$19.1 million of that was for safeguards and \$14.2 million was for the U.S. Program of Technical Assistance to Agency Safeguards (POTAS). Counting POTAS, there are about 18 member state support programs that provide money and talent for the Safeguards Department to improve its capabilities and performance.

Extrabudgetary contributions are also provided by other UN organizations and other international organizations, in the amount of \$6.8M in 2005. This included a contribution by the Nuclear Threat Initiative (NTI).⁵ At the special event that took place during the 2006 IAEA General Conference, former Senator Sam Nunn, Co-Chairman of NTI, announced a contribution of \$50M to be used by the IAEA, together with other contributions, to establish a nuclear reactor fuel bank that would provide assurances of supply to states adopting nuclear power. NTI represents a new departure for the IAEA, a philanthropic institution investing in the IAEA to accomplish activities related to nuclear security and nonproliferation issues.

The Agency has a policy in place to accommodate contributions from virtually any source, assuring that the Agency's policymaking organs will determine how such funds are managed and spent.⁶ Note that it is not common for the IAEA to solicit funds for activities that are not supported by existing mechanisms. However, the Board, acting on a request by the director general, did establish a special fund for the receipt of the Nobel Peace Prize, the "IAEA Nobel Cancer and Nutrition Fund." In establishing the fund, "the director general also encourages member states and other donors to contribute to the special fund by making available additional resources both in cash and in kind, to be used to maximize the Agency's ability to build capacity and transfer the needed know-how to developing countries."⁷ Thus, a precedent—albeit limited—has been established in which the Agency has gone beyond the normal financial means available to it to encourage donations from unspecified parties.

Expanding the Nonproliferation Regime on a Different Financial Basis.

Increasing contributions from national treasuries could be significant if there is a proliferation event—such as the DPRK nuclear test—or if a new treaty comes into force that carries financial obligations with it. Short of that, further increases are likely to be sporadic, driven when a consensus eventually emerges demanding improvement.

However, there is another way. Suppose that the nonproliferation regime provided a steady stream of significant income so that the decision shifted from how to raise money to how to spend it. The whole notion of creative steps to strengthen the nonproliferation system would then appear in a different light.

Here are five ways in which such a condition could be created.

1. *Endowment*: A “Nonproliferation Endowment” could be chartered to improve the IAEA’s ability to verify the NPT and to stimulate peaceful nuclear programs designed for economic development and a stable peace. Such an endowment could be funded by substantial donations from wealthy individuals or foundations. Such an effort would actively solicit contributions from the public, the nuclear industry, the alumni of the nonproliferation work force, and governments as well. Note that the Harvard endowment, which includes some 10,000 contributions, is now valued at approximately \$26B.

2. *Surcharge*: In the United States, “customers who use nuclear power pay for the disposal of spent fuel. The federal government collects a fee of one mil (one-tenth of a cent) per kilowatt-hour of nuclear-generated

electricity from utilities. This money goes into the Nuclear Waste Fund. In addition, Congress makes an annual appropriation from the General Fund of the Treasury to pay for disposal of defense-related high-level radioactive waste."⁸ Of course, any country could establish a surcharge system for any reason, like spent fuel management, or for nonproliferation purposes. Today, there are approximately 449 nuclear power plants in operation;⁹ if that were the case when the IAEA was created, it is possible that the Statute might make different arrangements. The Agency's Statute could be revised, possibly to make a surcharge on all plants constructed after a specified date.

A surcharge arrangement might fit best into a new legal framework, as a basis for transparency-related measures under a fissile material cut-off treaty, for example, or under a future framework for expanding global nuclear power as a means to stimulate nuclear power in the developing areas of the world. In the latter case, such a funding stream might be used to start-up new nuclear projects under a scheme that allowed delayed repayment such that the nuclear plant could begin to bring about economic development for several years before repayments would commence.

A surcharge should be levied as a fixed percentage of some commodity price. That way, the rate is the same for all states or exporters, and the amounts of money would follow inflation in a natural way without the need for periodic negotiated adjustments with all the drama that such steps would entail. For example, a surcharge of 1 percent on nuclear generating costs collected from nuclear utilities would provide an funding stream of \$700M/year from the United States alone.¹⁰ One percent may be too much or too little; only by considering the aims for such a framework could a defensible figure be set.

3. *Selling services:* The IAEA could be asked to organize nuclear operations under extra-territorial agreements with host countries. These might include nuclear power plants for regional power sharing in the developing areas of the world, multinational uranium enrichment centers, spent fuel reception centers, multinational spent fuel recycle centers and nuclear waste repositories. The Agency's role in such cases would be to provide the political framework and to secure competent commercial organizations to actually operate the respective facilities. In such cases, it would be reasonable for the Agency to collect fees for the services it provides.

4. *Financial Institutions:* A financial institution (like the World Bank) could be empowered to engage in financing appropriate peaceful nuclear projects under a delayed payback arrangement. The World Bank itself does not currently finance nuclear projects; it did once in Italy,¹¹ and today the World Bank is carrying out an investigation to determine whether or not to re-enter this field.¹²

Whether the World Bank or one or more other financial institutions, such an arrangement would depend upon the capitalization provided and time-dependent returns. The delayed repayment scheme identified above would be appropriate, but in addition, consideration might be given to having the financial institutions actually purchase and own the power plants, transferring ownership upon repayment. Such an arrangement would ensure that vendors would receive payments, that prices would be fair, that users would have a measure of assurance of supply, and that vendors could be provided with some degree of indemnification against spurious litigation. Investments made by the financial institution might also carry an accompanying contribution to the IAEA to cover its

expenses as necessary to ensure that the project serves the intended purposes and that the quality of goods and services provided is consistent with international standards.

5. *Market Mechanisms*: The fourth possibility would somehow engage the investment community through the issuance of tax-exempt nonproliferation bonds, which would yield interest on revenues collected down-stream by financing projects under the delayed pay-back arrangements described above. This scheme might connect with one of the earlier mechanisms and would require government investment and oversight to be stable and to avoid suspicions that it might be a ponzi scheme.

6. *Industry Share*: This proposal goes directly to provide the IAEA with enhanced technical capabilities by engaging the exporters of nuclear facilities. Under current practice, if a state imports a reactor or fuel manufacturing plant or any other type of fuel cycle facility, the importer is required to submit the facility for IAEA safeguards. The facility operator and the Agency bear costs as necessary for safeguards to be applied; sometimes the state bills the Agency for the installation of safeguards equipment, sometimes not. The facility operator may pass the costs along as business expenses to its customers.

Under such an arrangement, for plants to be exported, the vendor and the future facility operator would work with the Agency to develop a safeguards approach, including the inspection equipment to be used by the Agency and the procedures for its maintenance and operation. The vendor would then be responsible for providing such equipment that would become part of the sales price. To the extent that the vendor remains engaged for the maintenance

or operation of any plant systems, the vendor would remain responsible for assuring that the safeguards equipment continues to meet IAEA needs, including maintenance and upgrades as appropriate. Just as for plant safety systems, the safeguards systems should be integrated into the plant operational systems such that continued operation would be prevented in the event of anomalous indications from the installed safeguards systems.

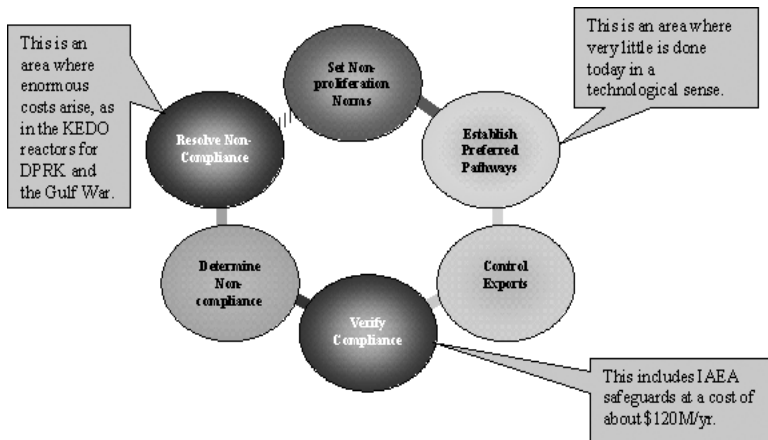
Conclusions.

The premise of my remarks has been that the proliferation of nuclear weapons threatens national and international security, and that, as the renaissance of nuclear power stimulates its global expansion, the international community needs to reconsider how to prevent disaster while increasing our reliance and stimulating the expansion to the far corners of the globe. In part, that can be accomplished through technological means or through other mechanisms that contain proliferation while permitting growth and stability.

Proliferation is a global concern. The IAEA somehow magically stands before us in this challenging era: no other international organization is held in such high regard, and assuring its continued viability is critical for future peace. Expanding its missions can provide greater assurance of peace and security in the future, provided those roles are considered carefully and implemented under arrangements that promote success.

Money will always be at the core of what the Agency can or should do in the future. While today the Agency relies almost exclusively on assessed contributions

from national treasuries and from extrabudgetary contributions, most of which come from those same treasuries. Diversifying the financing arrangements can provide for growth, dropping the grueling debates on how growth could be financed to how the finance already attained can be best directed to secure sustainable economic development and international security.



While IAEA safeguards are a critical part of this enterprise, it is, in fact, one with a rather small price tag. The other areas are in similar need, and the amounts needed may be substantially greater than what the IAEA could gainfully commit to enhanced verification.

ENDNOTES - CHAPTER 11

1. For the year ending December 31, 2005, the total amount expended on Nuclear Verification was \$121,094,383.00, which includes disbursements and unliquidated obligations. For 2005, the assessed contributions for the IAEA totaled \$316,473,124. GC(50)/8, The Agency's Accounts for 2005, p.54, p.112.

2. See Article XIV of the IAEA Statute.

3. The Geneva Group comprises the States that pay the bulk of the IAEA regular budget.

4. See GC(50)/8, The Agency's Accounts for 2005, p.112.

5. *Ibid.*, p. 113.

6. See INFCIRC/370, "Rules Regarding Voluntary Contributions to the Agency."

7. GOV/2005/86, IAEA Special Fund—Nobel Peace Prize for 2005, para. 6.

8. Available from www.ocrwm.doe.gov/about/budget/index.shtml.

9. Information from IAEA Power Reactor Information System, <http://www.iaea.org/programmes/a2/>

10. Energy Information Administration input.

11. On September 16, 1959, the World Bank made a loan equivalent to \$40 million for the construction of a 150MWe [megawatt electric] GE BWR [boiling water reactor] at a site on the Garigliano River in Italy (Loan 0235). This was Italy's first nuclear power plant, and the Bank's loan financed almost two-thirds of the cost of construction. The plant began operation in 1964. In August 1978, it was shut down due to damage to one of the two secondary steam generators. In March 1982, the Italian Electricity Generating Board declared the plant to be out of service. Available from web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTARCHIVES/0,,contentMDK:20125474~pagePK:36726~piPK.

12. Available from psdblog.worldbank.org/psdblog/2006/04/go_nuclear_for_.html.