PROJECT ON MANAGING THE ATOM

WHAT PRICE NUCLEAR GOVERNANCE?

FUNDING THE INTERNATIONAL ATOMIC ENERGY AGENCY

TREVOR FINDLAY

HARVARD Kennedy School
BELFER CENTER for Science and International Affairs

MARCH 2016

Project on Managing the Atom
Report No. 2016-01

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Findlay, Trevor. "What Price Nuclear Governance? Funding the International Atomic Energy Agency" Project on Managing the Atom, Report #2016-01, Belfer Center for Science and International Affairs, Harvard Kennedy School, March 2016.

Design & Layout by Josh Anderson

Cover photo: Two IAEA experts examine recovery work on top of Unit 4 of TEPCO's Fukushima Daiichi Nuclear Power Station on April 17, 2013 as part of a mission to review Japan's plans to decommission the facility. Greg Webb / IAEA

This report was funded by the Carnegie Corporation of New York and the John D. and Catherine T. MacArthur Foundation.

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About the Author

Dr. Trevor Findlay was a Senior Research Fellow with the International Security Program and the Project on Managing the Atom (MTA) at the Belfer Center from 2011 to 2015 and remains an MTA Associate. He is currently a Principal Fellow at the School of Social and Political Sciences at the University of Melbourne.

Professor Findlay has a B.A. Honours degree in political science from the University of Melbourne and a Masters degree and Ph.D. in international affairs from the Australian National University (ANU). He was an Australian diplomat for thirteen years, with postings in Tokyo, Mexico City and Geneva. During his Geneva posting he was a member of the Australian delegation to the then Committee on Disarmament (CD), the UN Disarmament Commission and the First Committee of the UN General Assembly.

In his academic career he has held research positions at the ANU and the Stockholm International Peace Research Centre and was Executive Director of the London-based non-governmental organization the Verification Research Training and Information Centre (VERTIC) for seven years. In 2005 he was appointed professor at the Norman Paterson School of International Affairs at Carleton University in Ottawa, Canada, where held the William and Jeanie Barton Chair for eight years and where he remains an Associate Research Professor. In January 2013 he was appointed to the United Nations Secretary-General's Advisory Board for Disarmament Matters and in December 2015 to the Asia-Pacific Leadership Network.

Dr Findlay is the author of several books and monographs, including: *Nuclear Dynamite: the Peaceful Nuclear Explosions Fiasco* (Brassey's Australia, Sydney, 1990); *Nuclear Energy and Global Governance: Ensuring Safety, Security and Nonproliferation* (Routledge, London, 2011) and *Unleashing the Nuclear Watchdog: Strengthening and Reform of the International Atomic Energy Agency* (Centre for International Governance Innovation (CIGI), Waterloo, ON, 2012). His monograph *Proliferation Alert! The IAEA and Non-Compliance Reporting*, was published by MTA in October 2015. His final report in a series of three on the International Atomic Energy Agency, *IAEA Safeguards Through A Cultural Lens: Power, Planning and Habit*, will be published by MTA later in 2016.

Preface

This report is a product of the Project on Managing the Atom (MTA), the second of four on various aspects of the work of the International Atomic Energy Agency (IAEA) funded by the Carnegie Corporation of New York from 2013–2015. Research for the project involved consulting and interviewing current and former IAEA officials, diplomats accredited to the IAEA, academics, and other experts. In addition, official budgetary and other IAEA documents were examined, along with independent reports on the Agency, including those by the IAEA's official external auditor and the United Nations Joint Inspection Unit (JIU).

The project benefited from initial scoping interviews with and advice from former IAEA Deputy Director General for Management David B. Waller, who also made extensive comments on the draft manuscript. Also useful were discussions with the Pacific Northwest National Laboratory (PNNL), which was also considering the issue of IAEA financing, and conversations with the U.S. Department of Energy. I have drawn particular inspiration from PNNL's 2012 report *Alternative Funding Sources for the International Atomic Energy Agency* by Christopher Toomey and his colleagues. I am also grateful to the Vienna missions of Australia, Brazil, Canada, Singapore, and the United States for their willingness to discuss IAEA budgetary matters with me. I am particularly indebted to John Barrett, former Canadian ambassador to the IAEA and chair of the IAEA Board of Governors, for his insights and ideas and his thorough review of the draft manuscript. John Carlson, former director of the Australian Safeguards and Nonproliferation Office, also read the draft manuscript and made thoughtful suggestions. I also benefited from the work of the International Working Group on Strengthening the IAEA Through Informed Partnerships and its instigator Andrew Semmel. Finally, I appreciate the efforts of staff of the IAEA's Division of Budget and Finance in correcting factual errors in the reports.

I also had significant assistance from several young, enthusiastic MTA research assistants and interns, including Chris McGuire, Kate Miller, Mary Fall Wade, and Dafu Zhang. This study builds on my 2012 report for the Centre for International Governance Innovation (CIGI), Unleashing the Nuclear Watchdog: Strengthening and Reform of the IAEA. The finance and budget section of that report, especially the charts, owes much to the efforts of Justin Alger and Alexander Ely, to whom I am most grateful.

Finally, I am indebted to my colleagues at MTA and the International Security Program for advice and support during the writing and production of this report. I am especially grateful to Joshua Anderson, Matthew Bunn, Martin Malin, Nickolas Roth, Laura Rockwood, and Steven Miller. Naturally, despite this abundance of assistance, the views herein are entirely my responsibility.

Trevor Findlay
Cambridge, March 2016

List of Acronyms

AFRA	African Regional Cooperative Agreement
AIPS	Agency-wide Information System for Program Support
AP	Additional Protocol
ARGF	Ancillary Revenue Generation Fund
ASHI	after-service health insurance
CLE	Clean Laboratory Extension
CRM	corporate risk management
CSA	Comprehensive Safeguards Agreement
CTBT	Comprehensive Test Ban Treaty
CTBTO	Comprehensive Test Ban Treaty Organization
DOE	Department of Energy (U.S.)
EC	European Commission
ECAS	Enhancing Capabilities of the Safeguards Analytical Services
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GAO	Government Accounting Office (U.S.)
GC	General Conference
GNP	Gross National Product
HEU	highly enriched uranium
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
ICNND	International Commission on Nuclear Nonproliferation and Disarmament
IDS	"information-driven" safeguards
IEC	Incident and Emergency Centre
IMF	International Monetary Fund
INFCIRC	Information Circular
IPSAS	International Public Sector Accounting Standards
IS	Integrated Safeguards
JCPOA	Joint Comprehensive Plan of Action (Iran)
JIU	(United Nations) Joint Inspection Unit
JPA	Joint Plan of Action (Iran)
LDCs	Least Developed Countries
MCIF	Major Capital Investment Fund
NAL	Nuclear Applications Laboratory
NAM	Non-Aligned Movement

NGO	non-governmental organization
NGSI	Next Generation Safeguards Initiative
NML	Nuclear Material Laboratory
NNSA	National Nuclear Security Administration
NPC	National Participation Contribution
NPT	Nuclear Non-Proliferation Treaty
NSF	Nuclear Security Fund
NTI	Nuclear Threat Initiative
NuPoc	Nuclear Power Plant and Reactor Exporters' Principles of Conduct
OIOS	Office of Internal Oversight
OTA	Office of Technology Assessment
PA	Partnership Arrangement
PACT	Programme of Action for Cancer Therapy
PANVAC	Pan Africa Veterinary Vaccine Centre
PBC	Programme and Budget Committee
PUI	Peaceful Uses Initiative
ReNuAL	Renovation of the Nuclear Applications Laboratories (in Seibersdorf)
SAL	Safeguards Analytical Laboratories
SLC	State-level concept
SQP	Small Quantities Protocol
SSSP	State Safeguards Support Program
TACC	Technical Assistance and Cooperation Committee
TC	Technical Cooperation
TCF	Technical Cooperation Fund
UAE	United Arab Emirates
UN	United Nations
UNEP	United Nations Environmental Program
UNEP FI	United Nations Environmental Program Finance Initiative
UNICEF	United Nations Children's Fund
UNSC	United Nations Security Council
USDOE	U.S. Department of Energy
WFP	World Food Program
WGFAA	Working Group on Financing the Agency's Activities
WHO	World Health Organization
WIPO	World Intellectual Property Organization
ZNG	zero nominal growth
ZRG	zero real growth

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Executive Summary

The IAEA contributes to international peace and security by helping ensure that nuclear energy is used safely and securely, while reducing the risk of the proliferation of nuclear weapons. It does all this at a cost that makes it an indisputable bargain.

The uniqueness of the Agency's mandate makes it virtually impossible to compare its relative efficiency and effectiveness with other international organizations. Nonetheless, by all accounts the IAEA is one of the most effective and efficient in the UN system. The Secretariat's technical competence and professionalism are highly regarded. Demand for the Agency's "services" in fulfilling each of its various mandates—safety, security, safeguards, and the peaceful uses of nuclear energy—is increasing, in some cases dramatically. Nuclear crises like Fukushima and complex, long-running non-compliance sagas like that involving Iran require both emergency and sustained long-term funding.

As a result, the IAEA faces major resource challenges. Zero real growth in the Agency's budget for most of the past thirty years has forced the Agency to stay relatively compact, prioritize its activities (to the extent that competing member state interests will allow), and continuously seek efficiencies. However over the long term this has seriously affected its infrastructure, human resources, and ability to adopt modern management and technical tools.

The Agency's efforts to make do with its budgetary constraints have become dysfunctional. Voluntary funding and secondment of experts by member states are helpful in filling gaps but distort planning and prioritization. The shielding system for funding nuclear safeguards—once meant to protect newly emerging economies–is no longer appropriate given the near universal application of safeguards. It results in certain large beneficiaries of the safeguards system, most notably China, not pulling their weight in funding the Agency. The linkage between spending on safeguards and technical cooperation—the product of an old argument over the Agency's competing purposes—is stultifying: both sides of the argument need to compromise to resolve this issue once and for all.

What is needed is a grand budgetary bargain. Such a bargain would incorporate technical cooperation, nuclear security, and extra-budgetary funding into the regular budget, and include other elements such as abolition of the shielding mechanism, rap-

id entry into force of the statutory amendment on biennial budgeting and tackling the Agency's growing unfunded liabilities.

The Secretariat has not fully explored alternative, creative new funding possibilities beyond its member states, although this may be about to change. Such ideas include the creation of an endowment and nuclear emergency fund and the retention of budgetary surpluses rather than returning them to member states. The Secretariat needs to be more transparent, prompt, and convincing in alerting member states to its budgetary needs. For their part member states, especially those on the Board of Governors, need to devise more reliable and predictable budgetary negotiation processes.

The IAEA deserves the continuing financial and material support of the international community—support that is commensurate with its international role and sufficient to enable it to fulfill all aspects of its challenging mandate.

Key Recommendations

This report makes the following recommendations for member states, the IAEA Board of Governors, and the Secretariat.

Member states should:

- explore a grand budgetary bargain incorporating the funding of all major IAEA activities into the regular budget, notably Technical Cooperation, nuclear security, and funding for all core activities currently financed by extra-budgetary funding
- ratify the Statutory amendment on biennial budgeting to allow it to into force as soon as possible
- the United States should seek creative ways to ensure that its assessed contribution is paid in full and on time
- China and other major developing countries should unilaterally withdraw from the safeguards shielding system and help fund the contributions of the less developed shielded states as long as the system persists.

The Board of Governors should:

- authorize establishment of an IAEA Endowment and a Nuclear Emergency Fund
- issue a blanket authorization for the Agency to channel annual surpluses of both assessed and extra-budgetary contributions into the Emergency Fund rather than returning them to member states
- abolish the increasingly inequitable shielding system as soon as possible
- institute a fee-for-service arrangement for Technical Cooperation for most states, restricting essentially gratis TC to the officially recognized Least Developed Countries
- begin dealing immediately with the Agency's mounting unfunded personnel-related liabilities
- in collaboration with the Secretariat devise more reliable and predictable budgetary negotiation processes.

The Secretariat should:

- put in place as soon as possible the promised resource mobilization strategy and provide the necessary resources for such a strategy
- building on the progress already made, be more transparent, prompt, and convincing in alerting member states to the Agency's budgetary needs.

1370th Board of Governors Meeting. IAEA Headquarters, Vienna, Austria, 24 January 2014. (Photo credit: Dean Calma, IAEA)

INTRODUCTION

The International Atomic Energy Agency (IAEA) has in recent decades become a vital part of the international machinery for fostering international peace and security. Since its foundation in 1957 it has assumed an expanding mantle of global governance in respect of nuclear safety, nuclear security, nuclear safeguards, and the peaceful uses of nuclear energy. It has played a key role in dealing with international nuclear crises, including the Chernobyl and Fukushima nuclear reactor accidents and the non-compliance cases of Iraq, North Korea, and Iran. The Agency is widely viewed as one of the most effective and efficient international organizations, garnering strong support in the form of a constantly expanding membership, the 2005 Nobel Peace Prize, and growing voluntary contributions of funding and other resources.

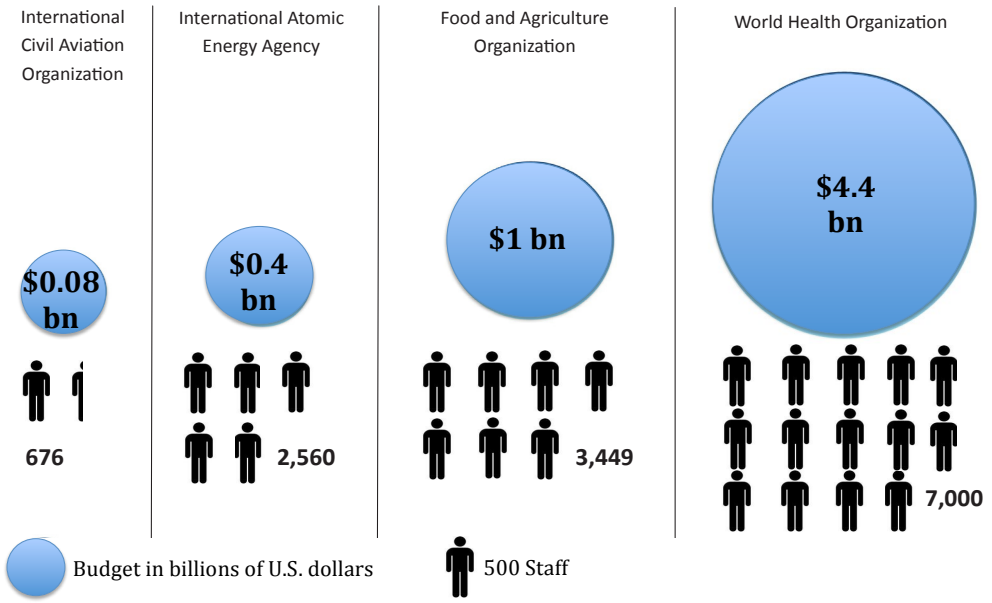
Yet like nearly all other organizations in the United Nations system the IAEA's regular budget has been held to annual zero real growth, with only occasional exceptions, for thirty years. Many member states' budgetary troubles since the 2008–2009 global financial crisis have further dissuaded them from approving budget increases for the IAEA and/or offering more generous voluntary contributions. At the same time demand for IAEA services from member states is constantly rising. The July 2015 comprehensive deal with Iran will put further pressure on IAEA resources. In these circumstances the IAEA's budget and financing are of more concern than usual.

On the face of it the IAEA would appear to be a bargain in terms of its contribution to international security. Pinning down exactly how much that is worth in dollars or Euros is a Sisyphean task. Nonetheless, governments and interested outsiders need to ask themselves how much they are prepared to pay for global nuclear governance delivered by the IAEA.

Despite its demonstrable importance to international security the IAEA is relatively small and modestly funded compared to other giants of the UN system, such as UN specialized agencies like the World Health Organization (WHO) and the Food and Agriculture Organization (FAO).

Comparisons are difficult to make since many of these bodies have large budgets for assistance to developing countries, which is their main purpose. The IAEA on the other hand has a greater focus on regulatory and advisory functions, while its technical assistance program, directed largely but not exclusively at developing countries—known as Technical Cooperation (TC)—is relatively modest. A more comparable body than UN specialized agencies is the International Civil Aviation Organization (ICAO), which regulates global air transport. It is much smaller than the IAEA and much less well funded.

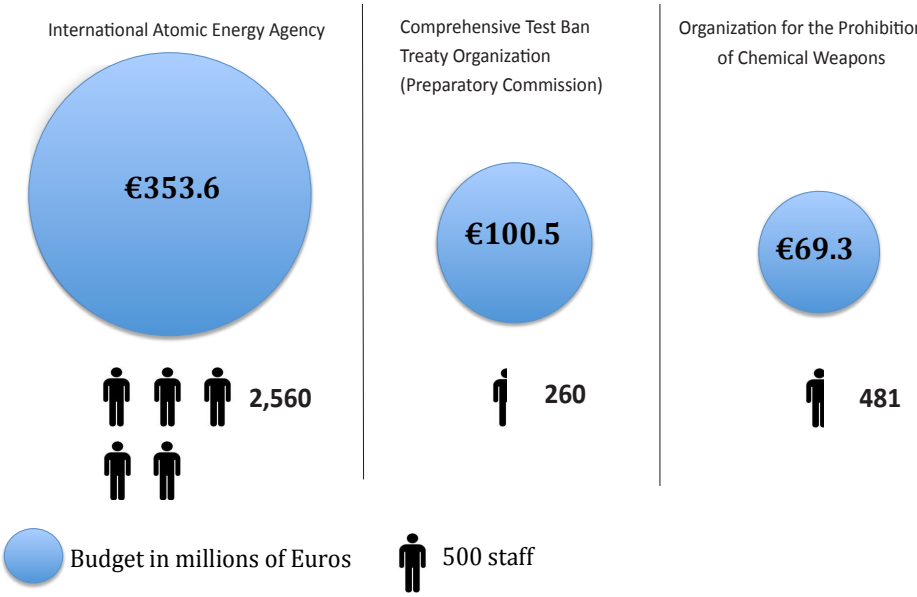
Figure 1: IAEA Compared to Other UN System Organizations



Source: IAEA, IAEA Annual Report 2014, GC(59)/7 (IAEA: Vienna, 2015); "About WHO: Who We Are," WHO, http://www.who.int/about/who-we-are/en/ (accessed January 14, 2016); "Programme budget 2016–2017," (WHA68.1) Sixty-Eighth World Health Assembly, May 22, 2015, http://www.who.int/about/finances-accountability/budget/PB201617_en.pdf (accessed January 14, 2016); "Structure and Finance," Food and Agriculture Organization of the United Nations, http://www.fao.org/about/who-we-are/en/ (accessed January 14, 2016); "Annual Report of the ICAO Council: 2014: SIS Human Resources," International Civil Aviation Organization, http://www.icao.int/annual-report-2014/Pages/supporting-implementation-strategies-human-resources.aspx (accessed January 14, 2016); ICAO, "Budget of the Organization 2014-2015-2016," Doc 10030, Montreal, October 2013, http://www.icao.int/publications/Documents/10030_en.pdf (accessed January 14, 2016). Adapted from "A Nuclear Minnow," Nature, April 26, 2011.

If the IAEA is considered in terms of its contribution to international security, especially through its work on nuclear non-proliferation and nuclear security, precise comparisons with other security organizations are difficult to make. The budget of the civilian headquarters component of the North Atlantic Treaty Organization (NATO) in 2015 is just €200 million,[1] much less than the IAEA's €350 million for 2016. But the NATO Command Structure budget is €1.2 billion and the NATO Security Investment Programme has a 2015 ceiling of €700 million.[2] Christopher Toomey *et al* put the security value of the IAEA in context by reporting that in 2011 the cost of the Agency was approximately that of a single F-22 Raptor fighter jet.[3]

Figure 2: IAEA Compared to Other Multilateral Verification Organizations



Source: IAEA, IAEA Annual Report 2014, GC(59)/7, (IAEA: Vienna, 2015); IAEA, The Agency's Budget Update for 2015, GC(58)/2, (Vienna: IAEA, 2014); OPCW, *Conference of the States Parties, Decision: Programme and Budget for the OPCW for 2015*, C-19/DEC.4, December 3, 2014, https://www.opcw.org/fileadmin/OPCW/CSP/C-19/en/c19dec04_e_.pdf (accessed January 14, 2016); CTBTO, Preparatory Commission, *2015 Programme and Budget*, CTBT/PB/2015/1, January 12, 2015; "Who We Are," CTBTO Preparatory Commission, https://www.ctbto.org/specials/who-we-are/ (accessed September 21, 2015). Adapted from "A Nuclear Minnow," *Nature*, April 26, 2011.

1 "Funding NATO." North Atlantic Treaty Organization, Brussels, last modified June 3, 2015, http://www.nato.int/cps/en/natohq/topics_67655.htm?selectedLocale=en (accessed September 16, 2015).

2 This covers major construction and command and control system investments and is financed by each member country's defense establishment.

3 C.M. Toomey, A.J. Kurzrok, E.T. Wyse, and J.M. Swarthout, *Alternative Funding Sources for the International Atomic Energy Agency*, PNNL-21735, (Richland, WA: Pacific Northwest National Laboratory, September 2012), p. 2.1.

The organizations closest in mandate and contribution to international security to the IAEA are the other two major multilateral verification organizations, the Organization for the Prohibition of Chemical Weapons (OPCW) in the Hague and the Vienna-based Comprehensive Test Ban Treaty Organization (CTBTO), the latter currently in provisional mode pending entry into force of the Comprehensive Test Ban Treaty (CTBT). The OPCW budget in 2015 is slightly more than €69 million,[4] while that of the CTBTO is almost €100.5 million.[5] The OPCW has 481 fixed term staff in 2015, while the CTBTO has about 260.[6] Both organizations are thus considerably smaller than the much more venerable IAEA. The mandates, operations, and history of the three organizations are so different that comparisons are not especially meaningful. In many respects the IAEA is unique and its value can only be considered on that basis. Such a consideration informs the analysis that follows.

This report considers critical questions facing the IAEA's budget and finance: whether funding is sufficient for the Agency to carry out its core functions; whether increasing reliance on voluntary funding is appropriate; whether the budgetary process is as effective as it might be; whether the current funding system is equitable and appropriate; whether the Gordian knot between technical cooperation and nuclear safeguards and security can and/or should be broken through a grand budgetary bargain; and whether alternative funding sources besides member states can be tapped.

4 OPCW, Conference of the States Parties, *Decision: Programme and Budget of the OPCW for 2015,* C-19/DEC.4, December 3, 2014, https://www.opcw.org/fileadmin/OPCW/CSP/C-19/en/c19dec04_e_.pdf. (accessed December 28, 2015).

5 The equivalent of $126.31 million using the CTBTO's exchange rate of 0.796 (CTBTO, Preparatory Commission, *2015 Programme and Budget,* CTBT/PB/2015/1, January 12, 2015).

6 OPCW, C-19/DEC.4. "Who We Are," CTBTO Preparatory Commission, https://www.ctbto.org/specials/who-we-are/ (accessed September 21, 2015).

FUNDING THE IAEA

The IAEA is funded largely by its member states as a legally binding obligation of membership. In order to calculate the annual contribution of each member state the IAEA, along with many other UN system agencies, uses the UN Assessed Contribution system. This establishes the percentage contribution of each state according to its national ability to pay, as signified by its Gross National Product (GNP). The rates are periodically reviewed and subject to intense negotiation by UN member states. States classified officially as Least Developed Countries (LDCs) are given a substantial discount, paying a low fixed amount regardless of their GNP. At the IAEA developing countries are also generally "shielded" from the full costs of the largest IAEA program, nuclear safeguards, through a complex discounting system (considered further in this report).

Currently the major funder of the IAEA, as in the case of most UN system organizations, is the United States, which contributes over 25 percent of the regular budget and a considerable proportion of the Technical Cooperation (TC) budget. The U.S. Congress, during the administration of President Bill Clinton, lowered the U.S. contribution to all UN system organizations to 22 percent in 1999, but exempted the IAEA, sending a powerful signal to the Agency and its member states about the importance the United States attaches to the Agency.[7]

This was gratefully acknowledged at the time by the Secretariat and fellow members of the Board of Governors. The United States also makes other sizeable voluntary financial and in-kind contributions, notably through its State Safeguards Support Program (SSSP) and Next Generation Safeguards Initiative (NGSI), including studies, seconded personnel, and technology.[8]

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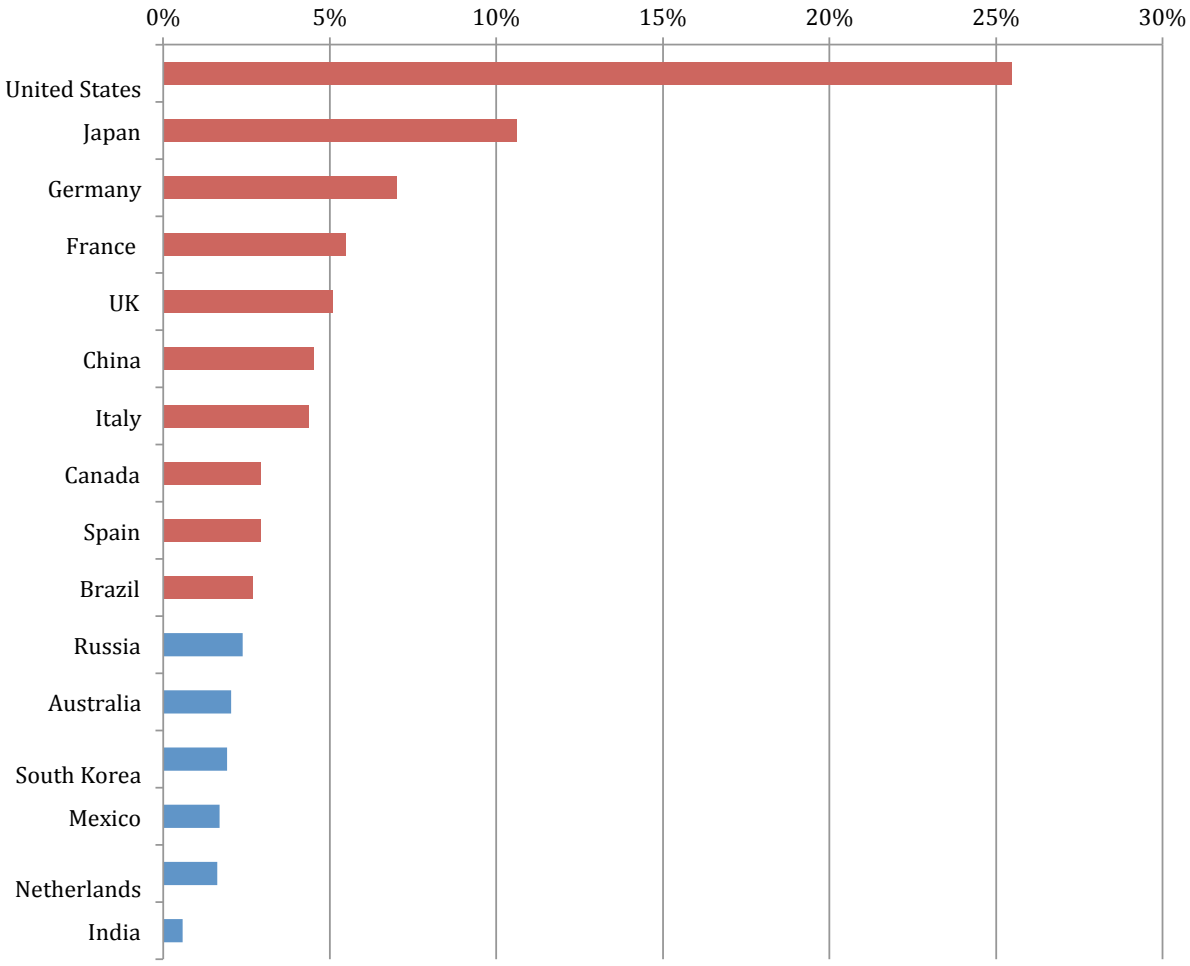
7 The Foreign Relations Authorization Act for Fiscal Year 2003 accepted the 25 percent IAEA assessed contribution and noted that the 1999 Helms-Biden legislation did not intend to reduce U.S. contributions to all UN-related organizations to 22 percent (Vita Bite, "U.N. System Funding: Congressional Issues," Issue Brief for Congress, (Washington, D.C.: Congressional Research Service, May 30, 2002) http://www.pennyhill.com/jmsfileseller/docs/IB86116_5_30_2002.pdf (accessed November 5, 2015). The Act stated that "contributions for an important and effective agency such as the IAEA should be maintained at levels commensurate with the criticality of its mission" (Foreign Relations Authorization Act, Fiscal Year 2003, H.R. 1646, 107th Cong. (2002), https://www.gpo.gov/fdsys/pkg/PLAW-107publ228/pdf/PLAW-107publ228.pdf (accessed February 8, 2016). A 2009 House of Representatives report on the 2010 Appropriations called for the administration to prioritize funding for organizations critical to protecting U.S. national security interests, including the IAEA and NATO (U.S. Congress, House of Representatives, *State, Foreign Operations, and Related Programs Appropriations Bill,* 2010, Report 11-187, 111th Cong. (2009), http://www.gpo.gov/fdsys/pkg/CRPT-111hrpt187/pdf/CRPT-111hrpt187.pdf (accessed February 8, 2016)).

8 For details of the extensive U.S. Support Program see Warren Stern and Susan Pepper, "Building an Effective Nonproliferation Program: U.S. Support of IAEA Safeguards," *Federation of American Scientists* (FAS), May 21, 2013, https://fas.org/pir-pubs/building-an-effective-nonproliferation-program-u-s-support-of-iaea-safeguards/. (accessed December 28, 2015). The NNSA has conceded, however, that U.S. investment in safeguards technology in recent years "has lost momentum and direction" (NNSA, "International Safeguards: Challenges and Opportunities for the 21st Century,"

Other major contributors to the IAEA regular budget, although none come close to matching the U.S. contribution, are developed countries with notable stakes in nuclear governance: Japan, Germany, the United Kingdom, France, Italy, and Canada, many of which also make significant voluntary contributions.[9] The top ten contributors to the IAEA regular budget are listed in Chart 1, along with other states selected for the significance of their nuclear industries.

Chart 1: Top Ten and Selected Other Contributors to Regular IAEA Budget by Percentage (2016)



Source: IAEA, General Conference Resolution, *Scale of Assessment of Member States' Contributions towards The Regular Budget for 2016,* GC(59)/RES/8, (Vienna: IAEA, September 2015).

9 For example, see J.W.A. Tushingham, *The UK Safeguards Support Programme: Report on Activities and Progress During the Period 1 April 2011 to 31 March 2012,* SRDP-PR32, (London: Department of Energy & Climate Change, August 2012).

The Budgetary Process

The IAEA's annual budget is drafted by the IAEA Secretariat, submitted to the 35-member Board of Governors for approval and/or modification, and adopted by the annual General Conference of member states each September. To assist it in examining draft budgets the Board has two standing committees: the Programme and Budget Committee (PBC), which makes recommendations to the Board on both administrative and financial matters; and the Technical Assistance and Cooperation Committee (TACC), which reviews the TC program and projects.

The regular budgetary preparation process begins towards the end of the year prior to its adoption (hence preparations for the 2018–2019 budget will begin in 2016). First comes the process within the Secretariat of reconciling the budgetary bids of departments and programs. Informal consultations are held with member states as to their priorities and likely appetite for budgetary increases. David Waller, who was Deputy Director General for Management and Budget from 1993 to 2011, recalls that he would give a detailed briefing to member states in January.[10] Meetings with interested individual states, usually the major contributors and influential Board members, are held at their request, allowing them to express their views on the budget line-by-line if they so choose. In addition, meetings are arranged with groups of states, such as the Geneva Group of major contributing states (see below for details) and the Non-Aligned Movement (NAM). In May the Secretariat normally presents a draft budget to the PBC, which is when budgetary discussions get into full swing.[11] Discussions usually last until July, when the draft budget is presented to the Board for approval. Occasionally the Board establishes ad hoc working groups on financial matters, as it did in 2013, often when a budgetary crisis arises.

The IAEA still, in theory, operates on an annual budgetary cycle, unlike the rest of the UN, which operates on a biennial basis. The General Conference adopted a statutory amendment in 1999 that would officially switch the IAEA to a biennial cycle. The amendment has not yet entered into force due to the lack of the necessary two-thirds ratifications by member states. As of 2015 there were only 57 ratifications out of the necessary 108. The external auditor has repeatedly urged member states to ratify the amendment as soon as possible. But even states that are normally strongly in favor of

10 Telephone conversation with David Waller, November 4, 2015.

11 The Agency's regulations require that budgetary documents for Board approval must be provided six weeks before a decision is to be taken.

reform, like Australia, which only ratified it in 2014, have taken their time. This is not due to opposition to the amendment but rather inertia and a lack of priority being afforded to such an apparently mundane matter.[12]

In practice, the Secretariat, beginning with the Programme and Budget for 1999–2000, has ignored the lack of a statutory amendment and prepared a biennial budget, although it is still divided into two separate years. The biennial program and budget is approved by the Board and General Conference every two years. But during the first year of the biennium the Secretariat prepares, the Board considers, and the General Conference in September adopts a "Budget Update" for the second year. In moving to de facto biennial budgeting the Secretariat now has the benefit of longer-range budgetary planning. It also harmonizes the IAEA budget cycle with those of other UN organizations that the Agency collaborates with, notably the World Health Organization (WHO) and the Food and Agriculture Organization (FAO).

The main advantage of formally moving to a biennial budget is that there would be no budgetary discussion each year, no separate vote on the second year's budget update, and thus less work for the Secretariat and member states in budget preparation and adjustment. Annual approval rituals currently provide too much political space for wrangling between member states, doing nothing to improve relationships between them. The Director General himself diplomatically notes that, "In the context of current resource constraints, Member States' attention is drawn to the fact that the current process of adopting annual budgets draws considerable resources both from the Secretariat and from Member States, which could be utilized otherwise."[13]

Recommendation: *Member states should move as quickly as possible to ratify the statutory amendment and should be consistently urged by supportive states, as well as the external auditor, to do so.*

12 In fact the amendment also suffers from association with a much more controversial one, adopted at the same General Conference session, designed to expand the membership of the Board of Governors. See IAEA, *Amendment of Article VI of the Statute: resolution adopted by the 142nd plenary meeting on 28 September 1970,* GC(XIV)/RES/272, (Vienna: IAEA, October 5, 1970).

13 IAEA, *Amendment to Article XIVA: Report by the Director General,* GC(58)/6, (Vienna: IAEA, July 22, 2015).

The budgetary process at the IAEA has tended to be fraught, not just because of the usual politicking by states with differing interests, but due to the longstanding principle of zero real growth (ZRG) imposed by influential member states, as opposed to the sometimes over-ambitious bids of the Secretariat for increased funding. Sometimes the Director General has been tone deaf to the prevailing economic conditions facing member states that would preclude large increases. The problem has been compounded by the Secretariat's lack of transparency about how it prepares its budgetary requests and the paucity of supporting evidence for an increase. Further difficulties have arisen from the Board's own inefficiencies in negotiating the budget among its most influential members and with the Secretariat.

A major factor in determining the Agency's financial situation is that, like other organizations in the UN system, it has been subject in most years since 1985 to zero real growth.[14] Increases in the budget have usually been approved only to compensate for inflation, not to permit real growth. This policy was initiated across the UN system at the behest of Western countries in an effort to stem the ever-upward growth of UN budgets and improve efficiency.[15] But it has now become a seemingly permanent part of the UN budgetary landscape. Some UN bodies have been treated even less generously than the IAEA, having been held to zero nominal growth (ZNG), which means no increase at all, even for inflation, resulting in budgets shrinking annually in real terms.[16] Many IAEA member states have at various times called for zero nominal growth for the IAEA as well.

The most hardline member states on IAEA budgetary matters tend to be the 17-member Geneva Group. Established in 1964, the Group comprises the major

14 In preparing the IAEA budget, in addition to any real growth, a price adjustment is added to the first year to bring prices to the real level of the previous year. In the second year of each biennium there is another price adjustment to compensate for inflation in the first year of the biennium. Any real growth is allocated to the first year of the biennium, with only a price adjustment in the second. In calculating price adjustments, the Agency follows the "semi-full budgeting" methodology recognized by the UN and its various review bodies, including the Joint Inspection Unit. Trends and expectations for salaries are based on forecasts provided by the International Civil Service Commission (ICSC), while for all other items of expenditure the actual increases are recorded during the most recent year for which figures are available (for a more complete explanation see IAEA, *The Agency's Programme and Budget 2012–2013*, GC(55)/5, (Vienna: IAEA, September 2011), p. 8.

15 Office of Technology Assessment (OTA), *Nuclear Safeguards and the International Atomic Energy Agency.* , (Washington, D.C.,: U.S. Government Printing Office, June 1995), p. 51.

16 The 1999 Helms-Biden agreement between the two U.S. congressmen mandated ZNG growth for the UN as a whole, at least from the U.S. perspective, but excluded the IAEA. See Timothy K. Mackey and Thomas E. Novotny, "Improving United Nations Funding to Strengthen Global Health and Governance: Amending the Helms-Biden Agreement," *Global Health Governances*, Vol. VI, Issue 1, Fall 2012, http://blogs.shu.edu/ghg/files/2012/12/GHGJ-VOLUME-VI-ISSUE-1-FALL-2012-Improving-United-Nations-Funding-to-Strengthen-Global-Health-Governance-Amending-the-Helms-%E2%80%93-Biden-Agreement.pdf (accessed November 26, 2015).

funders of UN system organizations (those that contribute over 1 percent) which claim to be "like-minded" on administrative and financial matters, and which see themselves as holding the line on UN excess and inefficiency by imposing system-wide zero real growth. Due to the size of their contributions such states also often have complex internal challenges in providing funding to the IAEA's various activities. In some cases funding for the IAEA comes through the budget of the foreign ministry, while in others it is provided by the department of energy or, in the case of technical assistance, from a foreign aid budget.[17] Sometimes the funding comes from several competing ministries. The Geneva Group shares these experiences as well as the perennial problem of competing budgetary priorities.

Permanently chaired by the United Kingdom and United States, the group currently consists of Australia, Belgium, Canada, France, Germany, Japan, Italy, Mexico, Netherlands, Russia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. Although they do not speak as a group at IAEA meetings, like the European Union, they coordinate their individual statements and sometimes lobby the Secretariat or other member states collectively. While not members of the group, Argentina and Brazil also often take a hard line on IAEA budgetary matters.

Despite being a leading member of the Geneva Group the United States, depending on the year and the administration in office, has long suggested that "real growth" be interpreted to mean expenditure above that required to fulfill the Agency's statutory obligations, especially safeguards. This would allow increases beyond inflation. A sub-group, led most vocally by Canada, supported by Japan and others, has advocated continued strict zero real growth, meaning increases only for inflation. They claim, with some justification, that there are remaining inefficiencies in the Agency that need to be corrected before they will consider increases to allow for growth. With the support of the administration of George W. Bush the Agency did gain a one-off increase of 10 percent in its regular budget in 2003, phased in over 2004–2007.[18]

In 2007, then Director General Mohamed ElBaradei requested an astonishing 22 percent increase in the regular budget for 2008–2009. He decried the Board's refusal to approve even an increase of 4.6 percent for 2008, warning, with some justification, that

17 Until the amalgamation of Canada's Department of Foreign Affairs and International Trade (DFAIT) with the Canadian International Development Agency (CIDA), Canada's TC contributions came from a reluctant CIDA, which did not see supporting IAEA activities as part of its remit.

18 IAEA, *Report to the Board of Governors by the Co-Chairmen of the Informal Open-Ended Working Group on the Programme and Budget for 2004–2005*, GOV/2003/48, (Vienna: IAEA, July 16, 2003), p. 2.

the Agency's "safeguards function" was being "eroded over time."[19] Member states balked, approving a mere average price adjustment for 2008 of 2.8 percent.[20]

In 2009, in his regular budget proposal for 2010–2011, his last before retiring, ElBaradei sought an 11 percent increase, despite widespread exasperation at his previous budget gambit. It drew a protest letter from ten member states,[21] but not the United States, and much disputation among Board members. The new Obama administration, in its honeymoon period, was willing to approve an increase above 5 percent. Romanian ambassador Cornel Feruta was appointed by the Board Chair to "sort it out," but it took a long time to achieve agreement. Ultimately the Board approved a more modest increase of 2.7 percent real growth increase and a 2.7 percent price adjustment.[22]

In his first budget proposal, the Budget Update for 2011 (the second half of the 2010–2011 biennium), the new Director General Yukiya Amano, who assumed office on December 1, 2009, accepted the advice of the Department of Management by again requesting an 11 percent increase. Although he reportedly did not regard the budget as "his," he lobbied for the budget prepared by the Secretariat under his predecessor. The proposal was tone deaf to the global financial crisis that was by then causing havoc with national budgets. This caused another round of unnecessary disputation, pitting some Western Board members against their own budgetary facilitator, Marietta Rasi of Finland, who had been appointed by the Board Chair to lead the budget negotiations. The result was a 3 percent real growth (including a 1 percent price increase).[23] Since then Director General Amano has adopted a more cautious approach to his initial budget requests.

The first budget prepared under Amano, that for the 2012–2013 biennium, requested a more modest increase of just over 5 percent. The Director General described this as a "reasonable increase," considering that:[24]

> Despite its unique mandate Agency funding has been constrained for years by zero or near zero growth budgets. This situation is only compounded by the challenges that Member States face due to the overall economic framework.

19 Julian Borger, "Nuclear watchdog may not cope in atomic crisis," *Guardia*n, June 22, 2007. Available at http://www.theguardian.com/world/2007/jun/22/northkorea (accessed December 29, 2015).

20 IAEA, *The Agency's Programme and Budget for 2008–2009,* GC(51)/2, (Vienna: IAEA, September 2007), p. ii.

21 Austria, Canada, Italy, Greece, Mexico, Japan, Spain, and the United Kingdom.

22 IAEA, *The Agency's Programme and Budget for 2010–2011*, GC(53)/5 (Vienna: IAEA, September 2009), p. 1.

23 IAEA, *Budget Update for 2011,* GC(54)/2, (Vienna: IAEA, September 2010), p. 14.

24 IAEA, *The Agency's Programme and Budget for 2012–2013,* GC(55)/5, (Vienna: IAEA, September 2011), p. 3.

The now routine practice of beating the Director General's budget proposal back down continued, resulting in an increase for 2012 of 2.1 percent above the 2011 level (including a 1.1 percent price increase).[25]

Recommendation: The Board of Governors should, in collaboration with the Secretariat, devise more reliable and predictable budgetary negotiation processes, involving earlier consultation, greater assistance to the Board chair from governors designated to assist in negotiating the budget, and better briefing for smaller delegations of non-semi-permanent Board members.

In 2013 the budgetary negotiations witnessed the first and only occasion when the U.S. delegation was more extreme than its Geneva Group partners in refusing even a zero real growth increase. This was due to the U.S Congress's sequestration decision of August 2011, which held U.S. budgets to $1.2 trillion and mandated automatic cuts divided equally between defense and various domestic spending programs. This was probably the chief factor in making the 2014–2015 budget process so complex and time-consuming. It took until July 2013 for the United States to review its position and accept a modest increase for inflation in the IAEA budget. Only then could the Board Chair, John Barrett, turn to the Geneva Group and the NAM to finish the negotiations. These moved reasonably rapidly to conclusion in early August 2013. Although the Agency's budgetary negotiations may be no more fraught than those of other international organization, these examples illustrate the complexity of the political, financial, structural, and personal ingredients that flavor the budgetary preparation process at the IAEA.

Recommendation: Building on the progress it has already made, the Secretariat should be more transparent, prompt, and convincing in alerting member states to its budgetary needs.

25 IAEA, GC(55)/5, p. 3.

The Regular Budget and Extra-Budgetary Resources

The IAEA's regular budget, funded by assessed contributions, is set out annually in a document called *The Agency's Programme and Budget* (in the second year of each biennium it is called *The Agency's Budget Update*). It is divided into six major programs:

- Nuclear Power, Fuel Cycle and Nuclear Science
- Nuclear Techniques for Development and Environmental Progress
- Nuclear Safety and Security
- Nuclear Verification
- Policy, Management and Administration Services; and
- Management of Technical Cooperation for Development.

The bulk of the regular budget has over many years gone to two areas: Nuclear Verification (otherwise known as safeguards); and Policy and General Management. Together these account for about two-thirds of the total.

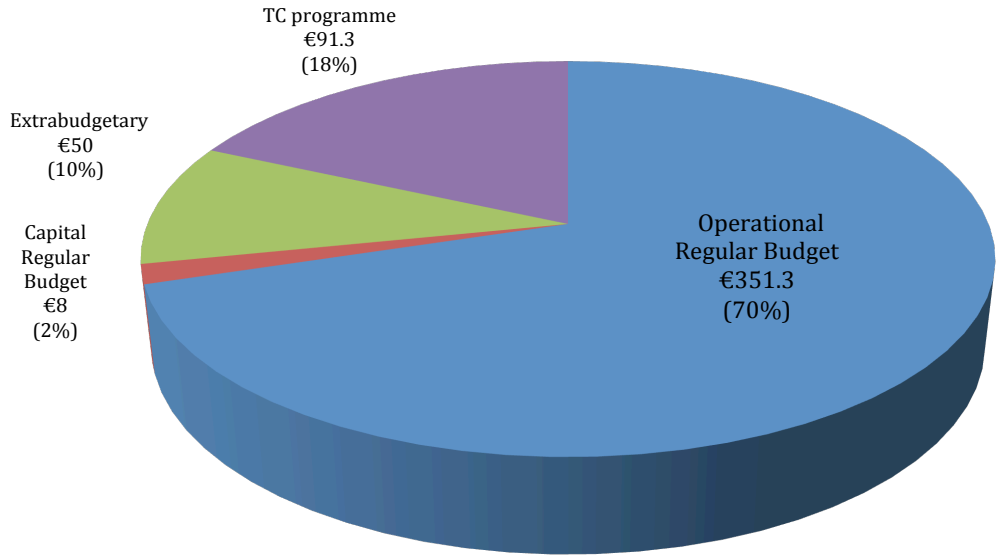
Although the regular budget is by far the largest component of the total resources available to the IAEA each year, at around 70 percent, there are also several other major sources of IAEA funding. The Technical Cooperation Fund, which provides around 20 percent of the total resources available to the Agency, is funded by assessed voluntary contributions by all member states and is negotiated separately from the regular budget. Another significant example is the Nuclear Security Fund (NSF), which unlike the TCF is not based on assessed voluntary contributions but is literally purely voluntary. In addition to the formal budget and voluntary funds, the Agency has the benefit of "cost free" experts paid for by member states, in-kind assistance, and the occasional non-governmental funding, none of which is included in the budget calculations.[26]

Regular Budget Trends

Over the past 15 years there has been little real growth in the IAEA regular budget due to the imposition of zero real growth restrictions in most years. While all programs have received increased funding, the percentage of the regular budget devoted to different programs has changed, indicating gradually shifting priorities. During the past decade there has been a steady decline in the percentage of the budget going to Policy and General

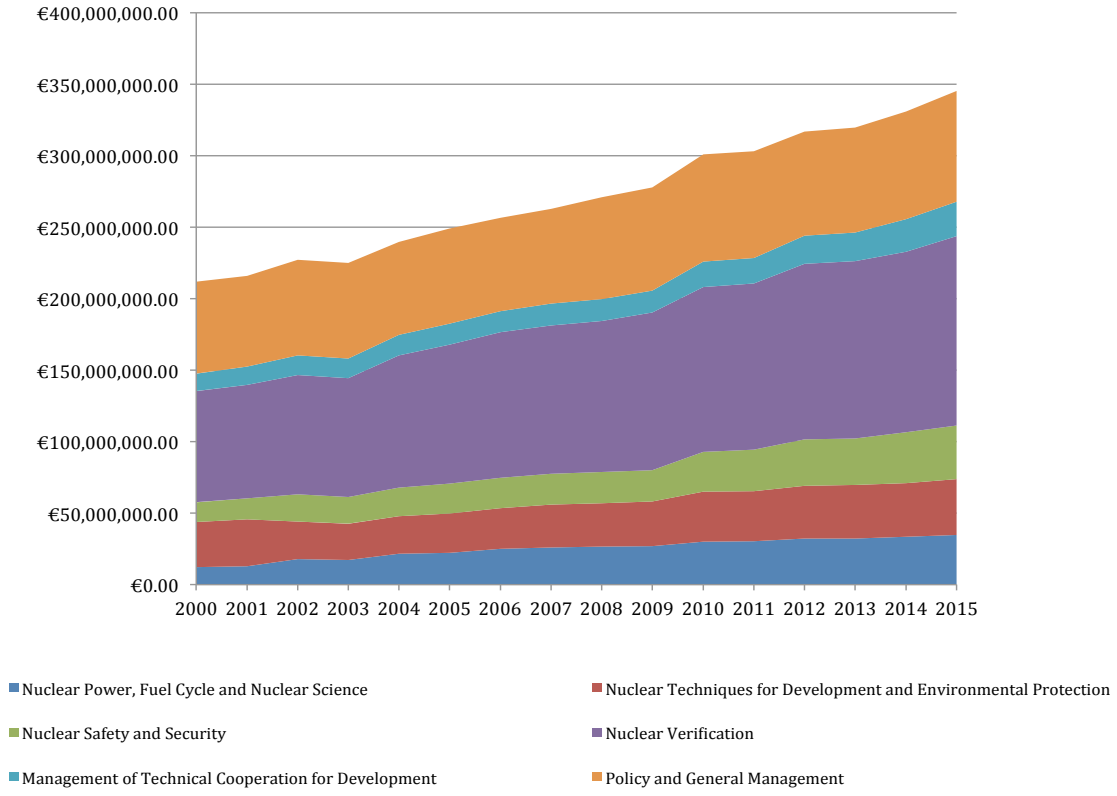
26 In-kind assistance used to be included but this practice was ended many years ago.

Chart 2: 2016 Total Resources (in Millions of Euros)



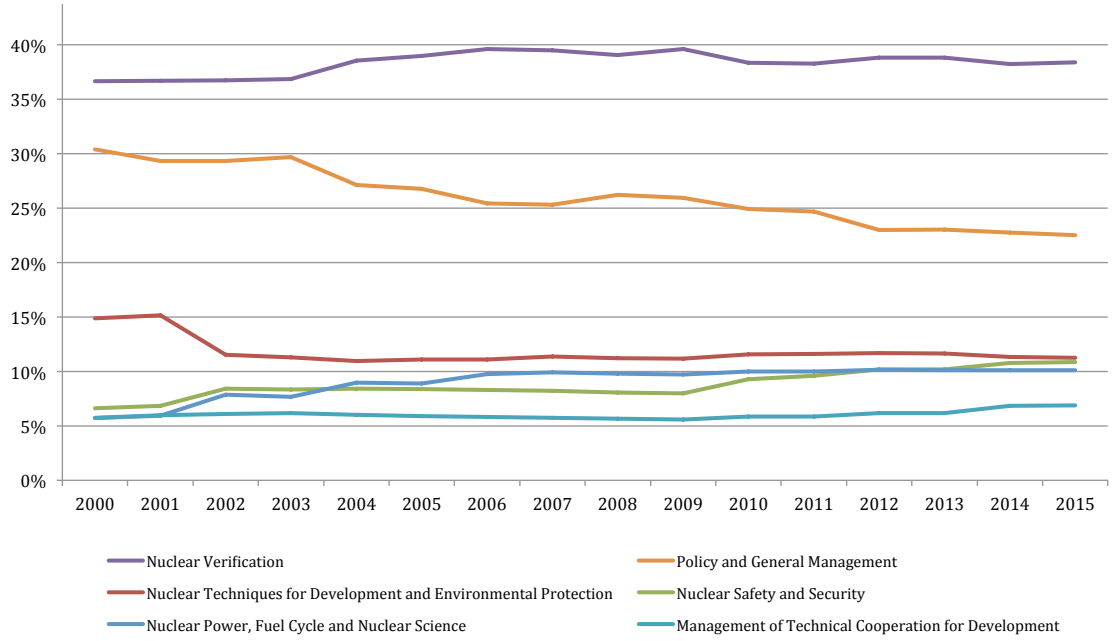
Source: IAEA, *The Agency's Programme and Budget 2016–2017,* GC(59)/2, (Vienna: IAEA, July 2015).

Chart 3: IAEA Regular Budget by Major Programme, 2000–2015



Source: *IAEA Annual Reports 2000–2014;* IAEA, *The Agency's Budget Update for 2015,* GC(58)/2, (Vienna: IAEA, July 2014). Figures from 2000–2005 were calculated by converting U.S. dollar amounts to euros, using the IAEA-specified rate as indicated in the adjusted budget. Values after 2005 are direct from IAEA annual reports. 2015 figures are not adjusted.

Chart 4: Percentage of IAEA Regular Budget by Programme, 2000–2015



Source: IAEA, *IAEA Annual Reports 2000–2014;* IAEA, *The Agency's Budget Update for 2015,* GC(58)/2, (Vienna: IAEA, July 2014).

Management, largely as a result of efficiency gains. Nuclear Verification's budget has seen rises and falls in its percentage take, but has been essentially flat for years. Nuclear Safety and Security have taken a larger percentage of the budget following the events of September 11, 2001 and Fukushima, which stirred increasing concerns about the possibility of nuclear terrorism and nuclear reactor accidents respectively. More budgetary priority has also been given to Nuclear power, Fuel cycle and Nuclear Science due to the revival of interest in nuclear electricity generation. There has lately been an increase in the proportion of the regular budget allocation for management of TC, in response to demands that the program be better managed.

The IAEA Budget for 2016–2017

The IAEA regular budget for 2016–2017, approved by the General Conference on September 17, 2015, allocates €359.3 million for 2016, the first year of the biennium.[27] This represents a modest growth of 1.5 percent over 2015.[28] The Director General had requested 1.7 percent, an indication of what little room for maneuver the Secretariat now has.[29] In

27 IAEA, *The Agency's Programme and Budget for 2016–2017,* GC(59)/2, (Vienna: IAEA, July 2015), p. v.

28 Incorporating a 1.6 percent real growth for the operating regular budget and a 3.7 percent decrease for the capital regular budget. The overall average price adjustment for 2016 is 0.1 percent.

29 IAEA, GC(59)/2, p. 3.

2017 the budget reverts to zero real growth over the 2016 budget. The TCF budget, which represents "forecasts of resources" for the technical cooperation program from core project funding, national participation costs, and extra budgetary activities, is €84.4 million for 2016. While this appears to be less than the estimated €102.1 million in 2015, it is in fact an increase in real Euros because in previous years the estimate was calculated in U.S. dollars and a notional 1:1 exchange rate applied, thereby overestimating the actual Euro amount available.[30] Member states agreed in 2014 that from the 2016–2017 budget onwards TCF targets would be discussed and calculated in Euros. Meanwhile funding in the regular budget for management of TC was increased by 2.9 percent for 2016. Extra-budgetary funding other than TC, also outside the regular budget, is €50 million for 2016, down from €55.9 million in 2015.

The 2016–2017 budget will carry forward certain priorities identified in the previous biennium.[31] These are: TC, including the Programme of Action for Cancer Therapy (PACT), launched in 2004;[32] nuclear safety; nuclear security; and Renovation of the Agency's Nuclear Applications Laboratories in Seibersdorf (ReNuAL). In addition, "nuclear energy" was deemed to be a priority "in accordance with the Statute."[33]

It is a stark indication of the IAEA's budgetary politics that nuclear safeguards is the only major program not mentioned as a budgetary priority, despite the Director General's reference to "the growing need for verification" in his introduction to the budget document.[34] As in all international organizations the IAEA's budget is determined by a combination of politics, history, organizational inertia, competing priorities, and the health of member states' own finances. As in national budgetary processes the tendency is for competing priorities to cancel each other out, resulting in a budget that provides something for everyone and little change.

30 TCF targets are increasing in dollars terms and, more importantly, have been increasing in Euro terms, as follows: 2014: €69,797,000 ($90,250,000); 2015: €69,797,000 ($91,000,000); 2016: €84,456,000; 2017:

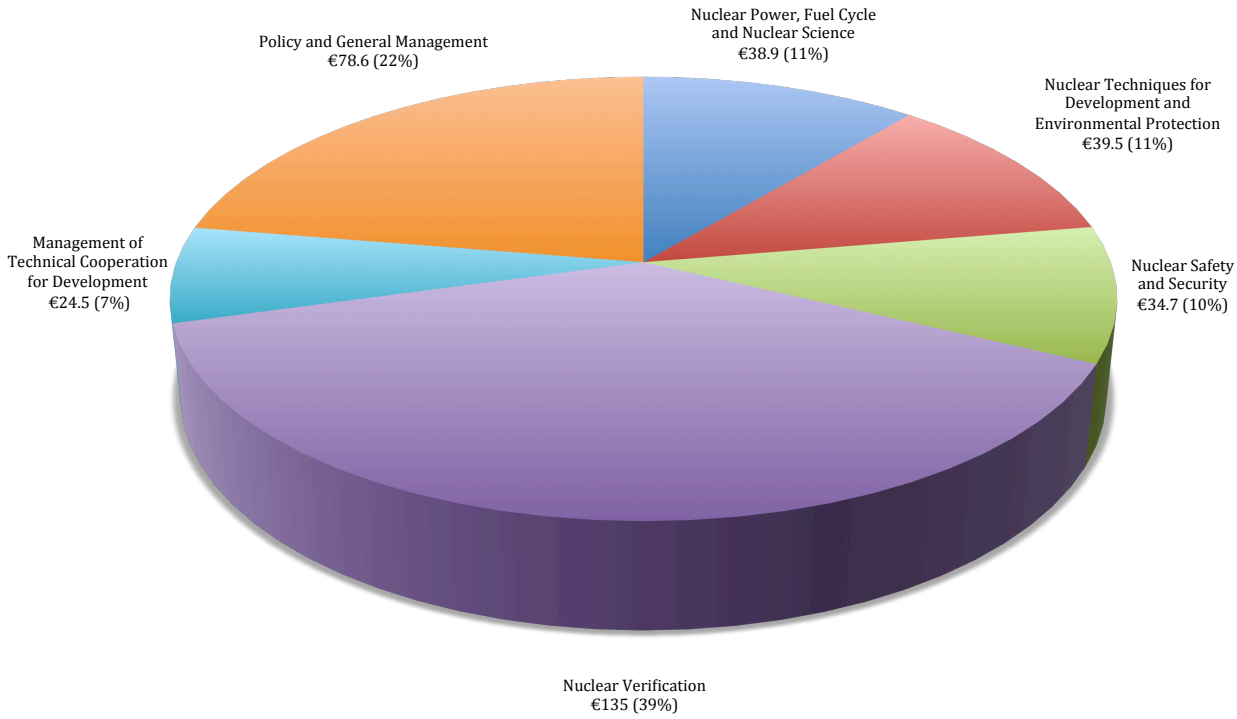
31 IAEA, GC(59)/2, p. iii.

32 Although launched by Director General Amano, it was initiated by his predecessor Mohamed ElBaradei.

33 IAEA, GC(59)/2, p. iii.

34 IAEA, GC(59)/2, p. iii.

Chart 5: 2016 Operational Regular Budget by Major Program (in Millions of Euros)



Source: IAEA, *The Agency's Programme and Budget 2016–2017*, GC(59)/2, (Vienna: IAEA, July 2015).

PRESSURES ON THE IAEA BUDGET: DEMAND AND SUPPLY

The budget of the IAEA has for years been squeezed by two separate pressures. On the demand side there has been a steady increase in the requirement for IAEA "services" to be provided to member states and the international community generally, while on the supply side the imposition of zero real growth on the regular budget has stifled the expansion of such services.

The Demand Side

There are several factors at play in increasing the demand for IAEA services, many of them the outcome of success and thus to be lauded.

Increasing Membership

The Agency has been successful in attracting a steady increase in membership. As of October 2015, 166 states were IAEA member states (compared with 193 UN member states),[35] the latest being Antigua and Barbuda. More states are gradually joining each year. Almost all new members in recent years, however, have been smaller, poorer developing countries such as Djibouti, Guyana, and Vanuatu, which contribute little to the IAEA's budget but are in need of assistance in the areas of safeguards implementation, nuclear safety, nuclear security, and the peaceful uses of nuclear energy.

Near Universalization and Strengthening of Safeguards

Demands on the safeguards system in recent decades have been particularly taxing. The U.S. National Nuclear Security Administration (NNSA) has concluded, perhaps over dramatically, that "Today, the international safeguards system is under more strain than at any point in its history."[36] Certainly demand has increased significantly.

35 "Member States," IAEA, https://www.iaea.org/about/memberstates (accessed November 4, 2015), and information from the IAEA Secretariat, November 11, 2015. The Holy See is an IAEA member state but not a UN member state (it has chosen observer status only).

36 National Nuclear Security Administration (NNSA), "International Safeguards: Challenges and Opportunities for the 21st Century," http://www.tandfonline.com/doi/pdf/10.1080/10736700902969695 (accessed August 14, 2015).

The 1968 Nuclear Non-Proliferation Treaty (NPT) has now achieved near universality. Each non-nuclear weapon state party to the treaty is legally required have a Comprehensive Safeguards Agreement (CSA) with the Agency (although a handful, even though legally required to do so, have not yet complied). Most of the recent accessions to the NPT have, again, been small developing countries with little or no nuclear infrastructure but which are nonetheless required to have some form of safeguards implementation, such as by means of a Small Quantities Protocol (SQP) to their CSA. This involves the Agency in additional costs but without a commensurate increase in its budget.

The strengthening of safeguards since 1991 and the advent of the Additional Protocol (AP) in 1997 have increased verification costs for the Agency. The number of APs that have entered in force since Australia became the first state to adopt one in 1997 has grown to 127.[37] Meanwhile the amounts of material and number of facilities under safeguards have increased substantially. The NNSA has estimated that over the last 25 years the number of safeguarded facilities has more than tripled and the amount of highly enriched uranium (HEU) and separated plutonium under safeguards has increased by a factor of six.[38] An exceptional case is the application of safeguards to multiple designated civilian nuclear facilities in India, a non-NPT party, under a unique agreement with the Agency. [39] This is incurring significant costs estimated in 2014 to be €2.7 million.[40]

Despite the growth in the amount of nuclear material and facilities under safeguards the size of the inspectorate has remained constant for several years at around 250 personnel.[41] This is partly due to technological advancements and budgetary constraints combining to make remote monitoring devices more attractive. Meanwhile, the number of safeguards analysts has increased.

New verification techniques have been adopted, such as the use of satellite imagery, open sources, and on-site monitoring. Improved verification technology, such as the Next Generation Surveillance System (NGSS) of remote video cameras, is being

37 In addition some AP provisions are applied in Taiwan and there is an AP specifically for Greenland as well as for Denmark proper.

38 NNSA, "International Safeguards: Challenges and Opportunities."

39 IAEA, *Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities*, INFCIRC/754, May 29, 2009, https://www.iaea.org/sites/default/files/publications/documents/infcircs/2009/infcirc754.pdf. (accessed December 28, 2015).

40 IAEA, *Safeguards Implementation Report for 2014: Report by the Director General,* GOV/2015/30, (Vienna: IAEA, May 6, 2015), pp. 50–54.

41 The Agency does not regularly publicize the number of inspectors it has, preferring "person days of inspection" (PDIs), partly because the numbers are in constant flux.

installed. Unfortunately the continued replacement of 200–250 old cameras in 2016–2017, at an estimated cost of €7 million, is totally unfunded, an example of the funding challenges the Agency faces in this critical area.[42] The further development and implementation of the State-Level Concept (SLC)[43] presents significant technical and human resource challenges: the need to identify and acquire additional safeguards expertise and technology; increased training in both inspection and analysis; and advanced safeguards concepts and planning. There are growing expectations that the IAEA will in future be better able to detect undeclared nuclear materials, facilities, and activities. While a significant effort is underway to redress years of neglect of the Agency's safeguards-related infrastructure (detailed further below), there will be a continuing need to maintain the new facilities and to pursue advanced technology.

The Secretariat had originally projected significant financial savings from the application of Integrated Safeguards (IS), which rationalize and integrate the various layers of safeguards in those states with an AP that qualify for the so-called Broader Conclusion about their long-term safeguards compliance. Less intensive verification, especially by inspectors, would, it was claimed, naturally lead to savings. The Secretariat has not, however, been able to demonstrate savings from IS—to quote the external auditor—"in hard figures."[44] In 2011 the auditor urged the Secretariat to establish a comprehensive control system that would make IS more transparent and comprehensible.

In 2010 the U.S. Department of Energy (DOE), as part of its Next Generation Safeguards Initiative (NGSI), sponsored two studies on IAEA budget matters by the DOE/National Nuclear Security Administration's National Laboratories.[45] The first focused on the IAEA's short-term human resource requirements. It concluded that increased costs would likely exceed savings from the reduction in field efforts as a result of IS. It recommended new funding for additional country officers, open source analysts, and requisite training. The second study, which projected IAEA safeguards costs from 2010 to 2030, found that given current growth projections for the nuclear industry and the transition to a new safeguards concept, the Department of Safeguards' "mandated responsibilities will quickly outstrip its resources and continue to do so, barring significant increases in its regular budget."[46]

42 IAEA, GC(59)/2, p. 44.

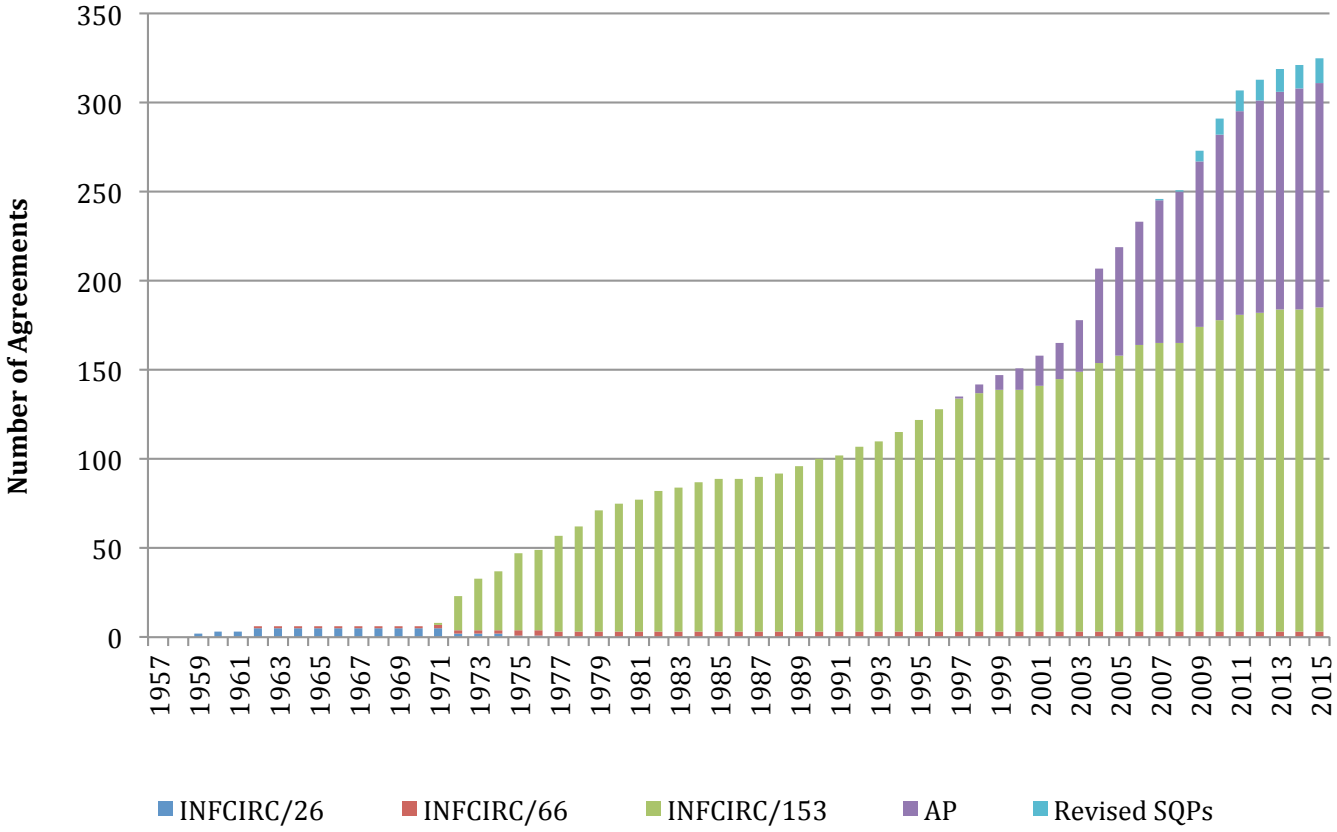
43 See IAEA, *Report on The Conceptualization and Development of Safeguards Implementation at the State Level: Report of the Director General,* GOV/2013/38, (Vienna: IAEA, August 12, 2013) and IAEA, Supplementary document to the Report on The Conceptualization and Development of Safeguards Implementation at the State Level (GOV/2013/38): Report of the Director General, GOV/2014/41, (Vienna: IAEA, August 13, 2014).

44 IAEA, *The Agency's Financial Statements for 2011*, GC(56)/10, (Vienna: IAEA, September 2012), p. 149, https://www.iaea.org/About/Policy/GC/GC56/GC56Documents/English/gc56-10_en.pdf. (accessed February 8, 2016).

45 NNSA, "International Safeguards: Challenges and Opportunities for the 21st Century." http://www.tandfonline.com/doi/pdf/10.1080/10736700902969695 (accessed August 14, 2015).

46 J.M. Whitney et al, USDOE/NNSA, IAEA-CN184/96.

Chart 6: Growth of IAEA Safeguards Commitments, 1957–2015



Source: "Status of the Additional Protocol as of 3 July 2015," updated August 25, 2015, https://www.iaea.org/safeguards/safeguards-legal-framework/additional-protocol/status-of-additional-protocol, (accessed January 8, 2016); "Status of Small Quanitites Protocols as of 3 July 2015," updated August 25, 2015, https://www.iaea.org/safeguards/safeguards-legal-framework/safeguards-agreements/status-small-quantities-protocols, (accessed January 8, 2016); IAEA, Strengthening the effectiveness and improving the efficiency of the safeguards system, Report by the Director General, GC(59)/18, (Vienna: IAEA, July 22, 2015).

INFCIRC/26 = original safeguards agreements, now superseded
INFCIRC/66 = material- and facility-specific safeguards agreements (currently India, Israel, and Pakistan only)
INFCIRC/153 = Comprehensive Safeguards Agreements (CSAs)
AP = Additional Protocol
SQP = Small Quantities Protocol

Although the extent of the nuclear energy revival is now in question following Fukushima, there are still likely to be numerous states seeking advice on whether or not to pursue nuclear electricity generation. Some new reactors will come online, requiring safeguards on both additional materials and facilities. Safeguards will have to be applied in some countries with no previous experience of nuclear power. The United Arab Emirates is the first to begin construction, but other likely candidates include Bangladesh, Jordan, Turkey, and Vietnam. The development of safeguards for new generation reactors, including "safeguards by design," and fuel cycle technologies and facilities will also require additional funding.

Special Verification Tasks—Iran, North Korea, and Syria

The Agency has been involved since 2003 in an increasingly expensive verification regime in respect of Iran, requiring additional Agency resources. The Iran operation is currently the most expensive IAEA undertaking in any country except Japan.[47] In 2014 the total cost was €12.47 million, up from €3.1 million in 2009. The former Iran Task Force, as of March 2016 an office in the Department of Safeguards, has around 50 personnel.

The November 2013 Joint Plan of Action (JPA) between Iran and the EU+3 (China, France, Germany, Russia, the United Kingdom and the United States), which was extended in November 2014 until June 2015, brought additional costs for Iran-related verification. Director General Amano noted at the time that JPA-related verification activities would require an additional €4.6 million in extra-budgetary contributions.[48] At a Board meeting on August 25, 2015 he pointed out that the Agency had immediate funding needs related to the JPA amounting to €800,000 a month. The extra-budgetary contributions the Agency had previously received for this purpose would be exhausted by the end of September 2015.

47 IAEA, *Safeguards Implementation Report for 2014: Report by the Director General,* GOV/2015/30, (Vienna: IAEA, May 6, 2015), pp. 50–54; and IAEA, Board of Governors, "Estimation of the Cost of Safeguards by State: Note by the Secretariat, 2009/Note 60," Safeguards Implementation Report 2009, GOV/2010/25, (Vienna: IAEA, July 27, 2010). IAEA, M*onitoring and Verification in the Islamic Republic of Iran in relation to the extension of the Joint Plan of Action: Report by the Director General,* GOV/2014/62, (Vienna: IAEA, December 3, 2014), p. 3.

48 "A Joint Comprehensive Plan of Action (JCPOA)," Vienna, July 14, 2015, Annex A, UN Security Council (UNSC) resolution 2231 (2015), July 20, 2015. See also "Roadmap for the clarification of past and present outstanding issues regarding Iran's nuclear programme," IAEA Press Release, Vienna, July 14, 2015, https://www.iaea.org/press/?p=5058/, (accessed December 28, 2015).

The Joint Comprehensive Plan of Action (JCPOA) concluded in July 2015[49] gives the Agency significant new verification responsibilities and requires even more financial, personnel, and other resources, estimated at €9.2 million a year.[50] Some €3 million will go towards provisional implementation of Iran's AP, the adoption of which is part of the agreement. The Director General noted at the time that an additional expenditure of €160,000 per month would be necessary between so-called Adoption Day, on October 19, 2015, and Implementation Day, which occurred on January 16, 2016,[51] as the Agency carried out preparatory work to facilitate verification and monitoring.[52] Director General Amano said he was not proposing any changes to the 2016 regular budget or to member states' assessed contributions for 2016, implying that the Agency will need to meet all additional costs for Iran until the end of 2016 through extra-budgetary contributions. The Director General indicated in presenting the Roadmap report to the Board in December 2015 that he would need to request additional funding in the 2017 regular budget update for implementing the JCPOA.[53] It was still unclear whether he would ask for the full cost to be included in the 2017 budget or whether it would be spread over several years.

Ultimately, given the widespread support among key donor states for the Iran agreement, including the European Union and Japan, it is likely that they will come to the Agency's rescue with voluntary contributions. The Agency is unlikely, therefore, to face an immediate or short-term financial crisis over its Iran work. While there will likely be an impact on the 2017 budget, as Director General Amano has indicated, the JCPOA is unlikely to be a major drain on the Agency's regular budget. However, the case dramatically illustrates the hand-to-mouth existence that the Agency endures whenever a nuclear-related crisis requires its assistance or intervention. There is also a danger, in the longer term, that if international attention is diverted from a largely compliant Iran, member states will be unwilling to continue to fund Iran-specific verification but will rather seek to have the Secretariat quietly subsume it in the regular

49 "A Joint Comprehensive Plan of Action (JCPOA)," Vienna, July 14, 2015, Annex A, UN Security Council (UNSC) resolution 2231 (2015), July 20, 2015. See also "Roadmap for the clarification of past and present outstanding issues regarding Iran's nuclear programme," IAEA Press Release, Vienna, July 14, 2015, https://www.iaea.org/press/?p=5058/, (accessed December 28, 2015).

50 IAEA Director General Yukiya Amano, "Introductory Statement to the Board of Governors," August 25, 2015, https://www.iaea.org/press/?p=5113, (accessed December 28, 2015).

51 For a chart explaining the Adoption and Implementation Days, see "Section 3: Understanding the JCPOA," Arms Control Association blog, August 10, 2015, http://www.armscontrol.org/reports/Solving-the-Iranian-Nuclear-Puzzle-The-Joint-Comprehensive-Plan-of-Action/2015/08/Section-3-Understanding-the-JCPOA. (accessed December 28, 2015).

52 "IAEA to discuss its role, money needs under Iran deal on Aug 25," *Reuters,* last modified August 12, 2015, http://www.reuters.com/article/2015/08/12/us-iran-nuclear-iaea-idUSKCN0QH1WI20150812.

53 "IAEA Director General Amano's Introductory Statement to the Board of Governors," December 15, 2015, https://www.iaea.org/newscenter/statements/introductory-statement-board-governors-67 (accessed December 28, 2015).

budget constrained by zero real growth. This would be especially worrying as the Agency seeks to verify Iran's continuing centrifuge R&D activities; its construction of new civilian power reactors and, eventually, new enrichment facilities; and when the procurement channel monitoring arrangement ends in ten years.[54]

There are, moreover, continuing opportunity costs to the Agency arising from the Iran deal to the extent that the Agency follows through with its intention to draw the best personnel from other areas of the Agency to join the work on Iran. The Iran Task Force has already been authorized to choose the most capable inspectors and analysts and to some extent this has happened.[55] This process will cause at least short-term bottlenecks since the Agency's recruitment process is notoriously slow, as noted by successive external auditors' reports.[56] The significant new set of tasks that the JCPOA envisages will also incur management and administration costs that may or may not be covered in the short term by voluntary contributions.

The JCPOA has promised that the Agency will receive the most modern verification technology available, but it is not clear yet how this is to be provided, whether through the Iran fund or contributions in-kind. Specific technologies mentioned were "on-line enrichment measurement and electronic seals."[57] Ideally the Agency will be able to use such enhancements to improve safeguards generally. It will certainly benefit from the experience of using such new technology.

In addition to Iran, the Agency incurs additional costs for two other serious non-compliance cases. Even though North Korea is no longer a member of the Agency and has renounced its safeguards agreement, the Agency is obliged to keep verification means ready in case there is an agreement to reinstitute safeguards or establish some other form of verification in North Korea.[58] Director General Amano has noted that the Agency's inspectors could be ready to return within weeks, subject to Board

54 For a detailed examination by the U.S. Government Accounting Office (GAO) of the Agency's funding requirements for its Iran verification work see GAO, *Nuclear Nonproliferation: Preliminary Observations on IAEA's Role in Verifying the Iran Agreement*, GAO-16-417 (Washington, D.C.: GAO, February 2016), http://www.gao.gov/assets/680/675222.pdf (accessed March 3, 2016).

55 Thomas E. Shea, "Verification challenges: Iran and the IAEA," *Arms Control Today*, June 2015, www.armscontrol.org.

56 A report commissioned by the NNSA in 2010 concluded that poor succession planning and rigid retirement and rotation policies significantly undermine the ability of the IAEA to attract and retain expertise (NNSA, *International Safeguards: Challenges and Opportunities for the 21st Century* http://www.tandfonline.com/doi/pdf/10.1080/10736700902969695 (accessed August 14, 2015). The Agency has in the last couple of years taken steps to address these deficiencies, as noted by the External Auditor's report in 2011 (the last by Germany). See IAEA, GC(56)/10, pp. 140-142.

57 JCPOA, para. 15.

58 In 2014 the cost of verification activities in North Korea was €957,000, down from €1.9 million in 2009 (IAEA, GOV/2015/30, pp. 50–54 and IAEA, *Safeguards Statement for 2009*, GOV/2010/25, (Vienna: IAEA, September 2010).

approval.[59] The Syria case, meanwhile, is currently requiring fewer resources as the civil war makes IAEA on-site access there increasingly unlikely.[60]

Such special verification tasks are often urgent and unexpected (U.S. researchers have dubbed these "crisis costs"). It would seem prudent for the IAEA to establish a Nuclear Emergency Fund for such crises to avoid the Agency having to scramble for voluntary contributions each time one occurs. The fund could also be used in the case of nuclear accidents or incidents, such as the Fukushima disaster, when an immediate Agency response is expected.

> ***Recommendation:*** *The Board of Governors should authorize establishment of a Nuclear Emergency Fund specifically to provide resources for handling non-compliance cases requiring an urgent Agency response.*

Nuclear Safety and Security

The Agency's role in nuclear safety and security has expanded in response to various developments, not least the terrorist attacks of 9/11, the Fukushima disaster, and the emergence of the nuclear security summit process. The IAEA's involvement in monitoring illicit nuclear trafficking and nuclear imports and exports has also increased following revelations about the A. Q. Khan nuclear smuggling network and rising concern about nuclear terrorism. The profile of nuclear security in the Agency has risen with the promotion of the Office of Nuclear Security to a division within the Department of Safety and Security. The Nuclear Security Fund has been successful in attracting increasing amounts of voluntary funding for nuclear security activities.

59 "IAEA readying to head back to North Korea," *Global Security Newswire,* March 6, 2012.

60 The costs of verification in Syria in 2014 was an estimated €188,000, down from €750,000 in 2009 (GOV/2015/30, pp. 50–54 and GOV/2010/25). See Trevor Findlay, *Proliferation Alert! The IAEA and Non-compliance Reporting,* (Cambridge, MA: Project on Managing the Atom, Belfer Center for Science and International Affairs, October 2015) for details of the three non-compliance cases.

Yet demand from states for assistance in strengthening nuclear security at their facilities and more generally has outstripped supply. So popular are its International Physical Protection Advisory Service (IPPAS) missions that the Agency is having to train large numbers of potential IPPAS team members to meet the demand.[61] Nuclear safety, meanwhile, has become an official priority for the Agency following adoption of the post-Fukushima 2011 Plan of Action.[62]

Peaceful Uses of Nuclear Technology and Technical Cooperation

Since around 2000 a revived interest by some member states in acquiring civilian nuclear energy has created increased demand for the IAEA's technical and advisory services. The Agency is also expected to participate in helping ensure that new generations of power reactors and associated facilities are designed to be safe and secure and safeguards-compatible. There has also been a constant increase in demand for TC from the developing countries. Although the Agency officially describes TC as "demand driven," in fact demand regularly outstrips the ability of the Agency to fund all approved projects (although there is skepticism in some quarters as to whether some of the demand is driven by real needs or a sense of entitlement, a desire for prestige, or national political considerations). Each year certain projects considered to be worthy but unfundable in the current budget are designated "footnote a/" (after the footnote in the budget document where they are listed) and are held in reserve until funding becomes available. Sometimes member states will volunteer to fund them. Around 131 states, some 82 percent of the IAEA's membership, received TC support in 2014.[63]

The Peaceful Uses Initiative (PUI),[64] announced by the United States at the 2010 NPT Review Conference, along with an initial contribution of $50 million, was useful in meeting some of the pent-up demand—although it was also designed to placate developing countries critical of the lack of progress in implementing the disarmament aspects of the NPT. The initiative was intended by the United States to

61 The Agency conducted the first international training course for potential IPPAS team members, attended by 62 participants, in December 2014 at the Agency's Headquarters (IAEA, *Nuclear Security Report 2015,* GOV/2015/42-GC(59)/12, (Vienna: IAEA, July 13, 2015), para. 55.

62 IAEA Action Plan on Nuclear Safety," 2011, https://www.iaea.org/sites/default/files/actionplans.pdf.

63 IAEA, *Technical Cooperation Report for 2014,* GC(59)/INF/3, (Vienna: IAEA, September 2015).

64 For details of the PUI see "Understanding the Peaceful Uses Initiative," https://www.iaea.org/newscenter/news/understanding-peaceful-uses-initiative.

encourage matching pledges that, together, would amount to $100 million over five years. According to the Agency, since 2010 the PUI has raised over €60 million from 13 member states and the European Commission (EC).[65] This funding has supported more than 170 projects in over 130 member states. During the 2015 NPT Review Conference the PUI received a major boost from the United States and Japan, which together pledged a total of $75 million in new contributions.[66]

Infrastructure Renewal

The Agency in the past few years has successfully identified the need and obtained special funding for a major renewal of its laboratory facilities at Seibersdorf outside Vienna, to support both safeguards and peaceful uses. In 2009 a Major Capital Investment Plan (MCIP) for 2015–2023 was presented to the Board, which established a Major Capital Investment Fund (MCIF) to finance it.[67] The MCIF has been funded by appropriations in the capital regular budget; extra-budgetary contributions; and savings in the annual regular budget appropriations (although extra-budgetary contributions have not been a major part of the MCIF to date).[68]

The Enhancing Capabilities of the Safeguards Analytical Services (ECAS) project has significantly strengthened the efficiency and security of the Agency's two Safeguards Analytical Laboratories (SALs). A Clean Laboratory Extension (CLE) for environmental sample particle analysis was completed in September 2011, while a new Nuclear Material Laboratory (NML), where scientists inspect atomic substances from member states' fuel-cycle processes, was inaugurated in September 2013—on time and within budget.[69] Active testing of the uranium laboratory began in April 2015 and construction of the final wing of the NML facility was expected to be completed by the end of 2015.[70]

In 2012 the Agency launched a new project to renovate the Nuclear Applications Laboratory (NAL), which conducts research and supports technical cooperation in the

65 IAEA, GC(55)/5, p. 6.

66 Jeffrey Donovan, "IAEA Peaceful Use Gets a Major Boost From U.S., Japan," https://www.iaea.org/newscenter/news/iaea-peaceful-uses-gets-major-boost-us-japan (accessed August 14, 2015).

67 IAEA, GC(53)/5. Board approval is required for each biennium of the MCIP.

68 See IAEA, GC(53)/5, paras. 140–144.

69 Mark Scheland, "IAEA Nuclear Material Laboratory Inaugurated," IAEA, September 23, 2013, https://www.iaea.org/newscenter/news/iaea-nuclear-material-laboratory-inaugurated, (accessed December 28, 2015).

70 IAEA, *Strengthening the Effectiveness and Improving the Efficiency of Agency Safeguards: Report by the Director General,* GC(59)/18, (Vienna: IAEA, July 22, 2015).

peaceful uses of nuclear energy, including agriculture and medicine. The ReNuAL project is projected to cost €31 million. Of this, €10.4 million is to come from the Major Capital Investment Fund,[71] while the remaining €20.6 million, which the Agency had hoped to secure by June 30, 2015, is to be funded from extra-budgetary resources. Such resources include, for the first time, the private sector, in particular equipment manufacturers, and foundations. As of July 2015 only €8.3 million of the target had been raised, from 12 member states, making completion of ReNuAL by the projected date of December 2017 unlikely.[72]

The Supply Side: Zero Real Growth and Its Implications

It is difficult to assess the precise impact of zero real growth on the IAEA, especially in terms of the effectiveness and efficiency of the organization. The 2004 UN High-Level Panel on Threats, Challenges and Change said the Agency "stands out as an extraordinary bargain."[73] The U.S. Office of Management and Budget in 2006 gave the Agency an unprecedented rating as "100 percent value-for-money."[74] The UN Joint Inspection Unit (JIU), which conducts periodic assessments of the effectiveness and efficiency of organizations in the UN system, has reported that its discussions with member states in 2012 revealed "overall satisfaction with the performance of the organization, considering it professionally run and one of the well performing among the United Nations organizations, effectively delivering on its mandates."[75] Some member states attribute this to the imposition of zero real growth, seeing it not only as a way of constraining the IAEA budget but of forcing it to systematically determine its priorities and seek efficiencies. Canada for instance successfully argued for the Agency to use the reality of zero real growth to implement Results-Based Management (RBM).[76] It also supported Director General Amano in asking each department to cut its budget

71 IAEA, GC(53/5).

72 IAEA, Strengthening the Agency's *Activities related to Nuclear Science, Technology and Applications: Report by the Director General,* GOV/2015/39-GC(59)/5, (Vienna: IAEA, July 20, 2015).

73 United Nations, *Report of the Secretary-General's High-Level Panel on Threats, Challenges and Change*, A/59/565, New York, December 2, 2004, p. 18.

74 U.S. Office of Management and Budget, "Contributions to the IAEA," The White House, Washington, D.C. Available at www.whitehouse.gov/omb/expectmore/summary/10004639.2006.html.

75 United Nations, Joint Inspection Unit (JIU), *Review of Management and Administration in the International Atomic Energy Agency* (IAEA), JIU/REP/20/2012/13/Rev.1, (Geneva: 2012), p. 3.

76 Interview with John Barrett, former Chair of IAEA Board of Governors, Ottawa, April 25, 2014.

by 5 percent and then bid for new projects funded by such cuts, a measure inspired by Japanese government budgetary methods, including the Foreign Ministry's "minus ceiling" concept.

The JIU opines that zero real growth has provided a "stimulus towards striving for efficiency gains and continuous reform."[77] For instance, in the most recent budgets there has been a drive to cut back on staff travel and minimize the number of external consultants hired. The JIU mentions, in addition to RBM, improvements in strategic planning and budgeting, including the promulgation of a Medium-Term Strategy 2011–2017; the implementation of an organization-wide corporate risk management (CRM) framework; improvements in knowledge management; and the implementation of International Public Sector Accounting Standards (IPSAS) and the Agency-wide Information System for Programme Support (AIPS).[78]

A 2012 PNNL report asserts, somewhat inconsistently, that while zero real growth is not a "sustainable model for the IAEA's Regular Budget," the reforms and "ongoing emphasis on efficiency" throughout the IAEA, particularly in the Department of Safeguards, "make it possible that the Regular Budget could be brought back into line with actual and demonstrated needs in the next few years."[79] The report declined therefore to recommend additional funding for the regular budget "until these impending reforms were implemented."[80] The report did conclude, however, that zero real growth has had major impacts on three areas of the IAEA's operations: capital investment; crisis response; and Technical Cooperation.[81]

Overall, zero real growth has probably made the Agency "leaner" and perhaps "meaner" by constantly obliging it to seek efficiencies and other savings. Generally, however, blanket financial constraints like zero real growth are a blunt instrument for achieving effectiveness and efficiency since they may simply induce an organization to cut all its activities across the board without changing its priorities.[82] This appears to have happened in the case of the Agency, which has traditionally found it difficult to set priorities among the multitude of tasks, some unwanted, that its member states

77 JIU, 2012 p. 3.

78 JIU, 2012 p. 3.

79 Toomey, *et al*, p. 2.3.

80 Toomey, *et al,* p. 2.3.

81 Toomey, *et al,* p. 3.1

82 M. Campbell, et al. A*t What Cost Success? Final Report of the External Review of the Management Processes of the International Atomic Energy Agency,* (Geneva: MANNET, 2002), p. 25.

foist onto it, not to mention the competing priorities of member states over the Agency's regular activities.

The real impact of zero real growth can only be seen over the longer term, rather than year-to-year. It has become increasingly apparent that zero real growth threatens the Agency's ability to carry out critical parts of its mandate due to chronic underinvestment over many years in infrastructure, technology, and human resources. The 2012 JIU report says understatedly that zero real growth has "to some extent prevented the Agency from making appropriate investments in infrastructure, state-of-the art systems and technologies."[83] As mentioned, until recently the Agency's laboratories at Seibersdorf were in a poor state, non-compliant with the Agency's own safety and security recommendations, and falling increasingly behind in terms of state-of-the-art technology. Technologies that would be extremely useful for safeguards, such as wide area environmental sampling for detecting undeclared nuclear materials and facilities, are still far beyond the Agency's budget. Other infrastructure improvements, such as upgrading the Agency's computer systems, have been continuously deferred due to lack of funding. The JIU also concludes that zero real growth has had an impact on the quality of human resources available to the organization. It notes that the IAEA spends comparatively little on staff training and development (around 0.6 percent of its annual budget), falling below the levels of many other UN system organizations, which typically invest around 1 percent.[84]

Voluntary Extra-Budgetary Contributions—A Faustian Bargain?

One result of zero real growth has been increasing reliance by the Agency on voluntary, extra-budgetary funding. The system has endured for so long that it has become institutionalized and ritualized. During the regular budgetary process the Agency identifies unfunded core activities "expected" to be funded by extra-budgetary funds, as well as activities for which no funding is currently foreseen. Even a core function like safeguards has become dependent on voluntary contributions. The Agency's substantive work to strengthen nuclear security, which an outsider would imagine to be a quintessential core function, is funded largely by extra-budgetary contributions to the Nuclear Security Fund (NSF).[85] The JIU has called the reliance of UN bodies like the IAEA on voluntary contributions to carry out core functions a "major cause for

83 JIU, 2012 p. 3.

84 JIU, 2012, pp. 24–25.

85 Other funding is provided for in the regular budget.

concern."[86] Christopher Toomey and his colleagues go so far as to claim that "this situation has transformed the IAEA into a de facto charity, dependent on extra-budgetary contributions to sustain its core mission and capabilities."[87]

Although welcomed by the Secretariat as enabling the Agency to meet shortfalls in the regular budget, voluntary contributions are problematic on several counts. One disadvantage is that funding is often earmarked by a particular donor for a particular activity, leading to distortions in the Agency's declared spending priorities. Extra-budgetary contributions also create uncertainty in the Secretariat's medium- and long-term planning, which would be better served by increasing the regular budget in the first place. Such "soft money" also creates great barriers to recruiting the best expertise available as only one-year contracts may be offered. The Agency has lost countless opportunities to recruit top-level experts who are unwilling to move from their home countries and leave their existing jobs for such a short-term appointment with no guarantee of renewal. Moreover, no additional funds are provided either in the regular budget or through voluntary contributions for raising, managing, and administering extra-budgetary funds. This activity absorbs considerable additional time and resources on the part of the Secretariat, especially as the traditional UN budgeting system is not well adapted to such unorthodox funding arrangements.

IAEA financial management and services are improving through the adoption of AIPS, which is expected to be completed by the end of 2016, as well as the introduction since 2011 of IPSAS.[88] Yet even with the best accounting system the basic problems of managing voluntary contributions will continue. As the Director General noted in the introduction to the Agency's Programme and Budget for 2014–2015:[89]

> Demands for the Agency's services are growing at a rate beyond what can be realistically funded through the regular budget. As a result, the Agency is increasingly dependent on extrabudgetary contributions which are unpredictable, often tied to restrictive conditions, require specialized management and, thus, involve some risk for the programme[s].

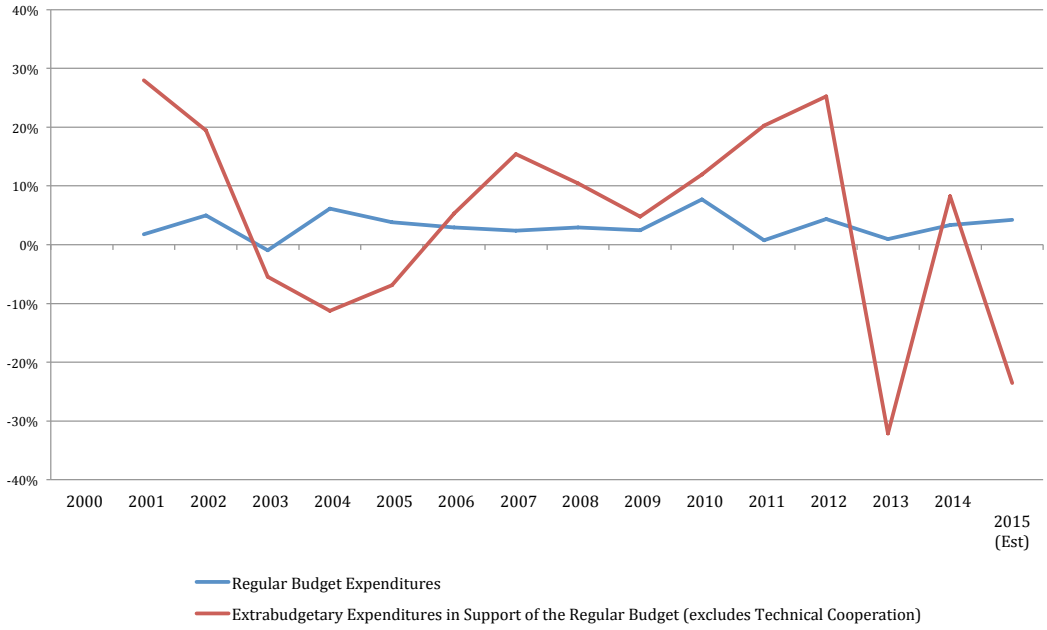
86 United Nations, *Joint Inspection Unit, Voluntary Contributions in United Nations System Organizations: Impact on Programme Delivery and Resource Mobilization Strategies*, JIU/REP/2007/1, (Geneva: JIU, 2007), p. 15.

87 Toomey *et al,* p. iii.

88 IAEA, *The Agency's Programme and Budget 2014–2015,* GC(57)/2, (Vienna: IAEA: August 2013), p. 5.

89 IAEA, GC(57)/2, p. 3

Chart 7: Year Over Year Percentage Growth of Regular Budget and Extrabudgetary Expenditures



Source: IAEA, *IAEA Annual Reports 2000–2014;* IAEA, *IAEA Programme and Budget Reports and Updates, 2000–2014.*

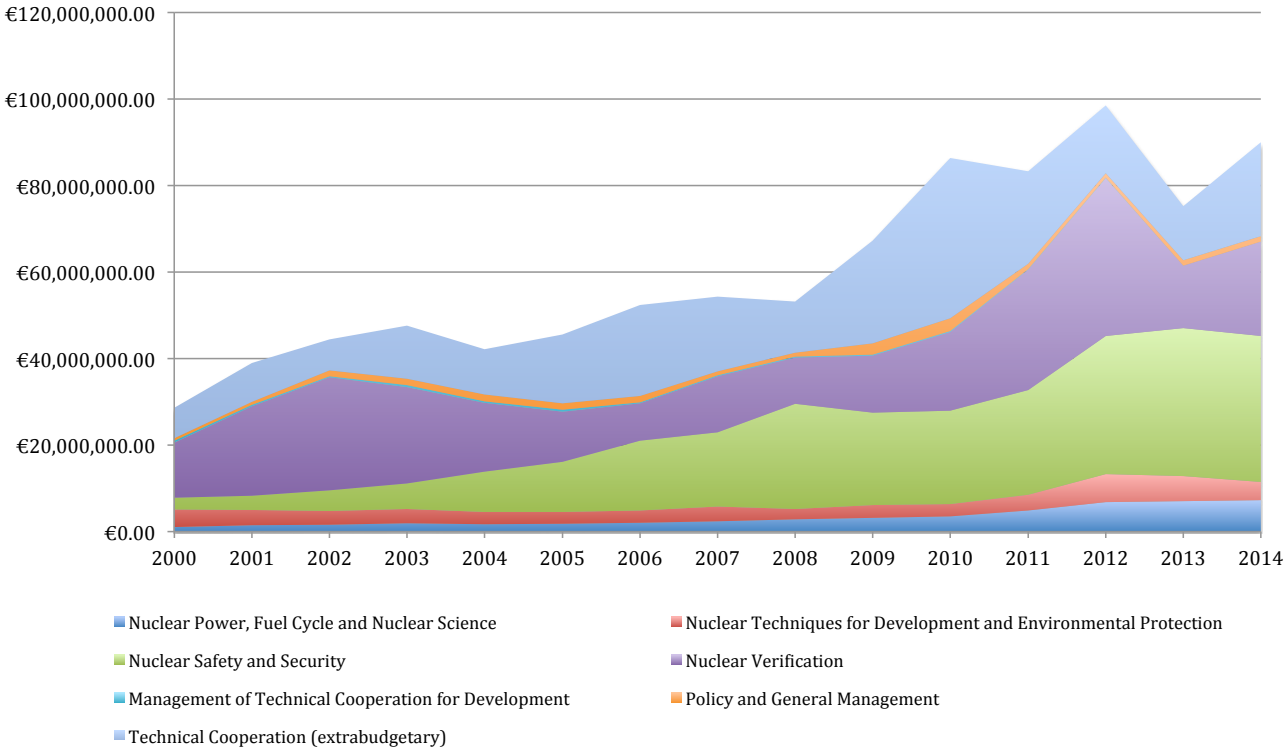
The risk is compounded by the volatility of voluntary funding compared to the relative steady state of the regular budget, as illustrated by Chart 7.

These statistics do not reveal the full scope of the Agency's dependence on voluntary contributions: as mentioned, the Agency regularly receives the free services of experts paid for by member states, as well as in-kind support.[90] Like many UN specialized agencies, the IAEA has even resorted to funding from non-governmental organizations (NGOs), most notably the Nuclear Threat Initiative (NTI), which supplied funding for the IAEA's Nuclear Fuel Bank Initiative—with the proviso that other donors matched its contribution. The bank is thus entirely funded by extra-budgetary contributions.[91]

90 These were a substantial part of the Agency's resources in its early years, but became less important as regular funding sources grew (David Fischer, *History of the International Atomic Energy Agency: The First Forty Years,* (Vienna: IAEA, 1997), pp. 338–339).

91 IAEA, *IAEA Annual Report 2010*, GC(55)/2, (Vienna: IAEA, 2011), p. 6.

Chart 8: Extrabudgetary Expenditures in Support of the Regular Budget by Category, 2000–2014 (Including TC)



Source: IAEA, IAEA *Annual Reports 2000–2014;* IAEA, *The Agency's Budget Update for 2015,* GC(58)/2, (Vienna: IAEA, July 2015); IAEA, *Technical Cooperation Report for 2009: Report by the Director General* (Supplement), GC(54)/INF/4/Supplement, (Vienna: IAEA, July 2010); IAEA, *Technical Cooperation Report for 2014: Report by the Director General* (Supplement), GC(59)/INF/3/Supplement, (Vienna: IAEA, June 2015). Figures from 2000–2005 were calculated by converting U.S. dollar amounts to euros, using the IAEA-specified rate as indicated in the adjusted budget. Values after 2005 are direct from IAEA annual reports.

The figure below confirms that extra-budgetary funding signifies different donor priorities to those established by the regular budget. Nuclear security has attracted significant amounts of extra-budgetary funding,[92] while the Fukushima accident resulted in additional pledges to help implement the 2011 Action Plan on Nuclear Safety. In

92 Several states, mostly Western, also contribute significant funding to other multilateral initiatives to enhance nuclear security outside the IAEA. The Global Partnership, initiated by the Group of 8 (G8) developed countries in 2002, is a prime example. Canada for instance, has spent over $C1 billion since the Partnership began (see Global Affairs Canada, "Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP)," http://www.international.gc.ca/gpp-ppm/global_partnership-partenariat_mondial.aspx?lang=eng) (accessed February 8, 2016)). Having made such large contributions to supporting enhanced nuclear security as part of such initiatives it is difficult for national budgetary authorities to be convinced to contribute even more to the IAEA.

addition extra-budgetary funding has been provided for the Major Capital Investment Fund (MCIF), designed in part to finance refurbishment of the IAEA's Seibersdorf laboratories.[93] On the other hand, the PUI has provided significant new funding for technical assistance to developing countries. Verification (safeguards) receives significant voluntary funding from Western donors.

93 The MCIF is funded from capital regular budget assessments, unspent budgetary balances, extra-budgetary contributions, and any other source as the Board of Governors determines (GC(58)/2, p. 13).

Other Major Budgetary Issues

The "Shielding" System for Safeguards Costs

The sharp rise in safeguards costs as the NPT was implemented after its entry into force in 1970 produced complaints from the developing countries that they were paying for safeguards on a civilian nuclear industry that mostly belonged to the developed world. The Board of Governors therefore decided in 1971 that relatively low income countries would be "shielded" from paying their full share of the cost of the IAEA's safeguards budget, essentially by receiving a discount on their regular assessed contributions. A "shielded list" was created comprising states with less than one third the average per capita GNP of the ten richest members.[94] This ended up being most of the IAEA members. The difference in the safeguards budget would be made up by the richest states (currently 32). Minor changes were made to the criteria in 1976, 1977, and 1980 to adjust for an expanding membership and "some abnormalities" such as the near bankruptcy of the Soviet Union in 1979.[95] On balance the system worked well in protecting the poorer developing countries from rising costs while ensuring adequate funding for safeguards.

In the 1990s the political tide began turning against this arrangement as virtually all states came under safeguards in one form or another and the safeguards budgetary requirements grew due to increasing numbers of facilities and amounts of material under safeguards. At the same time some of the developing states like China and the other Asian economic "tigers" became wealthier. In 1995 the Board began moves "to arrive at long-term arrangements for the financing of safeguards" that would be "permanent and cost-effective."[96] The contribution of shielded states was gradually increased until 2003.[97] Then in 2006 the Board and General Conference agreed to phase out the shielding system altogether by 2030. Shielded states were divided into four categories based on their per capita GNP, to be de-shielded at varying rates. Category 1, comprising developed shielded countries, began to fully fund their safeguards commitments in 2012. Category 2 countries are expected to fully fund in 2017, Category 3 in 2022,

94 IAEA, The Agency's Programme for 1973–1978 and Budget for 1973, GC(XVI)/RES/293), (Vienna: IAEA, November 10, 1972).

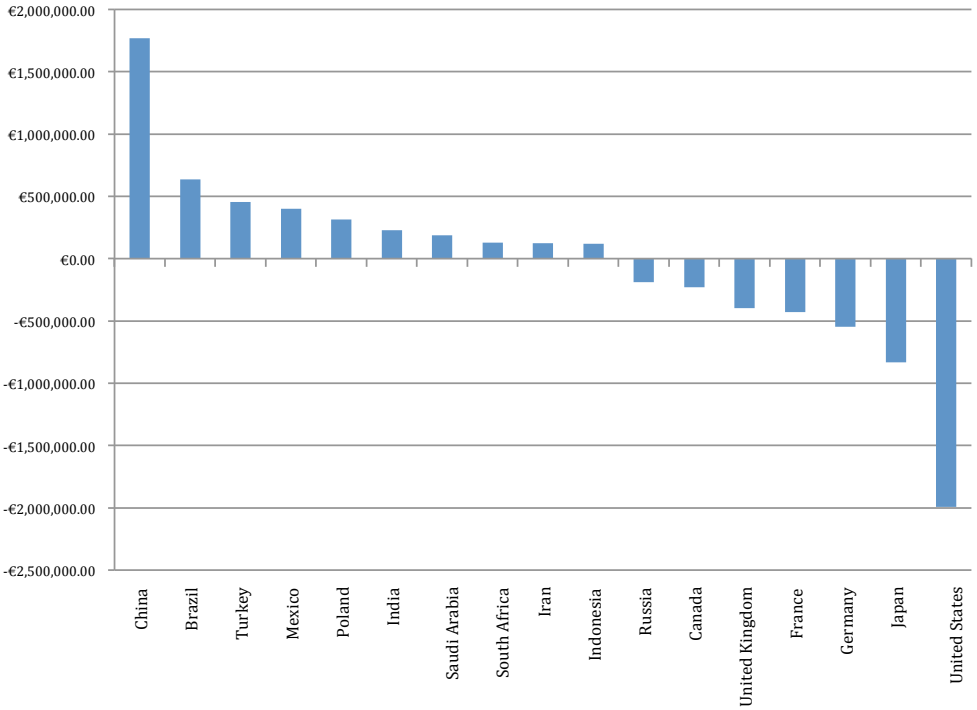
95 Fischer, p. 303. Also see IAEA, A*ssessment of Members' Contribution towards the Agency's Regular Budget*, GC(XX)/RES/341, (Vienna: IAEA, November 11, 1976); IAEA, Scale of Assessment of Members' Contributions for 1978, GC(XXI)/RES/351, (Vienna: IAEA, September 22, 1977); IAEA, The Revised Guiding Principles and General Operating Rules to Govern the Provision of Technical Assistance by the Agency, Information Circular (INFCIRC)/267, (Vienna: IAEA, March 1979).

96 IAEA, Revised Arrangements for the Assessment of Members' Contributions towards the Agency's Regular Budget, GC(39)/RES/11,(Vienna: IAEA, September 1995); IAEA, The Financing of Safeguards, GC(44)/RES/9, (Vienna: IAEA, September 2000).

97 IAEA, GC(44)/RES/9.

and Category 4, the least developed category, in 2030.[98] Member states in each category meanwhile have their annual contributions to safeguards increased by a certain proportion each year until the end of the de-shielding period. In 2014 there were 116 shielded member states, 32 un-shielded, and 14 paying the safeguards component at their full base rate of assessment.[99]

Chart 9: Projected Gains and Losses from Shielding, 2015



Source: IAEA, General Conference, *IAEA Scale of Assessment of Members' Contributions Towards the Regular Budget for 2015,* GC(58)/, July 29, 2014

In 2015 shielded member states "saved" over €6.1 million compared to what they would have otherwise contributed to IAEA safeguards. Much of this total, €4.3 million, benefited ten countries, among them the wealthiest and fastest growing developing countries. In order of benefit they were China, Brazil, Turkey, Mexico, Poland, India, Saudi Arabia, South Africa, Iran, and Indonesia. In contrast, the seven wealthiest non-shielded

98 IAEA, *Scale of Assessment of Members' Contributions Towards the Regular Budget for 2015,* GC(58)/7, (Vienna: IAEA, July 29, 2014), p. 9, https://www.iaea.org/About/Policy/GC/GC58/GC58Documents/English/gc58-7_en.pdf. (accessed February 8, 2016).

99 IAEA, *Report of the Working Group on Financing the Agency's Activities (WGFAA), including to examine ways and means to render resources for the Technical Cooperation Fund sufficient, assured and predictable*, GOV/2014/49, (Vienna: IAEA, September 12, 2014), p. 7.

countries among the 32 states that "subsidize" the shielding system—Canada, France, Germany, Japan, Russia, the United Kingdom, and the United States—made up the difference, collectively contributing an additional €4.7 million. The single largest beneficiary of this system by far is China, which as a Category 3 country saved nearly €1.8 million in 2015, amounting to 40 percent of all Category 3 savings and 34 percent of shielding savings overall.[100] This almost exactly mirrors the burden placed on the United States, which contributed an additional €2 million in 2015. The figure above illustrates the projected extent of this "subsidy" in 2015.

The system produces other discrepancies. For instance, Greece, in Category 1 (comprising developed shielded countries) based on its 2006 per capita GNP, was rolled off the shielding system in 2012. Despite the precipitous decline in its per capita GNP since then, it remains unshielded (there is no mechanism for returning states to shielding). Meanwhile, Saudi Arabia, which has a much higher GNP per capita than Greece, is still benefiting from shielding. Further, states which joined the IAEA after de-shielding was initiated and which are not officially classified as Least Developed Countries (LDCs) have never been shielded but pay at the base rate (unlike the wealthiest states they do not pay extra to subsidize the shielded states), even if they have very low GNP per capita. For instance, Congo and Papua New Guinea are not shielded, despite having a lower GNP per capita than most shielded states.

The next category of states to roll off shielding, Category 2, in 2017, includes relatively wealthy ones such as Argentina, Brazil, Chile, the Czech Republic, Hungary, Malaysia, Mexico, Saudi Arabia, and Uruguay.[101] This will restore some fairness to the system.

However, China will not contribute its rightful share for a further seven years, in 2024. This seems inequitable considering China is a permanent member of the Security Council, a nuclear weapon state, a growing nuclear energy power and the second largest economy in the world according to the International Monetary Fund.[102] China could afford not just to voluntarily leave the shielding system, but to join the other states that subsidize the poorest developing countries for whom safeguards costs are a genuine economic burden. China would reap political benefits and presumably enhance its standing and influence at the IAEA by making such a magnanimous gesture.

100 Data from IAEA, GC(58)/7.

101 IAEA, GC(58)/7.

102 See "GDP Ranking," The World Bank, http://databank.worldbank.org/data/download/GDP.pdf (accessed December 29, 2015).

There would also appear to be a strong case for ending the shielding system immediately except for the official LDCs. Ending the system will not change the budgetary "bottom line" for the Agency since for the Agency it is revenue neutral. It will, however, make the system more equitable and send a strong message that all states benefit from safeguards and all must therefore be prepared to contribute financially to the system's upkeep. The end of the system will also free up funds paid by the states that have subsidized others. They should offer to continue to provide such funds but pay them into an IAEA emergency fund or endowment (see below for further consideration of this idea).

Recommendation:*The Board of Governors should abolish the shielding system immediately except for Least Developed Countries. Member states that have subsidized the system should pledge such contributions to an IAEA emergency fund.*

Recommendation: *China should, regardless of moves to abolish the shielding system, voluntary remove itself and either pay the base rate or contribute an appropriate amount to an IAEA emergency fund.*

Late Payments and Non-Payments

A greater impact on Agency finances comes not from the shielding system, which as mentioned is revenue neutral for the Agency, but from the late payment of assessed contributions. This is due to a variety of factors: member states' fiscal years that differ from the Agency's; the late passage of budgets by national legislatures; and economic difficulties in which member states periodically find themselves. Other states simply plead poverty—justifiably or not. The result is a cash flow shortage that often compels the Secretariat to use the Working Capital Fund to cover such contingencies. However the Fund only covers two weeks of regular budget expenditures and is insufficient

to cover a month's payroll requirements—as a Board of Governors' working group report understatedly puts it—"thereby jeopardizing the continuity of the Agency's activities."[103] The external auditor (India) reported that by the end of 2014 outstanding assessed contributions had increased 60 percent over the previous year's end.[104] He recommended that the Agency "evolve [an] innovative strategy to deal with this problem," although without suggesting any ideas.[105]

As of September 11, 2015, significant outstanding contributions to the regular budget included the United States (€55.4 million and $11 million), Brazil (€16 million and $2 million), South Korea (€5.9 million and $0.8 million), Turkey (€3.5 million and $0.5 million), Mexico (€1.9 million), Greece (€2.5 million and $0.5 million), Venezuela (€4.1 million and $0.5 million), and Argentina (€2.2 million).[106]

The United States is the most problematic late payer since it provides such a large proportion of the Agency's funding. Although IAEA annual assessed contributions are due on January 1 of each year, the United States delays its payment at least eight months, until October 1 of the following U.S. fiscal year.[107] The Agency has often found itself in a cash-flow crisis pending the payment of American dues. The U.S. payment timetable was initially imposed by Congress in 1981 at the instigation of the administration of President Ronald Reagan, in order to achieve a one-time reduction in the annual federal budget.[108] To reverse this would now require two annual payments in one year. In the current budgetary climate, especially with Republican control of the Congress, it is more unlikely than ever that the U.S. administration would be able to enact such a change. However, it behooves the U.S. government to seek creative ways to overcome the problem, not least because it tends to negate to some extent the otherwise exemplary support that the United States gives to the IAEA.

Many other states, mostly the poorer developing ones, fail to pay their dues on time (or at all), but collectively their impact is much smaller than that of the United States.

103 IAEA, WGFAA, GOV/2014/49, p. 2.

104 IAEA, *The Agency's Financial Statements for 2014,* GC/(59)/3, (Vienna: IAEA, September 2015), pp. 120, 128–129.

105 IAEA, GC/(59)/3, p. 120.

106 IAEA, *Statement of Financial Contributions to the IAEA: Report by the Director General,* GC(59)/INF/6, (Vienna: IAEA, September 11, 2015).

107 U.S. Congress, *Office of Technology Assessment (OTA), Nuclear Safeguards and the International Atomic Energy Agency,* OTA-ISS-615 (Washington D.C.: U.S. Government Printing Office, June 1995), p. 8.

108 GAO, United Nations: I*ssues Related to Payment of U.S. Contributions,* Report to the Chairman, Committee on Foreign Affairs, House of Representatives, (Washington, D.C.: GAO, November 1989), http://www.gao.gov/assets/220/211832.pdf (accessed November 5, 2015).

Recommendation: *The United States should seek creative ways to ensure the IAEA does not experience cash flow problems due to late payment of the U.S. assessed contribution.*

The IAEA's external auditor reported that in 2013 the collection rate of assessed contributions was 92.8 percent, a reasonably constant percentage over the past few years that in the broader context of UN system organizations is impressive.[109] In rare cases the Agency gives up trying to collect assessed contributions and writes the amount off. It finally did so in the case of the former Yugoslavia in 2013, but even then not all of its arrears were written off.

If a member state fails to pay its assessed contribution for three years in a row it is liable to lose its vote in the General Conference. As of September 17, 2015 there were 11 states in this situation. As would be expected, most are poor developing states, including Cambodia, Central African Republic, Jamaica, Kyrgyzstan, Liberia, and Sierra Leone.[110] The Secretariat makes efforts to "promote and facilitate" payment of contributions by working with such states on a payment plan. As of September 2015, Cambodia, Dominican Republic, Gabon, Georgia, and Uzbekistan had such plans in place.[111]

Contributions to the assessed voluntary TCF are not immune from late or non-payments. The rate of attainment in the past decade has fluctuated between 89 percent and 96 percent but never reached 100.[112] In 2014, seventy-nine member states contributed their full assessed amount, while 23 contributed partial amounts. Encouragingly, ten member states contributed more than 100 percent of their assessed contribution. However, since the TCF contributions are supposed to be voluntary, there is no mechanism for penalizing those that do not meet their assessed obligations.

109 IAEA, *The Agency's Financial Statements for 2013,* GC(58)/5, (Vienna: IAEA, 2014), p. 9.

110 IAEA, *Statement of Financial Contributions to the Agency: Report by the Director General,* GC(59)/INF/6/Mod.1, (Vienna: IAEA, September 17, 2015), p. 1.

111 IAEA, *Report on Measures Taken to Facilitate Payment of Contributions and Status Report on Member States Participating in a Payment Plan: Report by the Director General*, GC(59)/INF/7, (Vienna: IAEA, September 11, 2015).

112 IAEA, *Technical Cooperation Report for 2014: Report by the Director General: Supplement,* GC(59)/INF/3/Supplement, (Vienna: IAEA, September 2015), Table A.2: Technical Cooperation Fund, 2005–2014.

Contributions to Safeguards Versus In-Country Costs

Another way to look at inequities in the safeguards funding system is to examine each state's contributions to the safeguards budget, both assessed and voluntary, compared to the costs the Agency incurs in applying safeguards to that state. As a result of the shielding system and other factors, such as the size of a state's nuclear industry, many states' contributions to IAEA safeguards, especially when regular budget and voluntary contributions are combined, do not even come close to covering the costs of safeguards within their borders. This cost is, again, heavily subsidized by a small number of member states through voluntary contributions. This is despite the fact that all states benefit from the international "public goods" of peace and security that safeguards help ensure and that, ideally, the costs should therefore be equitably shared by all states.

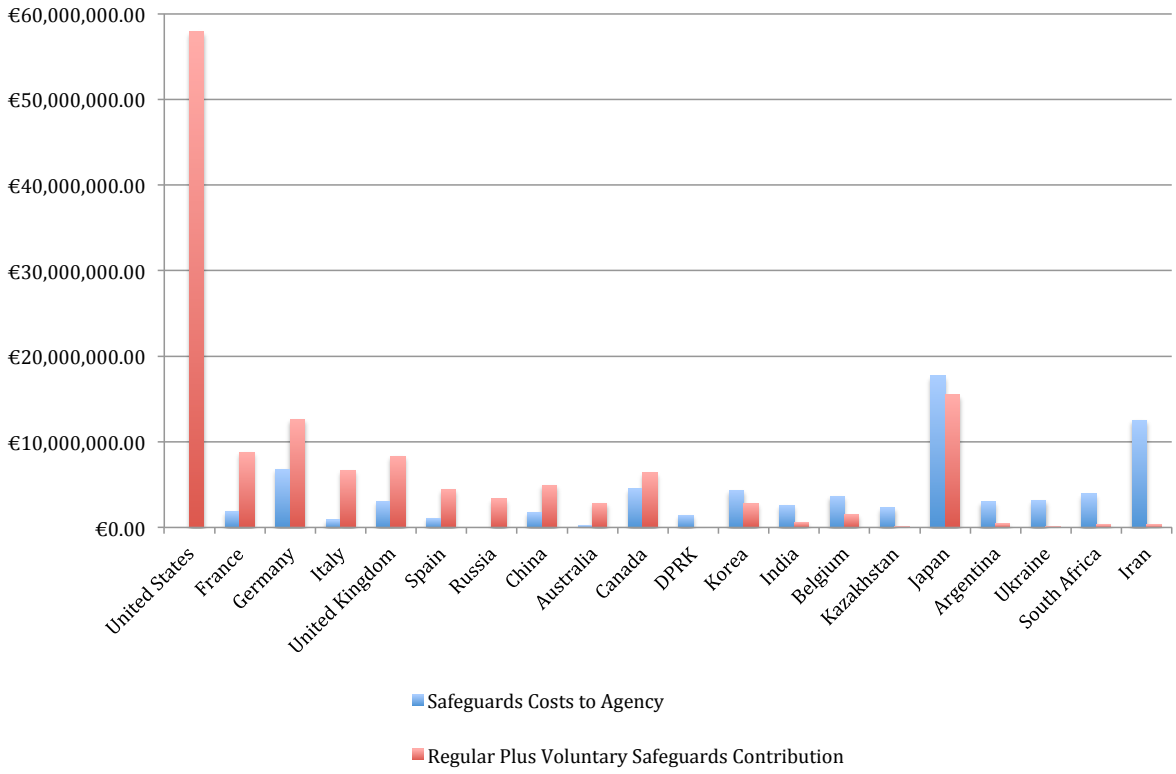
In 2016, for example, there will be an estimated €13.5 million worth of safeguards activities that are unfunded, notwithstanding extra-budgetary contributions of €7.6 million.[113] Extra-budgetary contributions come from a select number of member states: Canada, Finland, France, Germany, Japan, the Netherlands, Norway, South Korea, the United Kingdom, and the United States. The European Union (EU) also makes a significant contribution through the European Commission (EC).

The U.S. contribution to IAEA safeguards in 2013 was approximately €57.9 million, comprising €35.7 million through the regular budget and €22.2 million in voluntary contributions. This represents about one-third of all safeguards funding.[114] Since the Agency incurs practically no safeguards costs in the United States (safeguards in nuclear weapon states are only applied to select facilities under a Voluntary Offer Agreement) the U.S. net contribution is huge. France, meanwhile, contributed nearly €7 million more than IAEA safeguards costs in that country, while Germany and Italy contributed €5.8 million more. As Italy has no domestic nuclear power program (although its does import nuclear-generated electricity from France) its net contribution to safeguards is by far the largest of any non-nuclear weapon state. Meanwhile, safeguards in Iran cost approximately €12.1 million more than Iran contributed. South Africa, Argentina, Japan, and Ukraine were also high-cost countries for the IAEA. The wide variations are illustrated in Chart 10.

113 IAEA, GC(59)/2, p. 161.

114 Sources include GOV/2014/27 and GC(58)/7.

Chart 10: Selected Safeguards Contributions (Regular and Voluntary) Compared to IAEA In-Country Costs 2004–2014



Source: IAEA, GOV/2014/27, p. 49, https://armscontrollaw.files.wordpress.com/2014/06/iaea-2013-sir.pdf; and IAEA, GC(58)/7. Figures do not include in-kind contributions through Member State Support Programmes or in-kind contributions (valued at EUR 0.3 million) associated with attendance of experts at meetings in Vienna. Voluntary contribution by EU member states includes their portion of European Commission voluntary contribution based on the percentage each contributes to the overall EU budget.

One possibility that suggests itself is that the Agency move to a user pays system for safeguards, an idea that will be considered below in the context of applying the user pays principle to Agency funding as a whole.

Safeguards Versus Technical Cooperation

The budgetary issue that has been the greatest source of disputation among IAEA member states for many years and which reflects starkly divergent views about Agency priorities is the relative balance of funding of safeguards versus TC. A major systemic problem lies in the fact that only administration and verification (safeguards) are

described by the Statute as core functions to be funded by the regular budget. Technical cooperation on the other hand is not mentioned by the Statute as being funded by the regular budget, even though it says the Agency was established to "seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world" and the Statute clearly envisages that technical assistance be provided to member states.[115] The NPT, moreover, in Article IV, commits all states parties in a position to do so to: "co-operate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world." Although management costs for TC are included in the regular budget, and this has been growing, the assistance projects themselves are funded by voluntary contributions to the Technical Cooperation Fund.

The developing countries have long argued that the Statute intended to give equal if not greater priority to the promotion of the peaceful uses of nuclear energy and that expenditure should reflect that commitment. After the NPT entered into force in 1970 they watched as safeguards consumed an increasing proportion of the Agency's budget, reaching almost 50 percent by the early 1980s.[116] This fueled demands that TC be brought into the regular budget, or, failing that, that increases in the safeguards budget be matched by increases in the TCF. One outcome of this debate was the shielding system.

Major donor states on the other hand have consistently argued that there is no implied balance in the Statute and that including TC funding in the regular budget would be contrary to international "norms" for development assistance.[117] This implies that international aid should, by its very nature, be voluntary rather than prescribed. While concerned about the precedent that this would set for their contributions to the various UN development agencies, the specific worry of major donors at the IAEA is that is that if every Agency program was bundled into the regular budget the developing countries could use budget negotiations to penalize verification in favor of TC, to hold increases in the safeguards budget hostage to similar or higher increases in the TCF, or even, over time, to demand that the two budgets reach parity.

115 IAEA, *Statute of the International Atomic Energy Agency, 1*957, Article II.

116 Lawrence Scheinman, *The International Atomic Energy Agency and World Nuclear Order.* (Washington D.C.: Resources for the Future, 1987), p. 149.

117 Scheinman, p. 251.

In 1981 the General Conference—comprised of all member states and in which the major donor countries are thus outvoted—adopted a resolution calling for TC to be incorporated into the regular budget or be funded by "some other comparably predicted and assured means."[118] The major donors remained opposed to incorporation and that part of the GC resolution was ignored. The same year, however, the Board adopted an "indicative planning approach" under which all member states, including the usual recipients of TC, would agree on three-year targets for their TC contributions, based on the standard UN rate of assessment.[119] Thus was born the paradoxical idea of "assessed voluntary contributions," set out in a document which lists all member states and their individual "target shares" based on the base rate percentage of their contribution to the regular budget. Over the years the Board has in fact set TC funding goals higher than it expects to obtain, no doubt to placate the developing countries and pressure donor states to keep the TC money flowing.

Developed states usually meet their target share, but a large number of developing countries, including those that are recipients of TC, regularly fail to pay theirs. The 2014 rate of attainment for TC payments was 89.5 percent (down from 92.7 percent for 2013).[120] TC recipient states, except LDCs, are also supposed to pay a National Participation Cost (NPC) of 5 percent of the cost of each project they receive. At least half of the assessed amount must be paid before contractual arrangements are made, while the remainder is payable on completion of the project.[121] But compliance with this requirement is also patchy. In 2014 €2.2 million had been received in NPCs, while €0.6 million was outstanding.[122] Major donor states, meanwhile, fund more than their share by supporting worthy projects which—although approved by the Board—are unable to be funded by the TCF in a particular year (so-called footnote-a/ projects, listed in footnote "a" of the TC budget).

As longstanding safeguards expert Larry Scheinman has noted, the TC funding arrangement has been remarkably successful in producing reliable and rising TC funding levels over many years.[123] However, as shown in the following chart, the ratio of TC spending to regular budget allocations for safeguards fluctuates considerably from year to year. In the past decade it peaked at 69.5 percent in 2006 and fell to a low

118 IAEA, *The Financing of Technical Assistance*, GC(XXV)/648, (Vienna: IAEA, August 14, 1981).

119 Scheinman p. 251.

120 IAEA, GC(59)/INF/3, p. 24.

121 IAEA, *Technical Cooperation Report for 2009: Report of the Director General,* GC(54)/INF/4, (Vienna: IAEA, July 2010), p. 52.

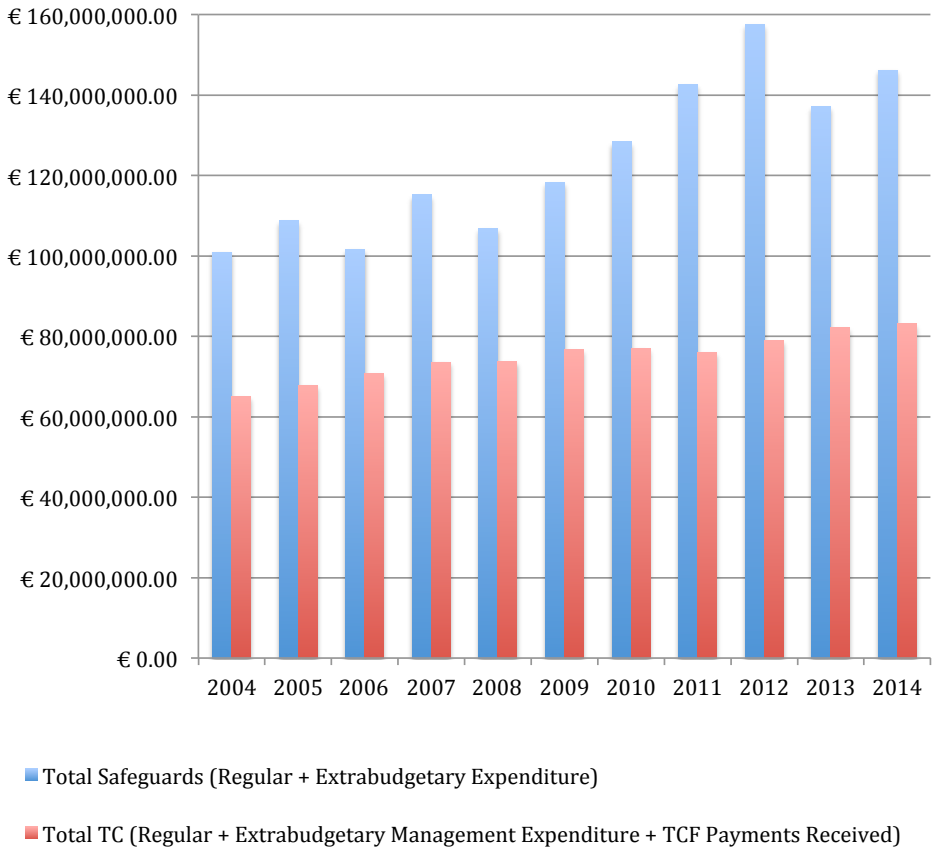
122 IIAEA, GC(59)/INF/3, p. 24.

123 Scheinman, p. 251.

of 50 percent in 2012. Such peaks and troughs reflect the higher amounts allocated to verification in particular years rather than decreases in TC spending.

Negotiations on the regular budget and TC funding are nonetheless often fraught. The developing countries, organized in Vienna since 2003 as the Non-Aligned Movement (NAM), consistently demand the inclusion of TC in the regular budget, argue that increases in the safeguards budget should lead to increases in the TCF, and advocate, in any case, substantially increased TC funding.

Chart 11: Total Safeguards Spending Compared to Technical Cooperation Spending



Source: IAEA, *Technical Cooperation Report for 2009: Report by the Director General* (Supplement), GC(54)/INF/4/Supplement, (Vienna: IAEA, July 2010); IAEA, *Technical Cooperation Report for 2014: Report by the Director General* (Supplement), GC(59)/INF/3/Supplement,(Vienna: IAEA, June 2015); IAEA, *Scale of Assessment of Member States' Contributions towards the Regular Budget (for years 2002–2014)*. A single UN rate of exchange of €0.761/$1 (from December 2010) was applied to all TCF figures to facilitate comparison over time. The IAEA used this figure to convert all values prior to 2011 (see GC(59)/INF/3/Supplement).

The Western donors tend to regard this continuing campaign with cynicism, seeing it as little short of blackmail led by NAM radicals such as Iran and Egypt whose intent is to embarrass the West politically, eke as much money out of them as possible, and stifle safeguards. The French Chargé was reported by Wikileaks as saying at a diplomatic luncheon in Vienna in November 2010, "TC is the price we pay for developing countries' acquiescence toward the safeguards regime."[124] The UK ambassador reportedly said that in the UK view "TC was the price we pay for the IAEA we want."[125]

A complicating factor in increasing the levels of TC funding is the widely held perception that the program is not well managed and not well integrated into the wider development goals of recipient countries. It is also felt that the Secretariat has not sought actively enough to coordinate and cooperate with UN development agencies. Donor states complain of the short amount of time given to them to review TC project proposals and the thinness of many of the applications. There is a nagging doubt among donors about the real need for some of the projects and resentment that some developing countries treat TC as an "inalienable right" deriving from Article IV of the NPT and their membership of the Agency.

The final report of the (German) External Auditor of the Agency in 2011 was highly critical of the TC program and bemoaned the lack of implementation of his previous recommendations.[126] The JIU review of the IAEA's management and administration in 2012 noted improvements,[127] but donor states remain dissatisfied. They would apparently be willing to provide more funding for TC if major reform took place, if there was a demonstrable need for additional TC, and if member states had more say in how funding was distributed. At the diplomatic luncheon previously mentioned there was discussion about whether diplomatic approaches in NAM capitals about reforming TC would gain more traction than dealing with "obstreperous" delegations in Vienna.[128] There seemed to be agreement that such an approach would not work. The UK ambassador added that his government "doesn't give two hoots" about TC given the small amount involved (which comes from the UK Energy Ministry budget) in comparison

124 "US embassy cables: Iran hid full reactor plans from nuclear inspectors," *The Guardian,* November 28, 2010, http://www.theguardian.com/world/us-embassy-cables-documents/237693 (accessed February 8, 2016).

125 "US embassy cables: Iran hid full reactor plans from nuclear inspectors."

126 IAEA, GC(56)/10, pp. 154–159.

127 JIU, 2012, pp. 147–155.

128 "US embassy cables: Iran hid full reactor plans from nuclear inspectors."

to Britain's official development assistance.[129] This seems to be part of the problem: the TC program is of such political import to the developing countries, but a comparatively minor expense to the donors, that there has been an unspoken compact on all sides to leave it unreformed. By the same token, if it is such a minor cost to donors it is hard to understand why they are so opposed to including it in the regular budget. In recent years there have been several welcome moves to reform the management of TC but it remains to be seen whether this will satisfy the major donors.

In 2013, as a result of a decision by the Board in 2005, the TC budgetary cycle was synchronized with that of the regular budget. The TCF budget had always been biennial, but negotiated in the second year of the Regular Programme and Budget biennium. Two separate budget negotiation processes remain, but the NAM and some Western delegations believe that this latest decision has moved TC closer to becoming part of the regular budget. The General Conference in 2009 passed a resolution that declared that synchronization provided a "framework beginning in 2012 to consider appropriate increases to the resources for the TC programme, including the TCF target. Such adjustments would take into account the changes in the level of the regular operating budget from 2009 onwards, the price adjustment factor in the corresponding years, and all other relevant factors."[130] The major donors continue to resist such an outcome of "synchronization," considering it a matter of pride that their voluntary pledges are always met. They argue that setting unrealistic mandatory targets will mean they are never achieved.[131]

In July 2013 there was a major fracas between Geneva Group members and certain NAM members over the budget. In the view of the Secretariat this was due to the Western states spending most of their time focused on the regular budget to the detriment of TC and other NAM concerns. The outcome was a decision by the Board at an extraordinary session to establish the laboriously titled "Working Group on Financing the Agency's Activities (WGFAA), including to examine ways and means to render

129 In 2014 the UK's TCF contribution was around £2.74 million, compared to £11,775 million in Official Development Assistance (ODA), making TC equivalent to 0.0002 percent of total UK ODA (IAEA, S*tatement of Financial Contributions to the Agency: Report by the Director General,* GC(58)/INF/10, (Vienna: IAEA, September 19, 2014); Department for International Development, *Statistical Release: Provisional UK Official Development Assistance as a proportion of Gross National Income,* 2014, April 2, 2015, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/420707/Statistical-Release-Provisional-GNI-2014.pdf (accessed September 18, 2015).

130 IAEA, General Conference Resolution, *Strengthening of the Agency's Technical Cooperation Activities,* GC(53)/RES/12, (Vienna: IAEA, September 2009).

131 Interview with John Barrett, former Chair of IAEA Board of Governors, Ottawa, April 25, 2014

resources for the Technical Cooperation Fund sufficient, assured and predictable."[132] While the NAM clearly hoped the focus of the group would be on TC, in fact there was a much broader discussion of Agency financing. It held 15 plenary meetings and two meetings at expert level over nine months, "complemented as appropriate by informal consultations with regional groups and other countries."[133] It produced a report in September 2014 that for the most part simply invited member states to contribute more to the TCF and in a timely fashion. One useful recommendation, however, was that the TCF be denominated in Euros rather than U.S. dollars in order to permit better comparison with the regular budget—a change made in the 2016–2017 budget. The Secretariat had long argued that conversion of the U.S. dollar to Euros unnecessarily exposed the TCF target to currency fluctuations and increased the administrative burden.

The report also endorsed the so-called Due Account Mechanism, whereby the Secretariat takes into account the extent to which member states have paid their target shares to the TCF when "determining the application of resources for technical cooperation projects and for the procurement of equipment and expert services for TC activities."[134] In other words the Secretariat should approve a lesser amount for a TC project if the recipient state is not in good standing with its contributions, as well as not favoring such states in contracting for IAEA procurement and expert services. The Board approved the mechanism in 1995 and the Secretariat applied it in stages from 1997 onwards. One gets the impression that the Secretariat had been somewhat lenient in applying it.

Reading between the lines of the report it is clear that the old divisions between member states over TC have not been resolved. Indeed the report gives only lukewarm approval to the recommendation of the Office of Internal Oversight (OIOS) that the TC Program would benefit from effective and systematic monitoring of TC project outcomes (rather than simply monitoring inputs and completion of activities as it currently, for the most part, does).[135] This indicates the continuing reluctance of the NAM to countenance significant reform of TC.

The report does laud the Secretariat for its efforts to consult more widely and earlier with member states during the budget preparation process. Board members had long been critical of the Secretariat's previous tendency to simply hand the draft budget over to the Board Chair to negotiate the final outcome among Board members. As the 2016–2017

132 IAEA, WGFAA, GOV/2014/49.

133 IAEA, WGFAA, GOV/2014/49, p. 1.

134 IAEA, GOV/2014/49, p. 10.

135 IAEA, GOV/2014/49, p. 14.

Programme and Budget document notes, the Secretariat, in response to the WGFAA report, has ensured "early sharing of information" on its program and budget proposal so that the Board's Programme and Budget Committee could meet earlier in the budgetary process.[136]

Unfunded Liabilities

A "creeper" issue that could have grave implications for the Agency is one that is facing many governments and international organizations, namely unfunded liabilities for After-Service Health Insurance (ASHI) and other post-employment liabilities for employees. The 2008 Commission of Eminent Persons mentioned this problem in passing but made no recommendation.[137] The external auditor routinely mentions it, noting in 2015 that the amount now totals €275.31 million, a 39 percent increase over the previous year.[138] This renders the Regular Budget and Working Capital Fund in a "negative net asset position."[139] In 2015 the auditor again urged the Agency to consider implementation of a long term funding strategy for meeting such liabilities. In response the Secretariat was reported as agreeing that there is long-term risk from the high level of unfunded post-employment benefit liabilities. It said it was "in the process of examining the possible approaches" for addressing them.[140] The Secretariat has repeatedly brought the issue to the Board but it has failed to act. Like many of its member states, the Board appears to be in denial over this looming financial squeeze. The Board should immediately begin setting aside funds for such purposes, preferably by seeking an earmarked increase in the Agency's budget in order not to detract from core Agency programs.

Recommendation: *The Board of Governors should immediately make a decision to deal in a systematic and sustainable way with the unfunded liabilities of the Agency.*

136 IAEA, GOV(59)/2, p. 7.

137 IAEA, Report of the Commission of Eminent Persons on the Future of the Agency, "Reinforcing the Global Nuclear Order for Peace and Prosperity: The Role of the IAEA to 2020," GOV/2008/22-GC(52)/INF/4, May 23, 2008, p. 29.

138 IAEA, *The Agency's Financial Statements for 2014,* GC(59)/3, p. 129.

139 IAEA, *The Agency's Financial Statements for 2013*, GC(58)/5, p. 2.

140 IAEA, GC(59)/3, pp. 72 and 129.

THE CASE FOR INCREASED IAEA FUNDING

As with virtually every organization, the IAEA feels that it can accomplish more with more funds, especially if they are part of a stable, predictable regular budget. In the final years of his tenure as Director General, which ended in December 2009, Mohamed ElBaradei cultivated a sense of financial crisis at the Agency. In June 2007 he decried the Board's refusal to approve an increase of 4.6 percent in the regular budget, warning that the Agency's "safeguards function" was being "eroded over time."[141] In June 2008 he reportedly told the Board that the proposed budget did not "by any stretch of the imagination meet our basic, essential requirements," adding that, "our ability to carry out our essential functions is being chipped away."[142] In a background paper for the 2008 Commission of Eminent Persons he also called for "a significant increase in funding" to address a "significant shortfall in resources" notwithstanding the Agency's continuing "rigorous" focus on efficiency gains, management reform, and internal streamlining.[143] He derided the Agency's "heavy reliance" on voluntary contributions and neglect of its infrastructure.

The Commission of Eminent Persons heeded ElBaradei's warnings and called for regular budget increases of about €50 million annually in real terms over several years. Although it did not itself conduct due diligence on the Agency's assessment of its budgetary requirements it did call for a "detailed review of the budgetary situation and additional workloads of the Agency."[144] The 2009 International Commission on Nuclear Nonproliferation and Disarmament (ICNND), led by Australia and Japan, endorsed the Eminent Persons' call without further ado. It asserted that if the Agency is to fully and effectively perform its assigned functions its most critical need is for its regular budget to be significantly increased without any zero real growth constraint "so as to reduce reliance on extra-budgetary support for key functions."[145]

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141 Julian Borger, "Nuclear watchdog may not cope in atomic crisis."

142 Paul Kerr, "ElBaradei: IAEA Budget problems dangerous," *Arms Control Today*, July/August 2007.

143 IAEA, "20/20 Vision for the Future: Background Report Prepared by the Director General," Annex, February 2008, GOV/2008/22-GC(52)/INF/4, May 23, 2008, p. vi.

144 IAEA, Report of the Commission of Eminent Persons on the Future of the Agency, p. 30.

145 International Commission on Nuclear Non-proliferation and Disarmament. *Eliminating Nuclear Threats: A Practical Agenda For Global Policymakers*. (Canberra/Tokyo: Paragon, 2009), p. 156.

To ensure that the IAEA is adequately financed and fully able to carry out its mandate, the Secretariat needs to ensure that it is as transparent and as convincing as possible in identifying its financial needs. There have been continuing complaints from member states about the opacity of the Agency's budgetary requirements and that requests for increased funding have not been supported by convincing evidence of need. Steps were taken by the Secretariat beginning with the 2012-2013 Programme and Budget to make the document "leaner, easier to navigate, and less expensive without subtracting from substance."[146] A section called "Major Programs at a Glance" has been introduced. As mentioned, earlier and more detailed advance briefings have been arranged for member states ahead of the presentation of the draft budget to the Board.

While the 2014 WGFAA report lauded the efforts of the Secretariat to achieve "transparency and clarity,"[147] it recommended further steps, including more detail on the relationships between programs; sharing by the Secretariat of its initial budget estimates as soon as possible during the preparatory process; and a dedicated webpage to permit member states to access "user-friendly data and information" regarding the IAEA's finances, including TC.[148] Additional consultations between member states and the Secretariat were also called for by increasing the number of informal meetings of the Programme and Budget Committee and the Technical Assistance and Cooperation Committee.

The JIU recommended in 2012 that the Director General "consistently prepare, in addition to the programme budget, statements of programme budget implications (PBI) to identify and review additional requests or demands by Member States and their budgetary implications."[149] Such a document, which would "identify funding gaps, facilitate prioritization and stimulate efficiency gains," would be submitted to the Board each year. Paradoxically, beginning in 2014–2015, the Secretariat appears to have stopped the longstanding practice of identifying so-called Core Activities Unfunded in the Regular Budget (CAURBs) in its Programme and Budget document. These were activities that should have been in the regular budget had funding permitted or which involved a degree of uncertainty about whether they would be implemented or not.[150]

146 IAEA, GC(55)/5, pp. 4–5.

147 IAEA, WGFAA, GOV/2014/49, p. 3.

148 IAEA, WGFAA, GOV/2014/49, p. 4.

149 JIU, 2012, p. 12.

150 IAEA, GC(55)/5, p. 7.

The Programme and Budget document now lists only "unfunded" activities, without offering an explanation for the change or a definition of the designation. Simultaneously, however, the 2014–2015 Programme and Budget highlights that "low priority projects and areas where efficiencies can be realized have been identified, so that only those Agency activities deemed a priority, in addition to all relevant efficiencies and synergies, have been incorporated into the budget."[151] This suggests an internal and perhaps informal PBI process. Furthermore the 2016–2017 Programme and Budget notes that "new for this biennium is that estimates of extrabudgetary funds for 2016 and 2017 are planned on the basis of the capacity to implement and the likely receipt of the funding, in contrast to prior years when extrabudgetary funding was completely income focused. Owing to this change, as well as the completion of large extrabudgetary projects, estimates for extrabudgetary funds have decreased compared with 2015."[152] Such adjustments seem to reflect an effort by the Secretariat to further prioritize and achieve synergies and efficiency gains without specifically implementing a PBI reporting system.

While member states with the capacity to analyze increased amounts of data from the Secretariat will benefit from these recommendations, the vast majority are developing countries with small delegations that struggle even to attend major IAEA meetings, much less cope with the already overwhelming documentation from the Agency (not to mention other international organizations to which they are accredited). This systemic disparity in the capacities of member states cannot be overcome by the IAEA Secretariat, but it can help by continuing to strive to make its documentation as simple, direct, and user-friendly as possible. On the other hand, member states cannot expect to micro-manage the Secretariat's running of the organization. The reluctance of the Secretariat to be too transparent on budgetary matters is grounded in a well-founded fear that some member states, including those with a grudge against the Agency, may seek to make life impossible for its officials.[153] Member states need to respect the Secretariat's autonomy in managing the administrative and financial aspects of the Agency—after all the reason states established the IAEA was to have an autonomous body carry out global governance functions that individual states themselves are unable to manage alone. Finding the balance between transparency and micro-management is a continuing struggle for member states and the Secretariat.

151 IAEA, GC(57)/2, p. iii.

152 IAEA, GC(59)/2, p. 21.

153 This behavior was evident in the recent debate over the State-level concept, including at the 2014 International Safeguards Symposium, when the Russian delegation harassed Secretariat staff in official meetings. Iran for many years used the same technique.

The Secretariat has made significant efforts in the past few years to demonstrate its commitment to efficiency, no doubt due to the realization that it cannot request increased funding beyond inflation unless it does so, especially in view of many member states' straitened budgetary circumstances. The biennial Programme and Budget document for 2016–2017 deals in the very first paragraph with prioritization and efficiency, contending that "Efforts in ensuring prioritization and efficiencies have been applied more thoroughly, using the two-step approach now firmly established in the internal budget preparation process."[154] This involves: prioritization of activities, including the identification of activities to be reduced, discontinued, or postponed and their corresponding financial impact; and efficiency measures to be undertaken. The first step involves an internal cut in all Agency programs of 5 percent, with subsequent departmental bidding for the saved funds.

Progress on efficiency was achieved mainly through the Partnership for Continuous Improvement (PCI), established in 2013.[155] The PCI seeks to create a "sustainable and broad framework that facilitates programme delivery in an effective and efficient manner." Since its inception the Agency has implemented dozens of the more than 100 proposed changes. The PCI focuses on eliminating unnecessary bureaucracy in the Secretariat and includes initiatives such as streamlining administrative processes used for travel or meetings, using desktop video conferencing, optimizing the use of technical and office supplies, adopting a 'paper smart' environment, rationalizing the use of consultants, and optimizing the use of IT and related policies.

A harder exercise than revising priorities year by year would be to develop a proper strategic plan for the Agency as a whole (currently only the Department of Safeguards has one) and force each department to identify their long-term priorities. The difficulty that such an exercise faces was illustrated in the preparation of the Medium Term Strategy for 2012–2017.[156] The Board proved so inept at even agreeing on a draft, due to divisions over fundamental priorities, that the Secretariat had to step in to provide one. The resulting document, despite its purported role in guiding Agency prioritization, planning, and budgeting, is regarded by most as not especially illuminating and not really a substitute for a true strategic plan. All departments have developed mid-term strategic implementation plans since 2013 based on the Agency's Medium Term

154 IAEA, GC(59)/2, p. iii.

155 Reported by the Secretariat to the Programme and Budget Committee in May 2014 in a brochure entitled "Efficiency and Productivity of the Secretariat," (IAEA, GC(59)/2, p. 5).

156 IAEA, *Medium Term Strategy for 2012–2017*, https://www.iaea.org/sites/default/files/mts2012_2017.pdf (accessed December 29, 2015).

Strategy. The Department of Safeguards, to avoid such an outcome, drafted its strategic plan internally, based on intensive and prolonged internal consultations and discussion and only released a summary for the perusal of member states and the public.[157] It is not clear that the Secretariat as a whole would be able to emulate this model.

This does not mean the Secretariat should not better present its case for increased funding. The Agency's experience with its Seibersdorf facilities, which had not been renovated since their construction in the 1960s, is probably the best example of how member states will respond to a specific, well documented request for urgent additional support. The Secretariat identified modernization as a priority, prepared reasonable financial estimates for the work and made a point of giving tours of the facility to show diplomats, parliamentarians, national civil servants, and experts (including the author) its poor state. U.S. Senator Richard Lugar came away appalled, lending his support to efforts to redress the situation. Identifying specific challenges and solutions, with an identifiable deliverable, is likely to be a much more effective strategy than requesting overall increases to the regular budget.

The Agency should also hive off functions that are no longer appropriate almost 60 years after it was founded. ElBaradei suggested that certain activities that the Agency had carried out for many years could be outsourced, partnered, or left to other players, public or private.[158] He no doubt had in mind some of the technical assistance and even equipment that the Agency has traditionally provided to states for their nuclear energy programs and other peaceful uses. When the IAEA was the only source of materials, equipment, and advice for agricultural, medical, and other peaceful uses of nuclear energy it made sense to provide it. However with the growth of commercial suppliers, an increase in the number of states which have mastered the technology, and the greatly improved financial situation of many states it is not clear that the Agency should be involved any longer in providing it, except to the least developed states which obviously cannot afford it.

157 For the public summary see IAEA Department of Safeguards, *Long-Term Strategic Plan, 2013–2023: Summary*, https://www.iaea.org/safeguards/symposium/2014/images/pdfs/LongTerm_Strategic_Plan_(20122023)-Summary.pdf (accessed December 29, 2015).

158 IAEA, Report of the Commission of Eminent Persons on the Future of the Agency, p. vi.

ALTERNATIVE FUNDING MODELS AND SOURCES

Over the years many alternative funding arrangements for the Agency's regular budget and for raising extra-budgetary funds have been proposed. None of them would replace the traditional method of funding by state contributions according to the UN assessment system, but would supplement and diversify the sources of Agency funding. Some have more chance of being realized, in political and practical terms, than others.[159]

The "User Pays Principle" or Fee for Services

Proposals have long been made for moving in part to a "user pays principle" for funding services that the IAEA provides, on the grounds that those states receiving the greatest benefit from the Agency should be the ones that pay for it. Clearly all member states (and non-member states, industry, and civil society) benefit from the global nuclear governance that the IAEA provides in ensuring the safe, secure, and proliferation-resistant use of nuclear energy for peaceful purposes. This is in effect the assumption behind the assessed contribution system. In the area of nuclear safety and security the Agency's review missions are conducted at the request of states and are usually paid for by the recipient state.[160] Beyond that, however, the states with the largest nuclear infrastructure and industry benefit disproportionately from the IAEA's activities.

Roger Howsley, director of the World Institute for Nuclear Security (WINS), contends that the Agency's current "business model" is unsustainable and should be changed over time to a user-pay system for a wide range of Agency "services," including nuclear safeguards, safety and security reviews, technical assistance, and assistance with nuclear energy plans.[161] Such a system could impose a levy on the amount of nuclear electricity generated per country; a tax or surcharge on nuclear exports and imports, including lucrative source materials like uranium and thorium; or on some composite number based on the size and sophistication of a state's nuclear fuel cycle. If a charge of a mere

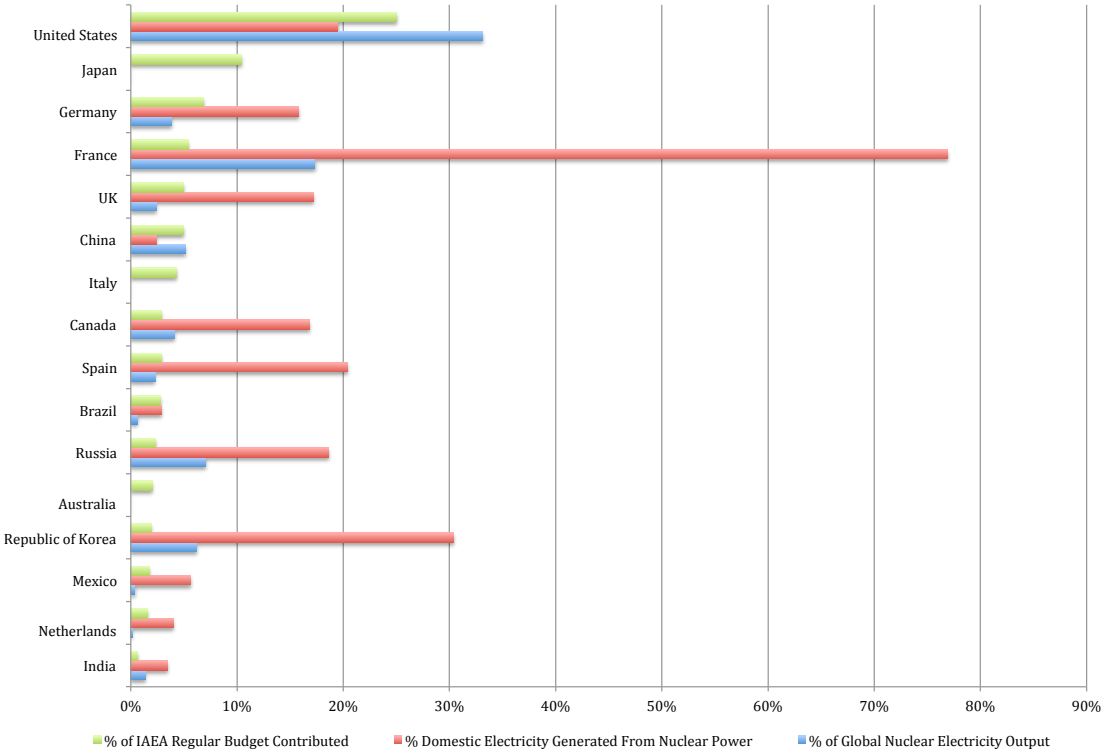
159 Tom Shea has suggested several ideas, including a Nonproliferation Endowment; a surcharge on electricity generated by nuclear energy; marketing Agency services for setting up and managing various types of nuclear projects; tax-exempt nonproliferation bonds; and having industry bear a greater share of safeguards costs (See Thomas E. Shea, "Financing IAEA verification of the Nuclear Nonproliferation Treaty," in H. Sokolski, ed., *Falling Behind: International Scrutiny of the Peaceful Atom*, (Carlisle, PA: Strategic Studies Institute, 2008), pp. 323–335.

160 Others are funded by the TCF, extrabudgetary funding, or a combination of both.

161 Interview with Roger Howsley, director, World Institute for Nuclear Security, Vienna, October 5, 2011.

0.015 cents per kilowatt hour was collected for the worldwide production of nuclear electricity in 2014 the total would be $360 million.[162] The most radical version of this would encompass the entire fuel cycle of all states, including the nuclear weapon states' military sector, on the grounds that it is those states that have caused so much difficulty for the rest of the international community. The Commission of Eminent persons recommended that the Agency develop a mechanism whereby the "monetized value of the reduction of risk resulting from Agency activities" could be applied to member states' assessments.[163]

Chart 12: Top Ten Contributors to IAEA Regular Budget and Selected Others with Domestic Nuclear Shares of Electricity Generation and National Shares of Global Nuclear Electricity Output (2014)



Sources: IAEA, *Scale of Assessment of Member States' Contributions towards the Regular Budget for 2014*, GC(57)/20, (Vienna: IAEA, August 6, 2013); "Nuclear share figures, 2004-2014," World Nuclear Association, last updated May 2015, http://www.world-nuclear.org/info/Facts-and-Figures/Nuclear-generation-by-country/ (accessed September 10, 2015); IAEA, Nuclear Power Reactors in the World, Reference Data Series No. 2, 2015 Edition, (Vienna: IAEA, May 2015), http://www-pub.iaea.org/MTCD/Publications/PDF/rds2-35web-85937611.pdf (accessed December 16, 2015).

162 I am indebted to John Carlson for this calculation, based on World Nuclear Association figures for global nuclear electricity production in 2014 (see http://www.world-nuclear.org/info/facts-and-figures/nuclear-generation-by-country/ (accessed December 18, 2015)).

163 IAEA, Report of the Commission of Eminent Persons on the Future of the Agency, p. 31.

The difficulty of monetizing such value is illustrated by one metric often mentioned as potentially the most meaningful for implementing the user pays principle—the amount of electricity generated by a country's nuclear power plants. This can either be expressed as the percentage of a country's total electricity output produced by nuclear power or as percentage of total global nuclear electricity generation (see Chart 12).

In the first calculation, the degree of reliance by a state on nuclear power to generate its electricity, the states that disproportionately enjoy the benefits of nuclear-generated electricity compared to their financial contribution to the Agency's regular budget are: France (extravagantly so), South Korea, Canada, Spain, Germany, Russia, and the United Kingdom. Meanwhile, Australia and Italy, with no domestic nuclear power, could be considered to be paying too much for global nuclear governance.

The second metric produces a different list. The United States, according to its share of global nuclear electricity production, should pay more for nuclear governance via the IAEA. So should China (slightly more at present but increasingly so), Canada, India (also increasingly), Russia, and South Korea. According to this metric Brazil, Germany, Mexico, the Netherlands, Spain, and the United Kingdom are paying too much, some of them by a considerable amount.

Yet given that most states already pay what they consider to be a disproportionate amount of the IAEA budget (especially taking into account the safeguards shielding system and voluntary extra-budgetary contributions), none is likely to be happy to pay more. The metric also does not take into account population size or GDP (although it could in a more sophisticated model). The cases of Australia and Italy raise further complications. Australia, as a major exporter of uranium, derives significant benefits from the reassurance provided by IAEA safeguards that such material does not find its way into nuclear weapons programs. Italy imports electricity generated by nuclear power plants in France.[164]

Such a financing model would also have to be adjusted periodically to take account of the rise and fall in national nuclear electricity generation. Hence Germany, which plans to close all its nuclear power plants, upon doing so should be required to pay less for nuclear governance, while the UAE, Iran, Turkey, and Vietnam, which are planning several nuclear power plants each, would eventually pay more. Such adjustments should be easy to make in theory, as they occur over several years, but would likely still be resisted.

164 Those who argue that nuclear power plays a vital role in limiting carbon emissions would question why increased use of nuclear power should, in effect, be penalized under such a user pays scheme.

The Japanese case illustrates the problem of accommodating more dramatic circumstances. Japan is in the anomalous situation of having taken all of its nuclear power plants offline after Fukushima, so it should, according to this model, be paying zero towards the IAEA budget. Yet, of course, Japan continues to benefit enormously, in fact disproportionately, from the global governance "goods" that the Agency provides. It has benefited particularly from IAEA nuclear safety recommendations and post-accident assistance in respect of Fukushima. In addition, IAEA safeguards remain in place on Japan's large nuclear reactor fleet regardless of whether they are operating or not. States that rid themselves of nuclear power plants, as Italy did and Germany intends to, will still have retired, decommissioned and other facilities, spent fuel, and nuclear waste to be safeguarded.

In sum the amount of nuclear-generated electricity seems to be a poor proxy for calculating the benefits of global nuclear governance. In any event there is likely to be resistance from industry and member states to such ideas along the same lines as opposition to a proposed tax on airline tickets to pay for UN development goals made by French President Jacques Chirac in 2006. That proposal sank without a trace despite gaining support from then UN Secretary-General Kofi Annan.[165]

In light of this there may be a case for applying the user pays principle only to the cost of safeguards, one of the major global governance benefits provided by the Agency. As already seen, there is a wide disparity in the cost of applying safeguards in individual states compared to their contribution to the IAEA safeguards budget. Developing countries, some of which already see safeguards as an unwarranted developed country obsession, would portray such a move as yet another example of the rich world trying to deny them the benefits of modern technology by, in effect, "taxing it." More problematically, such an imposition would not affect the nuclear weapon states, which are only subject to safeguards under Voluntary Offer Agreements (VOA). China, with the fastest growing nuclear reactor fleet of any country, would not be subject to an increased safeguards burden, while its neighbors South Korea, Japan, and Vietnam all would be. One solution would be to devise a formula based on the number and size of nuclear power facilities, regardless of a state's status as a nuclear weapon state or non-nuclear weapon state.

Veteran safeguards expert Thomas Shea has proposed that the Agency estimate the cost of applying safeguards to new facilities and ask construction companies to factor

165 "UN chief hails new French air tax," *BBC News*, February 28, 2006.

these into the total cost paid by the buyer.[166] A start could be made with Generation III and IV reactors, which may have novel safeguards requirements. The charge would be a minimal addition to the overall cost. Such details could be worked out as part of the Agency's work on "safeguards by design" and could harness the new commitment by industry to the Nuclear Power Plant and Reactor Exporters' Principles of Conduct (NuPOC) for the export of nuclear reactors.[167]

The Commission of Eminent Persons suggested that the Agency consider user fees or participation fees for its services, "keeping in mind both the needs of developing countries and the need to maintain incentives for states to accept safety and security reviews."[168] China, for instance, has benefited greatly over the years from advice and assistance provided by the IAEA for its nuclear industry, from which it is now deriving significant economic benefits, as well as reducing its carbon emissions.[169] The difficulty with the Agency imposing charges for its services is that it would not wish to deter states from adopting the best safety and security measures or from planning appropriately the adoption of nuclear energy programs or other peaceful uses of nuclear energy.

One measure that could be taken immediately would be for the Board to decide that from now on TC should only be available to the developing countries with a GDP below a certain threshold. States above that threshold wishing to receive technical assistance should pay for it in full. A similar arrangement could be devised for Agency-organized safety and security reviews. As in the case of other novel forms of funding the Agency, much will depend on the vigor with which such ideas are pursued by the Director General, supportive member states, and other stakeholders.

166 Shea, "Financing IAEA verification of the Nuclear Nonproliferation Treaty," pp. 332–333.

167 NuPOC are the result of a three-year initiative (2008–2011) by the Carnegie Endowment for International Peace that brought together leading civilian nuclear power plant vendors and nuclear experts in order to develop recommended best practices for the export of nuclear power plants (see "About," *Nuclear Power Plant and Reactor Exporters' Principles of Conduct*, http://nuclearprinciples.org/about/ (accessed November 6, 2015)). The future of NuPOC is unclear, however, given significant challenges currently facing the industry and individual vendors (see Press Release, "NuPOC Holds Seventh Meeting to Review Industry Principles of Conduct," *Nuclear Power Plant and Reactor Exporters' Principles of Conduct*, http://nuclearprinciples.org/pressrelease/nupoc-holds-seventh-meeting-to-review-industry-principles-of-conduct/ (accessed November 6, 2015).

168 IAEA, Report of the Commission of Eminent Persons on the Future of the Agency, p. 31.

169 See Xu Yi-chong, *The Politics of Nuclear Energy in China*, (Houndsmills, UK: Palgrave Macmillan, 2010).

An Agency-Wide Resource Mobilization Strategy

The IAEA has long resisted the idea of an Agency-wide resource mobilization strategy and establishment of a dedicated office for implementing one. Such strategies are designed to strengthen the capacity of an organization to increase funding from both traditional and non-traditional sources, broadening the donor base, stimulating the use of innovative fund-raising techniques, and improving financial stability and predictability. Such support may be in the form of direct financial contributions from a foundation, corporation, NGO, or individual.

It may also take the form of Public Private Partnerships (PPP) with private industry, promoted by the United Nations since the late 1990s.[170] A partnership in UN terms is an initiative developed and executed by the UN in collaboration with other actors and stakeholders.[171] These typically result in joint or collaborative activities, but in some cases may result in funding contributions.

The IAEA has partnerships with the private sector but these have not resulted in major financial contributions. In March 2015, for example, it signed a Partnership Arrangement (PA) with the Bill and Melinda Gates Foundation to facilitate cooperation in the area of nutrition, but this has not resulted in a financial contribution to the Agency.[172] The most successful example of an IAEA PPP is the Programme of Action for Cancer Therapy,[173] which has a wide variety of governmental, commercial, and non-governmental partners and donors.[174] PACT received funding from a variety of sources besides member states, including development banks and the World Bank; national agencies involved in health and development such as USAID and Health Canada; private foundations and industry; and individuals.

170 This began when Ted Turner pledged $1 billion to UN causes by establishing the UN Foundation. The United Nations has an Office for Partnerships (UNOP) and Guidelines on Cooperation between the United Nations and the Business Community (see UN, "Guidelines on Cooperation between the United Nations and the Business Sector," November 20, 2009, http://www.un.org/en/ethics/pdf/Guidelines-on-Cooperation-with-the-Business Sector.pdf (accessed September 18, 2015). I am indebted to Mary Wade Fall for her extensive research on PPPs for this project.

171 United Nations Office of Partnerships, "What Is the UN Fund for Partnerships?" 2014, www.un.org/partnerships/what_is_unfip.html (accessed October 28, 2014).

172 See "Development through better nutrition: IAEA signs partnership agreement to tackle malnutrition," IAEA, March 25, 2015, https://www.iaea.org/technicalcooperation/Home/Highlights-Archive/Archive-2015/03252015-BMGF.html (accessed November 5, 2015).

173 For details see http://cancer.iaea.org/news.asp.

174 See IAEA, GC(59)/INF/3, pp. 47–48.

The Agency has attempted external fundraising to obtain direct financial contributions from donors (without entering into a PPP), but these efforts have mostly proved disappointing.[175] One significant exception is the funding of the Nuclear Fuel Bank by NTI, but the initiative in this case came from NTI rather than the Agency. More recently, equipment manufacturers have agreed to contribute to the ReNuAL project for the Agency's Seibersdorf facilities, although funding for this project has to date come overwhelmingly from member states. UN and other international organizations have also made extra-budgetary or in-kind contributions to the IAEA, notably to the Technical Cooperation Program.[176]

The Secretariat recognized in meetings with the WGFAA in 2014 that "its current policy framework for partnerships and resource mobilization does not adequately provide the necessary guidance for partnerships with the private sector."[177] This "framework" has until recently consisted of a Partnership and Resource Mobilization Policy, as well as Guidelines and Terms of Reference for the Partnership and Resource Mobilization Advisory Committee (PRAC).[178] It is not clear whether the PRAC has ever met or what its deliverables have been. There has been a Partnership and Resource Mobilization Coordinator reporting to the Deputy Director General for Management, but in practice, according to the JIU, each department has to date pursued "its own resource mobilization activities according to its special mandate and interests."[179]

A report by the JIU in 2007 noted that the IAEA, unlike almost all other UN system organizations, did not have a public resource mobilization strategy,[180] although in 2010 it adopted one for internal use.[181] The JIU's 2012 report on the Agency recommended

175 Mohamed ElBaradei, for instance, reportedly asked the Mo Ibrahim Foundation in 2009 for $500,000 to support PACT on the basis of his personal friendship with Ibrahim (reported in a February 17, 2010 cable from the U.S. mission to the IAEA to the State Department leaked by Wikileaks: see "Cablegate: Iaea/Pact: Will 2010 Be the Breakout Year for Cancer," http://www.scoop.co.nz/stories/WL1002/S03122/cablegate-iaeapact-will-2010-be-the-breakout-year-for-cancer.htm) (accessed February 8, 2016)).

176 In 2014 these were: the African Regional Cooperative Agreement for Research, Development and Training (AFRA Fund), the African Union's Pan Africa Veterinary Vaccine Centre (PANVAC), the European Commission, FAO, the OECD, UNEP, the WHO, and the World Intellectual Property Organization (WIPO). See IAEA, GC(59)/INF/3/Supplement, p. 24.

177 IAEA, WGFAA, GOV/2014/49, p. 6.

178 Referred to in JIU, 2012, p. 13.

179 JIU, 2012, p. 13.

180 United Nations, JIU, *Voluntary Contributions in United Nations System Organizations: Impact on Programme Delivery and Resource Mobilization Strategies*, JIU/REP/2007/1, (Geneva, 2007), p. 33. The UN bodies that had such strategies included the World Health Organization (WHO), the World Food Program(WPF), UNICEF, UNEP, and UNCTAD. See also United Nations, JIU, *An Analysis of the Resource Mobilization Function within the United Nations System*, JIU/REP/2014/1, (Geneva, 2014).

181 Communication with the IAEA Secretariat, November 11, 2015.

that the IAEA adopt one.[182] The WGFAA report in 2014 supported "mobilizing complementary extra-budgetary resources"—although only for TC.[183] The report requested the Secretariat to prepare draft guidelines for consideration by an open-ended Working Group on Resource Mobilization that would submit a document to the Board. The Board received this report at its June 8–12, 2015 meeting. It included "strategic guidelines on partnership and resource mobilization" and emphasized the need for transparency, partnerships that add value, and activities that do not negatively affect the Agency's integrity and independence (including a proposed guideline that Partnership agreements "neither imply any right to provide special access to the decision-making process of the Agency, nor any right to exercise influence on it").[184] These sound similar to the ones in existence since at least 2004.[185] Accompanying the guidelines was a proposal to amend the financial regulations accordingly and a request for the Secretariat to report on the implementation of the guidelines by the end of 2017.

In the 2016–17 Programme and Budget document the Secretariat finally announced that it will establish a "central resource mobilization function…dedicating concrete resources to the implementation of the WGFAA recommendations in this regard."[186] No further details were provided. At the very least it should involve the establishment of an office with the necessary expertise and resources to manage such an effort. In 2015 the Agency appointed its first Resource Mobilization Officer to help guide the Agency's resource mobilization strategy.

There are several other international organizations that have been much more active in seeking outside support which the IAEA could seek to emulate, although many

182 JIU, 2012, p. 13.

183 IAEA, WGFAA, GOV/2014/49, p. 6.

184 Details from Statement by Laura E. Kennedy, U.S. Ambassador to the IAEA, to the IAEA Board of Governors Meeting, June 8–12, 2015, http://vienna.usmission.gov/150609rm.html (accessed September 23, 2015).

185 IAEA, *Rules Regarding Voluntary Contributions to the Agency*, INFCIRC/370/Rev.2, 2004, http://www.iaea.org/sites/default/files/publications/documents/infcircs/1989/infcirc370r2.pdf. (accessed February 8, 2016). These declared, inter alia, that the Agency should seek to maintain its independence and impartiality in such arrangements and partners should not be able to influence the Agency's decision-making or policy-making processes. In a partnership with a commercial organization the Agency should seek to maintain fair competition and avoid any implied endorsement of a product or partner.

186 IAEA, GC(59)/2, p. 7

struggle to raise extraordinary amounts from such sources.[187] The most prominent UN organization in seeking private sector involvement is the United Nations Environmental Program (UNEP). UNEP's Finance Initiative (UNEP FI) is a unit in its Division of Technology, Industry and Economics that is principally responsible for creating public-private partnerships between UNEP and the financial sector. The Initiative has 32 full-time staff members, each with regional or functional expertise, as well as a steering committee made up mostly of individuals from the financial industry or national regulatory bodies. UNEP FI membership comprises over 200 financial institutions from the banking, investment, and insurance sectors. Members include Deutsche Bank, JP Morgan Chase, Bank of America, Citigroup, Barclays, Prudential, and RBS. Companies that endorse the initiative's principles can become a member by paying an annual fee, calculated according to the total assets of the company. Members raise awareness of environmental issues and support critical UNEP activities. In return, members benefit from professional development and networking opportunities and participation in UNEP initiatives.[188] In 2012 the private sector supported 2.49 percent of the UNEP budget, totaling $5.5 million (more recent data is publicly unavailable). Of this $3.1 million was raised through UNEP FI and $2.4 million from direct project funding.[189] In the context of UNEP's total budget, though, this is not particularly impressive, indicating the challenges that UN-type organizations have in raising funds beyond their membership.

ICAO, like the IAEA, also receives almost all its income from member states, but has an elaborate funding strategy that seeks more diverse funding. It is seeking funds from regional development banks, international financial institutions, the aviation industry, and the private sector. The largest current source of extra-budgetary revenue is its Ancillary Revenue Generation Fund (ARGF), which aims to generate revenue by selling ICAO-generated datasets and services to private industry. The organization's goal is for the ARGF to contribute $15 million to the regular budget from 2014–2016. In 2014 it was on track, generating $5 million.[190] One could imagine the IAEA being able to sell nuclear-related services to those states which can afford it.

187 The UN Children's Fund (UNICEF) and the World Food Program (WFP) are notable exceptions, being funded entirely by voluntary contributions. For details of UNICEF's amazing success see Helen Epstein, "The strange politics of saving the children," review of Adam Fifield, *A Mighty Purpose: How Jim Grant Sold the World on Saving Its Children* (New York: Other Press, 2015), *New York Review of Books*, November 5, 2015, pp. 62–64. The closest multilateral verification organization to the IAEA, the CTBTO, is currently funded entirely by member state contributions. While the organization has said it is open to private funding, it does not appear to have attracted any yet.

188 "UNEP FI Membership Around the World," http://www.unepfi.org/signatories/ (accessed November 22, 2015).

189 "Financial Resources for Environmental Programmes and UNEP: UNEP Funding Strategy," Slide 18, http://www.unep.org/about/funding/portals/50199/documents/CPR_Presentation_UNEP_Funding_Strategy.PDF (accessed December 29, 2015).

190 ICAO, *Budget of the Organization 2014–2015–2016*, Doc 10030, (Montreal: ICAO, October 2013), p. 131, http://www.icao.int/publications/Documents/10030_en.pdf. (accessed November 22, 2015).

The key change required at the Agency, as pointed out by Andrew Semmel and his colleagues in the International Working Group on Strengthening the IAEA Through Informed Partnerships, is the development of a culture of engaging with rather than avoiding the private sector.[191] Politically, the Agency must build a case both internally and among its member states for the value of partnerships with their industries and non-governmental sectors.[192] But, in addition, given the multi- and trans-national nature of today's nuclear industry it is more than ever vital that the IAEA reaches out beyond the national confines of its member states and appeals for support on the basis of global citizenship and global corporate responsibility.

An IAEA Endowment

One initiative that may attract donations from wealthy individuals or foundations is the inauguration of an IAEA endowment. This would operate like a university endowment, investing funds in a way that produces a steady stream of income that can be drawn upon without touching the principal. Tom Shea has specifically proposed a Nonproliferation Endowment to be used to support safeguards and other verification activities.[193] Toomey *et al* have proposed an elaborate scheme of sub-funds: a Crisis Response Fund; an IAEA Infrastructure Fund; an Atoms for Peace Fund (for TC); and a New Frontiers Fund for long-term investments in policy and technology entrepreneurship.[194] It may be preferable, however, to allow the endowment to be used for whatever projects the Secretariat and Board conclude are necessary and worthwhile.

Any endowment is of course dependent on attracting donations, which may be a difficult case to make given the relative obscurity of much of the Agency's work, although publicity about its safeguards inspections role and assistance to Japan during the Fukushima disaster could be used to better effect. The Agency also needs to counter the argument that the IAEA's functions are more properly regarded as the responsibility of governments, not private enterprise. It should be made clear that the endowment would not be used to cover normal operating expenses for the Agency but for extraordinary needs that would be of long-term benefit to its work. NTI and the Bill and Melinda Gates Foundation have already funded aspects of the Agency's work, so the

191 At the time of writing the Working Group's report had not yet been published.

192 Semmel points out that one barrier to engaging potential non-state donors is the Agency's "one audit" rule, by which only the external appointed auditor (from a member state) is permitted to audit the Agency. He suggests the Agency consult with other UN bodies to see how they handle this issue.

193 Shea, "Financing IAEA verification of the Nuclear Nonproliferation Treaty," p. 329.

194 Toomey *et al*, p. 5.2.

precedent has been set. It is up to the Director General to use the prestige and authority of his or her office and the creativity of the promised resource mobilization effort to attract donations.

A Nuclear Emergency Fund

Surprisingly the IAEA does not have an emergency or contingency fund, apparently aiming instead to have its budgeting processes be as exacting and predictive as possible. Given that the Agency operates in an often-volatile international environment, prone to unexpected revelations of illicit nuclear activity, it would appear prudent to have such a fund. Because an endowment, as proposed above, should be geared to longer-term Agency needs, it would be best to establish a separate emergency fund that can be drawn upon quickly.

In the past the Agency has had to go cap in hand to member states for additional funding each time an emergency arose, such as the special verification activities required in Iraq, Iran, and North Korea. Nuclear accidents like Chernobyl and Fukushima have similar effects on the IAEA budget. For example, the IAEA's Incident and Emergency Centre (IEC) was staffed by approximately 200 personnel around the clock for 54 days following the Fukushima accident. Fukushima-related activities ended up consuming all unencumbered funding in the safety and security budget for 2012 as well as requiring a one-off transfer of funds from other major programs.[195]

As mentioned, one way of creating an emergency fund would be for the non-shielded member states that have contributed to offsetting shielding to direct their "savings" to an Emergency Fund. A further way of accumulating funds would be for the Director General to ask the Board to permit the Agency to stop refunding unspent assessed and extra-budgetary contributions to member states. It does this by calculating unspent funds for a particular year (after waiting a year for all accounts to be paid) and discounting pro rata each state's assessed contribution for the coming year. Such amounts can be considerable—up to $1 million of assessed contributions in some years. In 2014 the Agency refunded €2.8 million in unused extra-budgetary contributions.[196] It is unlikely that any member state's national treasury, having committed and transferred its annual contribution to the IAEA, anticipates a refund. In some cases states may not

195 IAEA, GC(55)/5, p. 84.

196 IAEA, *The Agency's Financial Statements for 2014*, GC/(59)/3, (Vienna: IAEA, September 2015), p. 80.

be able to do so under their financial regulations. Canada, for one, declines to accept refunds. The Board has in the past taken the decision in particular years to move such funds to special purposes such as capital expenditure. It should make a blanket decision that all surpluses go into an IAEA emergency fund.

CONCLUSION: A GRAND BUDGETARY BARGAIN?

The difficulty of achieving reform of major organizational processes at the IAEA is illustrated by the Board's reaction to the recommendations of the 2008 Commission of Eminent Persons. At its meeting in September 2008 to discuss the report several Board members expressed the view that "any decision inspired by the report should require the involvement and participation of all Member States and be made by consensus."[197] The political divisions that have increasingly roiled the Board and General Conference therefore make a grand budgetary bargain that resolves major IAEA budgetary issues in one fell swoop likely to be difficult. Nonetheless, it is also increasingly obvious that there is a ripening bargain that could satisfy key demands of all sides and defuse at least some of the divisiveness that currently characterizes budget negotiations at the Agency. Key elements pointing in that direction are the following:

- The budget preparation process for the regular budget and TC are now synchronized; having conceded this to the developing countries pressure will now build for the next logical step—incorporation of TC into the regular budget
- Given the importance placed by Director General Amano on the IAEA's contribution to development, including the UN's Sustainable Development Goals,[198] it is increasingly implausible for the developed states to continue to argue that TC is not a core Agency function
- TC projects increasingly involve assisting developing countries improve their capacity for ensuring nuclear safety and security, outcomes that are in the direct interest of the donor countries and which reinforce the Agency's overall mandate
- Since regular budget funding for both verification and TC have been rising roughly in lock-step for at least a decade, incorporating the TCF into the regular budget—with an explicit pegging mechanism if that is what agreement requires—would not alter the negotiation dynamics, but would end this divisive issue once and for all
- The provision of extra-budgetary funding and cost-free experts beyond TC is already costing major donors beyond their assessed contributions; this budgetary "work around" could be ended by bringing everything into the regular budget, thereby strengthening the Agency's long-range planning and management processes

197 Reported in JIU, 2012, p. 12.

198 See his opening address to the IAEA General Conference: "Statement to the Fifty-Ninth Regular Session of IAEA General Conference 2015," IAEA, September 14, 2015, (last modified November 18, 2015), https://www.iaea.org/newscenter/statements/statement-fifty-ninth-regular-session-iaea-general-conference-2015 (accessed February 8, 2016).

- For the developed states nuclear security has become an increasingly important program that they would like to see acknowledged as such by the developing countries and incorporated into the regular budget rather than paid for by the Nuclear Security Fund (funded by the same donors that largely fund TC)
- Immediate abolition of the shielding system for safeguards assessed contributions would enhance the equity of the IAEA funding system overall by requiring China and the wealthier developing countries to pay more for safeguards (the LDCs should continue to be given a discount on the IAEA budget as a whole, rather than being shielded from safeguards costs, on the grounds that all members states now have safeguards agreements—or are required to do so).

A grand bargain could thus contain the following elements:

- A decision by the Board to authorize the Secretariat to incorporate both the Technical Cooperation Fund and the Nuclear Security Fund into the regular budget (this could be followed by a Statutory amendment which all member states would agree to ratify within a short period of time to avoid second-guessing the bargain)
- To reassure major contributors that safeguard funding would not be held hostage to unreasonable increases in TC funding, agreement by the Board on a fixed safeguards/TC ratio (for example 60:40), to last a specified number of years or until otherwise decided by the Board
- Funding for all other statutory, core activities would be included in the regular budget (offers of extra-budgetary contributions and cost-free experts would be limited to non-core activities)
- The shielding system would be abolished immediately; all IAEA member states would pay for the regular budget based on their regular UN assessment; previously unshielded states would agree to pay their resulting savings into a Nuclear Emergency Fund.

Such a bargain would not see the end of voluntary contributions, but these would be in future directed towards non-essential but desirable Agency needs, such as keeping up with state-of-the-art high-technology and infrastructure, or to the IAEA endowment or Nuclear Emergency Fund. Agency efforts to secure philanthropic or corporate contributions would be systematized and driven by the Agency's needs.

The role the IAEA plays in global nuclear governance, contributing to international peace and security by helping ensure that nuclear energy is used safely, securely, and

without contributing to the proliferation of nuclear weapons, makes it an indisputable bargain. The uniqueness of the Agency's mandate makes it virtually impossible to compare its relative efficiency and effectiveness with other international organizations. Nonetheless, by all accounts the IAEA is one of the most effective and efficient in the UN system. The Secretariat's technical competence and professionalism are highly regarded. Demand for the Agency's "services" in fulfilling each of its various mandates is increasing, in some cases dramatically.

Zero real growth demands have forced the Agency to stay relatively compact, seek to prioritize its activities (to the extent that competing member state interests will allow) and to continuously seek efficiencies. However over the long term zero real growth has seriously affected its infrastructure, human resources, and ability to adopt modern management and technical tools. Voluntary funding and secondment of experts by member states are helpful in filling gaps but distort planning and prioritization over the longer term. The linkage between spending on safeguards and technical cooperation is dysfunctional: both sides of the argument need to compromise to resolve this issue once and for all, if necessary in a grand budgetary bargain that incorporates technical cooperation, nuclear security, and extra-budgetary funding into the regular budget. The inequitable shielding system is no longer appropriate given the near universal application of nuclear safeguards and results in newly emerging economies, most notably China, not pulling their weight in funding the Agency. The Secretariat has not fully explored alternative, creative new funding possibilities, although this may be about to change. The IAEA deserves the continuing financial and material support of the international community in fulfilling all aspects of its challenging mandate.

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About the Project on Managing the Atom

The Project on Managing the Atom (MTA) is the Harvard Kennedy School's principal research group on nuclear policy issues. Established in 1996, the purpose of the MTA project is to provide leadership in advancing policy-relevant ideas and analysis for reducing the risks from nuclear and radiological terrorism; stopping nuclear proliferation and reducing nuclear arsenals; lowering the barriers to safe, secure, and peaceful nuclear-energy use; and addressing the connections among these problems. Through its fellows program, the MTA project also helps to prepare the next generation of leaders for work on nuclear policy problems. The MTA project provides its research, analysis, and commentary to policy makers, scholars, journalists, and the public.

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