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BEYOND THE NUMBERS

Strategies for Global Nuclear Governance

Jeff Colgan | Arzu Hatakoy | Shixin Jiao | Katrin Kinzelbach
Ely Ratner | Joel Sandhu | Liang Wang | Zachary Wasserman



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ABOUT THE REPORT

This report was produced within the framework of the Global Governance 2020 program, organized by the Global Public Policy Institute in Berlin in collaboration with partner institutions in the United States (Princeton University and the Brookings Institution), China (Fudan University and Shanghai Academy of Social Sciences), and Germany (Hertie School of Governance).

GG2020 brought together 24 young professionals from the US, China and Germany for three meetings, one each in Berlin (17-21 January 2010), Shanghai (11-15 July 2010) and Washington DC (16-20 January 2011). During these meetings, the GG2020 fellows jointly discussed challenges of global governance in the year 2020 and beyond with a particular focus on three issue areas: climate change, nuclear weapons and the global economy.

This report reflects the work and findings of the GG2020 working group on global nuclear governance. The diversity of the working group members in terms of nationality, background and expertise represented a crucial asset for devising international strategies and solutions.

In order to explore possible futures in global nuclear governance, the working group made extensive use of the intellectual instruments provided by the field of future research, including trend analysis and scenario planning. During the three sessions, the working group also met with leading academic experts and policy-makers in the field of nuclear nonproliferation from all three countries and would like to acknowledge their input, opinion and advice. For more information please visit www.gg2020.net.

EXECUTIVE SUMMARY

Introduction

The Global Governance 2020 program brought together international relations specialists from China, Germany and the United States. Through a comparative scenario building process, we assessed the future of global nuclear governance and challenged each other to grapple with the changing international environment in which future generations will seek to advance peace and security. Our recommendations are based on the insights that emerged from our scenario analysis, as well as the briefings and structured discussions we held with experts from a broad range of policy and research institutions in all three countries.

It became increasingly clear throughout our analysis that the current framework of global nuclear governance is overly focused on numbers: numbers of nuclear weapons and numbers of nuclear states.

While we readily accept the importance of this emphasis, we also believe that the problems of numbers are terribly difficult to resolve and are drawing attention and resources away from alternative efforts to contribute to nonproliferation and nuclear security. In *Beyond the Numbers*, we therefore seek to highlight alternative approaches to global nuclear governance.

We remain skeptical that the US and Russia will conclude a follow-on to the New Start Treaty in the near term, which has long been held as a precondition for the multilateralization of the arms reduction process. The focus on numbers in this domain means that international efforts will remain in limbo until there is another round of major bilateral drawdowns between the US and Russia. Given the urgency of addressing the problems of nuclear proliferation in the 21st century, we do not find international paralysis or inaction acceptable.

Focusing on absolute numbers of nuclear weapons is also problematic given that defense strategists are weighing the potential relationship between fewer

weapons and increased insecurity. The inherent problem is that states could compensate for that rising insecurity in ways that work against the ultimate goals of nuclear disarmament. For example, from the perspective of one's own arsenal, significant reductions in weapons may increase the importance of ambiguity and non-transparency.

The problem from the perspective of global nuclear governance is that better accounting methods and enhanced transparency – rather than increased ambiguity and opacity – are precisely those attributes that are essential to improving nuclear security, building trust and ultimately building the foundation for serious reductions of nuclear weapons in the future.

This is in part a question of sequencing; it may be more valuable and productive to focus on issues related to accountability and transparency in the current nuclear environment rather than leaving these essential components to be dealt with further along in the process when they will become increasingly difficult.

Furthermore, accountability and transparency should be seen as important goals in and of themselves, even if overall numbers remain the same. Transparency should therefore go beyond simple accounting; to build trust and avoid arms races, transparency of nuclear doctrines is also important.

Insights

These insights lead to our first recommendation: **Do not let the focus on reducing absolute numbers of weapons distract from, or militate against, the other essential components of nuclear global governance, including accountability and transparency.** In this context, given where we are today in the nonproliferation regime, focusing on Global Zero alone may be misguided, if not counterproductive, to the goal of ensuring a nuclear weapon is never used again.

We also believe that future efforts at designing global nuclear governance will have to refrain from focusing on the number of nuclear weapons states and instead adopt a more flexible conceptual framework. This is particularly important given the potential emergence of numerous latent or breakout nuclear states that possess the capability and technical know-how to build a nuclear weapon, but have yet to build one to completion. Iran may be heading in this direction today. While most states with latent nuclear capacities continue to honor their nonproliferation and monitoring commitments, this category of states presents a serious challenge to nuclear governance.

Thus our second recommendation: **Given the importance of latent nuclear capacity, in which non-nuclear weapon states could rapidly develop a nuclear weapon, the possession of an operational nuclear weapon should no longer be considered the singular red line for containing nuclear proliferation.** This means that the issue of latent nuclear states must be incorporated into future governance agendas.

The problem of latent nuclear states is likely to be exacerbated if civilian nuclear energy is increasingly considered a legitimate and effective means of dealing with the insecurities and pollution that result from reliance on fossil fuels. It is commonly noted that should this occur, there would be more nuclear material available for the construction of nuclear weapons. Equally important from our perspective would be the simultaneous dispersion of nuclear expertise, something that remains rather

limited throughout much of the developing world. Hence our third recommendation: **Global nuclear governance needs to address the proliferation of nuclear expertise to an ever-increasing number of states, which is as dangerous in the long term as the proliferation of nuclear fuel or materials.** The bottom line is that the future of proliferation is about more than just weapons and material.

Reforms must also be made to the international politics of nuclear nonproliferation. Nonproliferation efforts have often reflected the belief that stemming the spread of nuclear weapons is the job of great powers and nuclear weapons states. We believe this focus has obscured the potential contribution of regional and non-nuclear weapons powers. Our fourth recommendation is therefore: **Non-nuclear weapon states committed to the nonproliferation agenda should use their perceived legitimacy to help bridge the gap between haves and have-nots by spearheading new initiatives to limit proliferation.** These initiatives should be coordinated with, and supported by, nuclear weapon states and existing multilateral institutions.

While we acknowledge that efforts by non-nuclear weapon countries have their own problems, they also offer significant promise. True, these states may lack the expertise to adequately implement non-proliferation measures, and they may interrupt or degrade the ability of the international community to present a united front to potential proliferators. Still, they hold at least two significant advantages. First, their efforts may be perceived as more legitimate, particularly in parts of the developing world or in their own regions. They may have the relationships and trust to devise bargains that would be difficult for US, China or the EU. Major powers could consider offering technical expertise to enhance regional initiatives, and efforts by regional or rising powers should at least be given the opportunity to contribute to existing international efforts, rather than assuming outright that they are an affront to the Nuclear Nonproliferation Treaty (NPT), the United Nations Security Council or other established institutions.

Second, local non-nuclear powers can also play a leading role in working to resolve regional insecurities. Rather than simply seeking to prevent states from acquiring nuclear weapons, efforts should also be made to resolve regional disputes and create regional security architectures that reduce the desire for nuclear weapons in the first place. If the fundamental security concerns of countries are not addressed, it will be difficult to achieve the goals of transparency, accountability and nuclear nonproliferation. Resolving or containing regional disputes should therefore become a central component of the nonproliferation agenda.

Furthermore, we believe that counting the number of nuclear states and making hard distinctions between the nuclear haves and the nuclear have-nots is counterproductive. While we acknowledge the inherent inequalities in the existing nonproliferation regime, we do not believe that this framework is useful either for describing the key divisions in the international system or as a starting point for dealing with global inequalities.

Indeed, the symbolic resonance of nuclear weapons and politically charged concepts such as “nuclear apartheid” not only obscure existing differences among the haves and the have-nots. They also impede the negotiation of practical solutions. In reality, the haves do not advance identical interests with regard to nuclear nonproliferation. And the nuclear have-nots are a diverse group that encompasses divergent and distinct preferences on nuclear issues. For instance, some have-nots actually possess latent nuclear capabilities. Other have-nots share neither the same security concerns nor similar perspectives on development. Rather than further cementing the current impasse between haves and have-nots, and in order to address grievances of inequality, there ought to be further differentiation, for instance, between the non-nuclear developed countries and those in the non-aligned South that may continue to feel excluded from the existing regime.

Furthermore, while arsenal reductions by the US and Russia are important signals that these powers are adhering to their NPT commitments, we do not believe it is likely that they will soon join the ranks

of the have-nots. If so, this would mean that the division of haves and have-nots will remain a feature of international politics, and that alternative means must be sought to resolve potential grievances.

The notion of inequality remains significant, and if left to fester will continue to hamper international nonproliferation efforts. We therefore believe that nuclear weapon states and great powers should seek new and alternative means of addressing the issue of global nuclear inequality.

One mechanism for this could be working with the regional or middle-tier non-nuclear states discussed above to act as liaisons between developed and developing countries. Another would be to devise ways to build direct connections between developing countries and the mini-lateral arrangements of the nuclear powers. These could include some mode of representation or observer status for commonly excluded countries or groups of countries. When multilateral nonproliferation efforts are led by the great or nuclear powers, increased transparency could also help to bridge the gap with the developing world, as could more concerted efforts at public diplomacy in places where publics may not understand the substantial nonproliferation investments and initiatives of the leading states.

Finally, our fifth recommendation: **Efforts on global nuclear governance should be better coordinated with other policy domains, including civilian energy generation.** The energy security of a country may affect their decision-making on issues of nonproliferation. Energy-dependent countries in particular have economic vulnerabilities that affect their willingness to pressure potential proliferators. Energy issues relating to civilian nuclear energy and dependence on fossil fuels must therefore be brought more closely into the nonproliferation discussion.

The same should be said for the promotion of regional security, human rights and good governance. The international community will have to learn how to incentivize and pressure states toward more responsible domestic governance practices without producing the types of insecurities that create the desire for a nuclear deterrent.

METHODOLOGY

While the summary and recommendations in *Beyond the Numbers* were written as a stand-alone policy brief, the following chapters serve to document the process that led us to these conclusions.

The GG2020 methodology was based on a structured scenario planning process used by businesses,

governments and other organizations for strategic planning in the face of an uncertain future. In thinking about possible challenges to global nuclear governance in 2020, we used a four-step approach:

Four Step Approach to the Scenarios



Step 1: Core Model and Scenario Highlights

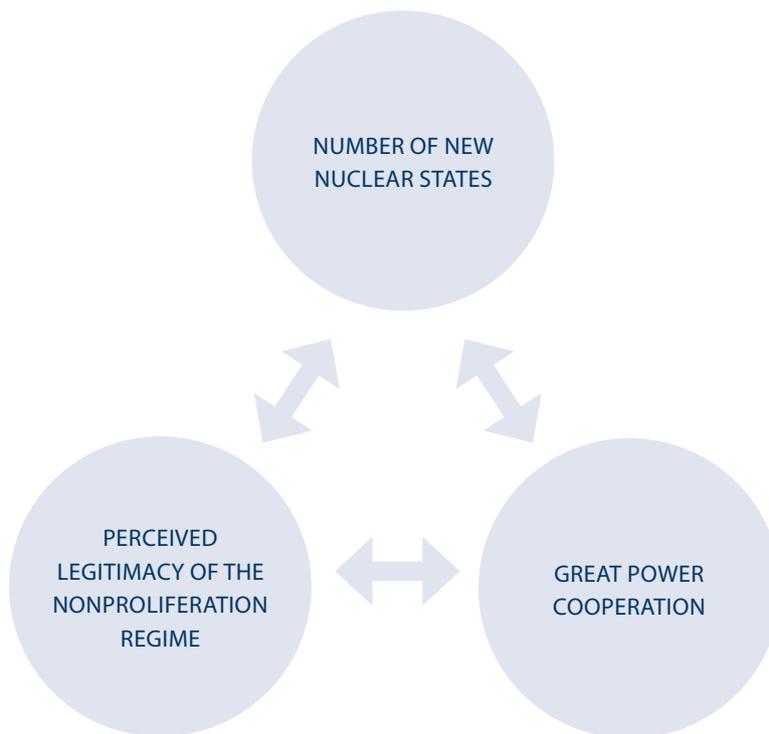
The GG2020 program used a tailor-made scenario planning methodology designed and supervised in cooperation with private sector practitioners. By providing an intellectually challenging and highly interactive framework that enables creative and rigorous thinking, the process drew upon the diverse background and expertise of the working group.

The scenario planning methodology entailed a step-by-step working process, offering a systematic approach to thinking about the future:

- First, identify key factors that may influence the future policy challenge and describe the relationships between them. From the resulting tapestry of factor interrelations, a core model was identified to describe the underlying logic and dynamics determining possible futures.
- Second, build scenarios by describing additional factors and relevant actors situated in the logic of the core model to envision possible development paths for the core system.

- Third, highlight key trends and turning points within each scenario, which can be used to unearth potential points of adjustment along the development path.
- Following these analytical steps we developed a core model and two scenarios for the future of global nuclear governance.

The Core Model Below Captures Factors Used to Structure the Scenarios



The core model comprises three factors of high impact and high uncertainty, which we believe capture the key dynamics that underlie nuclear proliferation. The three factors are defined as follows:

Number of Additional Nuclear States

- Defined as the number of states that possess nuclear weapons beyond the existing group of eight (US, Russia, China, France, Great Britain, India, Pakistan and Israel). For example, Iran and North Korea could be two additional nuclear states.

Great Power Cooperation

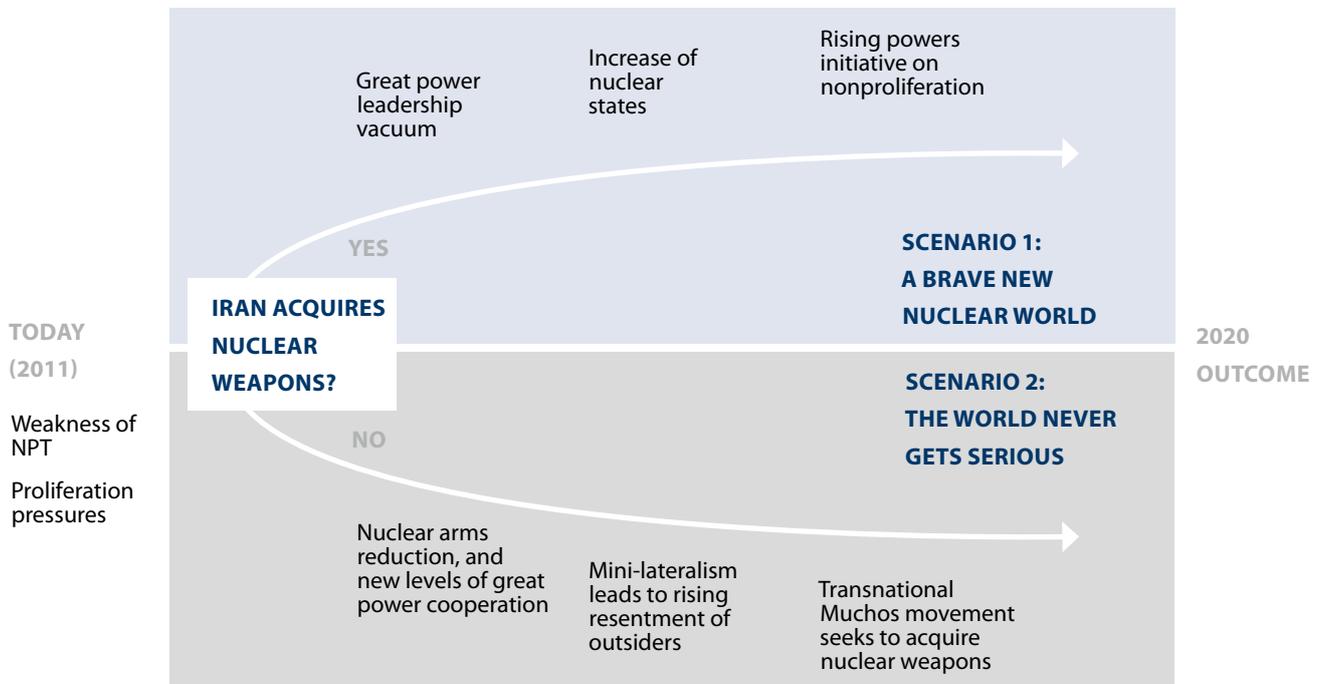
- Defined as the overall political willingness for great powers to cooperate on problems requiring international coordination.

Perceived Legitimacy of the Nonproliferation Regime

- Defined as the extent to which all states, both nuclear and non-nuclear, perceive the legitimacy of the nuclear security regime, especially with regard to how it mitigates the inequality and power asymmetry between nuclear and non-nuclear states.

We developed two scenarios based on the underlying dynamics that connect the three factors of the core model. These scenarios are meant as heuristics, not predictions of the future. They were consciously

designed not to represent an optimistic or pessimistic future, rather to seek to envisage complex possible futures characterized by different proliferation pressures.



The first of our two scenarios is called A Brave New Nuclear World. It describes a future in which the nuclear armament of Iran spells proliferation in – and beyond – the Middle East. In this world, nuclear deterrence becomes a central component in the security strategy of a growing number of states. US leadership on nonproliferation is eventually replaced by two middle-tier powers that propose to supplant the now toothless NPT with a new nonproliferation framework.

The second scenario, The World Never Gets Serious, envisages a world in which close cooperation between the great powers leads to a significant reduction of nuclear arsenals. However, existing inequalities within the international system and increasing resentment of mini-lateralism in global governance continue to grow, thereby motivating new actors to seek to acquire nuclear weapons.

See the appendix for the complete version of each scenario.

Step 2: Key Trends and Turning Points

Scenario 1: A Brave New Nuclear World

TREND 1

Iranian posturing and sponsorship of terrorism

Tehran leverages its nuclear status to attract the support of alienated youth around the Islamic world. Iranian agents exploit the country's new popularity by organizing a terror organization designed to attack Iran's adversaries and promote its regional ambitions.

TURNING POINT 1

Russo-Iranian air defense deployment

Even after Iran develops nuclear weapons, the great powers are unable to establish a consensus-based policy for dealing with Tehran. Russia makes good on its earlier commitment to deliver advanced air defense hardware, effectively neutralizing the possibility of an aerial attack.

TREND 2

Nuclear proliferation in the Middle East and Asia

Saudi Arabia responds to the Iranian escalation by deploying its own nuclear deterrent and sharing weapons technology with other Sunni states. Japan, Taiwan and South Korea react to the collapse of the NPT architecture by activating their own weapons program.

TURNING POINT 2

Iranian attack on the United Arab Emirates

Iran's economy enters a tailspin when the Organization of the Petroleum Exporting Countries (OPEC) decides to use the oil weapon against Tehran: The cartel announces that it will not export to any state that consumes Iranian oil. To deflect domestic attention away from its economic woes, Tehran invokes the precedent set by the Bush Doctrine of pre-emptive self-defense and raids Dubai and Abu Dhabi (just before both cities deploy their Saudi designed nuclear weapons).

TREND 3:

Sino-US economic interdependence leads to risk-averse behavior and retrenchment on key multilateral issues

While talk about a new G2 proves to be exaggerated, Sino-US trade continues to expand. Despite the persistence of massive global imbalances, Beijing and Washington perpetuate the monetary status quo to avoid destabilizing the fragile world economy (growth remains particularly weak in the developed world). Neither country has an appetite for addressing controversial multilateral issues for fear of disrupting their economic relations.

TURNING POINT 3

Russo-Brazilian initiative on nonproliferation

Russia and Brazil exploit the governance vacuum by presenting their own joint nonproliferation proposal. They use their windfall oil profits to extend peaceful nuclear energy assistance to developing countries in return for a new and enhanced safeguard regime.

Scenario 2: The World Never Gets Serious

TREND 1

Lack of consensus among major powers on nonproliferation and disarmament issues

The Obama Administration displays new US leadership on nuclear nonproliferation and disarmament. However, international cooperation in this field is hampered by a lack of consensus among major powers.

TREND 2:

Unprecedented cooperation between the great powers

The North Korean and Iranian nuclear programs were an impediment to closer ties between the great powers. Their resolution accelerates US-Russian arms control negotiations. The US is increasingly constrained by fiscal demands and more acceptant of multi-polarity. China is increasingly willing to engage on issues of international security. The P5 propose to give Japan, Germany, India and Brazil a permanent seat in the Security Council. While UN reform fails due to opposition from a majority of countries in the General Assembly, the great powers press ahead with closer cooperation in various minilateral groups. At the joint initiative of P5+4, a multilateral no-first-use pledge is signed and leading nations all place their nuclear weapons on low alert.

TURNING POINT 1

Dismantling of North Korean nuclear weapons program

After Kim Jong-il's death and a succession of power in North Korea, the nuclear weapons program there is dismantled. The leadership's focus turns to economic development. The six-party talks end in a peace treaty, signed in the Forbidden City. Chinese President Xi Jinping announces that the Cold War has officially ended in Asia.

TREND 3:

Opposition to concerted major power meddling

A new social movement known as the Muchos forms in response to the great powers' cooperation. The movement organizes those who feel left behind by the burgeoning international system and gains global reach through the use of modern technology. Weak regimes (Venezuela, Bolivia, Syria and Burma) build on nationalism and domestic populism against the great powers to legitimize their rule and become state sympathizers of the Muchos. Mainstream Muchos members condemn the use of violence, but cells of violent actors emerge as Muchos' sympathizers. The opposition to concerted major power meddling now has global reach and violent potential.

TURNING POINT 2

Iran allows the International Atomic Energy Agency to conduct comprehensive inspections

Protesting the effects of international sanctions on Iran's economy, and encouraged by the economic benefits accrued by the North Koreans, the Iranian opposition demands that the ruling regime abandon its nuclear ambitions and join the international community. Moderates eventually win a power struggle with hardliners in the Ahmadinejad administration. Iran becomes a cooperative actor in international politics, not least because it profits from a spike in demand for natural gas caused by hydrogen-fuelled zero-emission automobiles.

TURNING POINT 3

The Muchos movement announces intent to acquire nuclear weapons

The administration of a costly vaccine for HIV/AIDS in the P5+4 countries, and a public outcry over violent multilateral operations in Yemen, Oman and Madagascar leads to a further radicalization of the Muchos. Funding for nuclear weapons is believed to be available from a few extremely wealthy members of Muchos with supposed support from State sympathizers.

Step 3: Core Insights

By conducting a comparative analysis of our two scenarios and highlighting the key trends and turning points that underlie their respective dynamics, the following insights emerged:

Greater convergence in foreign policy norms among China, the EU and the US could help manage many of today's most pressing problems, but the nature of that cooperation could also lead to unexpected and undesirable effects on the proliferation of nuclear weapons.

US policymakers have urged China to act as a responsible stakeholder in international politics, and European officials have called on Beijing to incorporate human rights advocacy into its foreign policy. We assessed the potential effects on nuclear proliferation of greater US-EU-Sino foreign policy harmonization. In particular, we considered the potential consequences of China adopting the set of Western norms often associated with liberal internationalism. Although many would welcome China taking such steps, it could also have unintended consequences in the nuclear domain.

During the Cold War, none of the Soviet Union's client states developed indigenous nuclear capabilities, one key reason being that their threat environment did not demand a weapon of last resort. Today, China's diplomatic and economic support may in effect be serving a similar function. For instance, China's emphasis on sovereignty and non-intervention has shielded a number of regimes from international pressure, including Burma, Zimbabwe and Sudan. This may decrease the pressure on these states to develop nuclear weapons of their own as a means of preventing international intervention.

With its international influence (and interests) on the rise, however, China's support for notions of absolute sovereignty may change. Indeed, some observers take China's eventual support for international action in Sudan as a hint of new willingness in Beijing to de-emphasize the sovereignty norm. A

similar shift can also be read in Beijing's decision to support, even if begrudgingly, sanctions on North Korea and Iran. The working group also noted that China's support for otherwise isolated regimes is chiefly motivated by economic considerations and is thus substantially different from and almost certainly more tenuous than the security guarantees offered by the Soviet Union.

Should China embrace multilateral mechanisms and intervention to instill and enforce international law and norms, the result could be newly isolated regimes that perceive nuclear weapons as the only way to parry international pressure.

Increasingly institutionalized groupings of major and medium powers in the name of global governance could exacerbate rather than halt nuclear proliferation.

An emerging trend in international politics today is the growth of small coalitions of powerful states to address global problems. Examples of this phenomenon include the G-20, the Six Party Talks in Northeast Asia and the Group of Six negotiations with Iran. Distinct from the issue of greater insecurities discussed above, the working group also explored ways in which increasing great power cooperation and other forms of mini-lateralism could exacerbate inequality in world politics and lead weak states and non-state actors to pursue nuclear weapons.

States left out of a system characterized by burgeoning forms of exclusive mini-lateralism could seek nuclear weapons. Weak states, for instance, could come to see the acquisition of nuclear weapons as one of few available means of influence in a world in which they otherwise are afforded no formal voice.

Our analysis also considered potential social movements or alternative forms of non-religious extremism that could advocate nuclear weapon acquisition as a result of grievances related to economic and political inequality in international relations. This dynamic would be particularly dangerous if there

was a reduction in the economic or technological constraints on weak states or non-state actors seeking to develop or acquire nuclear weapons.

In this sense, increasingly consolidated groupings of major and medium powers may exacerbate inequalities in international politics – both political and economic – and could potentially cycle back to affect issues of nuclear nonproliferation.

Great power cooperation may not be required to address nuclear proliferation.

International cooperation among the great powers is often considered the most effective means for managing issues of global governance. That said, such cooperation is likely to be very difficult to achieve, thereby creating opportunities for alternative initiatives and alignments.

The working group discussed the ways in which new regional groupings or global partnerships could develop in the absence of meaningful multilateral leadership on nonproliferation among the great powers. This could occur, for instance, if emerging and or middle-tiered powers aspired to play larger roles on nuclear issues.

Evidence for this phenomenon already exists. For instance, concerns about a possible nuclear weapons program in Iran produced diplomatic efforts by Turkey and Brazil that circumvented the traditional UN process. In addition, the ongoing debate about the multilateralization of the nuclear fuel cycle has been used by several states to distinguish themselves on the international stage. Japan, Russia, Germany, Austria and the UK have all made independent proposals, and European countries have pushed ahead with a joint proposal under the umbrella of the EU.

Our scenarios considered the possibility of developing countries devising new multilateral mechanisms to offer low-cost peaceful nuclear energy technology to other developing countries, in exchange for enhanced nonproliferation safeguards. While such a proposal would be reminiscent of the original NPT arrangement, nonproliferation efforts led by the global South or actors in the developing world could potentially resolve some of the inequities em-

bedded in the existing system and appear more legitimate to domestic publics. In turn, leaders of any such agreements might be rewarded with greater influence, as well as new economic and strategic relationships.

Combating nuclear proliferation requires not only addressing civilian nuclear energy, but an even wider focus on civilian energy use, including the impact of fossil fuels and alternatives to them.

Addressing nuclear proliferation requires thinking beyond civilian nuclear energy to a much broader perspective on civilian energy use, including fossil fuels. Whether a country is an energy importer or exporter, its energy supply affects nuclear proliferation.

The US, the EU, China and Russia (which collectively hold the five veto powers on the UN Security Council) are together responsible for more than 50 percent of oil consumption worldwide. One result of this dependence on fossil fuels is that oil-consuming countries are often loath to admonish or take actions against oil-exporting countries, for fear of losing access to vital energy supplies. In turn, multilateral efforts to address nuclear nonproliferation can be hamstrung by the desire to maintain positive relations with energy suppliers.

Analysis of this dynamic by the working group led to the following insight: Rather than decrying an oil-consuming country's unwillingness to support nonproliferation measures against an important energy supplier, it may be more effective to take steps to alter the country's long-term economic fundamentals. For instance, if Beijing is hesitant to take action against Iran in part because of China's demand for Iran's large natural gas resources, Western countries might alleviate this concern by helping China to identify and develop alternative or indigenous natural gas supplies. In this sense, efforts such as the 2010 US-China Shale Gas Initiative may have positive secondary effects on global governance in the nuclear domain. Multilateral efforts to develop alternative fuels and green technologies could serve a similar function.

Step 4: From Insights to Questions and Recommendations

As the final step of the Global Governance 2020 process, the four insights above were recast as questions and posed to nonproliferation experts to elicit their feedback and develop policy recommendations.

Insight		Question
<p>1. Greater convergence in foreign policy norms among China, the EU and the US could help to manage many of today’s most pressing problems, but the nature of that cooperation could also lead to unexpected and undesirable effects on the proliferation of nuclear weapons.</p>		<p>1. When confronting pariah states, how can the international community discourage them from acquiring nuclear weapons?</p>
<p>2. Increasingly institutionalized groupings of major and medium powers in the name of global governance could exacerbate rather than halt nuclear proliferation.</p>		<p>2. How should the efficacy of multilateral arrangements be balanced with the degree to which they exacerbate inequality and disparities of power in international politics?</p>
<p>3. Great power cooperation may not be required to address nuclear proliferation.</p>		<p>3. To what extent could new arrangements by middle-tier or regional powers play a leading role in nuclear nonproliferation?</p>
<p>4. Combating nuclear proliferation requires not only addressing civilian nuclear energy but an even wider focus on civilian energy use, including the impact of fossil fuels and alternatives to them.</p>		<p>4. How can international efforts on nuclear nonproliferation be better coordinated with issues related to civilian energy production?</p>

APPENDIX

Scenario 1: A Brave New Nuclear World

After a 24 day delay, President Obama condemns the nuclear test that Iran conducts on 1 February 2012 while simultaneously affirming his readiness to begin immediate disarmament talks. China and Russia follow suit and vow to uphold the UN sanctions passed a few months earlier. Iran ignores Obama's olive branch, and Republicans seize the opportunity to portray Obama as a poor strategist and a weak commander-in-chief. The Iranian fiasco and the jobless economic recovery help the Republicans maintain their majority in the House and capture a small majority in the Senate during the November election. This setback unleashes a torrent of recriminations within the administration, Obama having only been narrowly re-elected himself.

The administration's disarray does little to calm Washington's allies in the Middle East. Despite the Netanyahu government's efforts to reassure the Israeli public, the Iranian bomb touches a nerve. The editors of Israel's main English-language dailies, Haaretz and The Jerusalem Post, reflect widespread fears when they compare the Iranian regime to Nazi Germany. Public panic produces a modern Exodus as tens of thousands of Israelis with second passports flee the country. Israel's technology entrepreneurs are the backbone of its economy, but these people also represent the most mobile segment of the population, and their loss constitutes more of a brain hemorrhage than a brain drain. Prime Minister Netanyahu orders a massive air assault on Iran's weapons facilities, but before the attack begins, an American-born Israeli official with ties to a radical peace organization leaks the plan to the BBC. Netanyahu is forced to stand down, and the whistleblower is arrested at Ben Gurion airport as she attempts to leave the country.

Propagandists working for the Iranian Republican Guard (IRG) celebrate the impending end of the Jewish State. Iran's legitimacy increases throughout the Islamic world. While Iran's rhetoric is menacing, its slogans are carefully calibrated to prevent Western intelligence analysts from reaching a consensus about the regime's intentions. Even in Jerusalem, respected observers disagree about whether Israel can live with an Iranian bomb. Meanwhile, Iran's economy continues to stagnate despite soaring oil prices. Though the country does not enjoy a free press, some Iranian intellectuals publicly question the wisdom of deepening Iran's isolation from the outside world.

Speaking at the Chancellery in Berlin, Angela Merkel declares that Germany has a historical responsibility to help protect the Jewish state. In late 2012, President Sarkozy and Chancellor Merkel issue a statement of solidarity with Israel. Upon his return to Paris, Sarkozy affirms that his country's independent nuclear deterrent is the backbone of French security strategy.

In December 2012, historian-cum-Israeli Ambassador Michael Oren meets with the Saudi Arabian representative to the US, Adel Al-Jubeir, at a hotel in Washington, DC. The two men exchange intelligence information and discuss the possibility of secretly cooperating against Iran. While leaving the meeting, Oren is photographed by an Iranian operative. The image is widely distributed throughout the Arab media and humiliates the Saudi royal family. Protesters take to the streets in Riyadh as King Abdullah repeatedly disavows any knowledge that Israeli-Saudi talks took place.

Inspired by Iran's nuclear achievements and rhetorical posturing, a group of disaffected engineering students at King Saud University create a popu-

lar website calling on Muslims around the world to unite behind Tehran. Iran's intelligence agency exploits the country's newfound popularity in the Arab world. Fluent Arabic speakers trained in the Iran-Iraq war are quietly dispatched to Saudi Arabia where they declare that Sunnis and Shias ought to suspend their doctrinal differences in the interest of protecting Islam against the Saudi royal family's apostasy. They organize and fund a new terror group – the Guardians of Al-Masjid al-Haram.

Cracks in the (tentative) international front against Tehran appear in early 2013 when Russia reneges on its earlier promise to cancel the sale of an advanced air defense system to Iran. The first Russian engineers arrive within 48 hours to begin the installation. The announcement surprises some Western diplomats (particularly in the US), though the most experienced Russia experts explain the about-face as a predictable attempt to exploit European and American inaction on Iran's weapon program. The move will complicate any future attempt to neutralize Iran's capabilities.

The effects of the Russo-Iranian agreement are felt most acutely in the Middle East. The Saudi Arabian government publicly offers to share its (recently acquired) nuclear weapons technology with members of the Gulf Cooperation Council (GCC). The United Arab Emirates and Kuwait invite the Saudis to deploy nuclear tipped surface-to-surface missiles on their territory. Jordan, Egypt and Turkey watch the regional proliferation of nuclear weapons with alarm. Like the Arab Gulf states, they too are alarmed by Iran's strengthening position, but since they are not members of the GCC they do not fall under the new Saudi defense umbrella. Cairo, Amman and Ankara request new security guarantees from the US, while simultaneously initiating their own nuclear research programs and asking Pakistan and North Korea for technical assistance. In March 2013, Vladimir Putin succeeds Dmitry Medvedev as the president of Russia.

In early 2014, the Guardians of Al-Masjid al-Haram (operating at Iran's behest) stage daytime assaults on three Saudi royal compounds. The terrorists kill four princes along with dozens of their bodyguards and servants. King Abdullah declares martial law,

while Osama bin Laden issues a statement congratulating his fellow travelers. Bin Laden's public message proves to be his last. His whereabouts are determined by a deep-cover Pakistani-born American spy, and in late July American Special Forces in Afghanistan conduct a cross-border raid into Pakistan's Northwestern Frontier Province. They seize bin Laden and kill his deputy, Ayman al-Zawahiri.

Obama calls a special press conference to announce bin Laden's capture. As the 2014 midterms approach, Democrats in close re-election races enjoy a significant bounce in the polls by demonstrating that their party is tough on national security. Their popularity swiftly deteriorates, however, when Attorney General Eric Holder announces that Mr. bin Laden will be tried in a civilian court (the United States District Court in Manhattan is selected as the appropriate venue). Americans prefer a military tribunal for bin Laden by a margin of three to one. Off the record, five senate Democrats up for re-election complain that the Obama administration is "snatching defeat from the jaws of victory."

Although they are not officially affiliated with Al Qaeda, the Guardians of Al-Masjid al-Haram vow to avenge bin Laden. The group's Iranian handlers recruit British-born Muslims for a spectacular suicide operation in the US. In late 2014, terrorists attack the commuter rail system in Long Island, an airport security line in Omaha, and sink a crowded ferry in Seattle. It is the biggest coordinated terrorist attack anywhere in the world since 9/11. While American Muslim organizations move swiftly to denounce the attacks, there are reports of spontaneous violence in Dearborn and Los Angeles against people who look Muslim. The Federal Bureau of Investigation breaks up a plot against the Islamic Community Center in Washington, DC. In the meantime, American and British security agencies trace the origins of the recent terrorist attack back to Tehran, but since their human intelligence capabilities in Iran are limited, they are unable to find the proverbial smoking gun. The legacy of the Bush administration's failure to find weapons of mass destruction in Iraq looms large and President Obama declines to confront the Iranians without slam dunk evidence.

Iran's fortunes take a dramatic turn for the worse in June of 2015 when all members of the Organization of the Petroleum Exporting Countries (except Venezuela and Libya) declare their commitment to preserving the geopolitical status quo in the Middle East. The cartel announces that its members will not export to any country that consumes Iranian oil. Within a month, the Iranian economy enters a tailspin, and the regime's hold on power appears increasingly shaky. In order to deflect attention away from the country's economic woes, the IRG launches assaults on Dubai and Abu Dhabi, seizing control of both cities after daring amphibious landings.

Iranian university students flood the domestic blogosphere with impassioned anti-war protests, but foreign news correspondents stationed in Iran report that most citizens accept that to prevent the impending deployment of Saudi nuclear weapons in the UAE, there was no other option. The Iranian government cites the precedent set by the Bush Doctrine and describes its invasion as an act of preemptive self-defense. In March of 2016, Iran withdraws from the NPT and tests a second nuclear device that is significantly more powerful than the first. With a credible nuclear deterrent and control over both sides of the Straits of Hormuz, military action against Iran seems increasingly unlikely. By early 2017, oil prices hit all-time highs and inflation in industrialized countries reaches levels not seen since the oil crises of the 1970s.

The obsolescence of the existing nonproliferation architecture is now widely acknowledged. The effects of its collapse are particularly acute in East Asia, a region where unresolved territorial disputes (the Diaoyu Islands, the Spratly Islands, the status of Taiwan, etc.) and longstanding rivalries continue to generate international tension. In early 2018, the Japanese government openly re-evaluates its policy against developing nuclear weapons. While the Japanese flirted with the idea of establishing an independent nuclear deterrent during the 1970s and the 1980s, the American security guarantee and the public's deep hostility to nuclear weapons (a product of being the only country in the world to have suffered a nuclear attack) sufficed to keep Japan in the non-nuclear weapons club. In early March 2011,

a massive magnitude 9 earthquake struck off Japan's northeast coast triggered a devastating tsunami and seriously damaged the Fukushima Daiichi nuclear power plant causing the release of radioactive material in Japan. The events of this catastrophe further put into question the safety and security of Japan's nuclear establishment. But as the NPT falls apart and memories of Hiroshima and Nagasaki fade, a younger generation of Japanese leaders do not exercise the same self-restraint. Japan's announcement prompts Taiwan and South Korea to restart their inactive weapons programs.

While the Chinese foreign ministry issues stern *démarches* to all three governments, its most harshly worded comments are directed towards Taiwan, which it accuses of undermining over two decades of cross-straits confidence building. The People's Liberation Army Navy dispatches its new aircraft carrier task force to the Straits. A military confrontation between Taiwan and China is narrowly averted when Obama persuades the Taiwanese government to abandon its weapons program in return for a strongly worded statement from the White House reaffirming America's commitment to Taiwan's security. Policymakers in Beijing and Washington breathe a collective sigh of relief and return to the safe and familiar business of managing their bilateral economic relations.

On the 10th anniversary of the beginning of the Great Recession (August 2008), commentators emphasize how little global economic patterns have changed over the past 10 years, particularly in the world's two biggest economies. American prosperity is still largely driven by domestic consumption, while the Chinese continue to follow an export-oriented strategy. Global imbalances are as much a feature of economic relations in 2018 as they were in 2008. Though breathless talk of a new global order managed by "Chimerica" proved to be misguided, slow global economic growth during the previous 10 years has deepened Sino-US interdependence. Neither Beijing nor Washington has an appetite for making tough decisions on hot-button issues like nuclear nonproliferation and global warming for fear of disrupting their critical, but fragile bilateral relationship.

Sino-US retrenchment aggravates existing international tensions. Though the Taiwanese yield to Chinese and American pressure and discontinue their nuclear program, South Korea and Japan refuse to follow suit. By early 2019, both countries announce that they are nuclear capable and declare a no-first-use policy. Washington is shocked when South Korea and Japan, two of its oldest allies, bury a century of bitter history and sign an unprecedented bilateral mutual defense agreement. This new strategic alignment is but one of many: the Iraqi government declares its commitment to working with the GCC to contain Iranian ambitions in the Middle East, while diplomats from India, Israel, Japan and South Korea talk about an informal coalition of nuclear armed democracies.

While Northeast Asia adds two new members to the nuclear club, leaders elsewhere explore alternative ways of reversing proliferation outside of the now-defunct NPT framework. Brazil and Russia convene a high-level multilateral strategic dialogue on the future of nuclear weapons. Recalling Dwight Eisenhower's Atoms for Peace initiative, Brazil and Russia declare the establishment of the Atoms for Growth Project and pledge to expand access to peaceful nuclear technology in developing countries in return for enhanced nonproliferation safeguards, including a new, multilateral inspection agency.

While the Russo-Brazilian program resembles the original NPT, it has one critical difference: Russia and Brazil pledge to create an international fund to subsidize the cost of constructing nuclear power plants in the developing world. As major oil producers (Brazil became a top 10 exporter after tapping into its ultra-deep water reserves in 2015), the record price of crude seems to make their commitment credible. Linking nonproliferation to economic development proves to be a winning combination as Indonesia, South Africa and Turkey quickly sign on to the Russo-Brazilian program.

Scenario 2: The World Never Gets Serious

In March 2012, Kim Jong-il succumbs to a long battle with cancer. Intelligence experts in the West are surprised by his death but not surprised to learn he had been sick. After a smooth succession of power, his successor Kim Jong-un declares that the wishes of the Great Leader are to make North Koreans rich. He announces that he will dismantle North Korea's nuclear program in return for substantial international assistance. A conference in Beijing between the participants of the Six-Party talks ends in a peace treaty signing ceremony in the Forbidden City.

Emboldened by the unequivocal benefits accrued by the North Koreans, the Iranian opposition begins to demand that the ruling regime abandon its nuclear ambitions and join the international community. The worsening financial crisis in Iran has divided the moderates and hardliners within the Ahmadinejad administration. By April 2012, the IRG – who has come to control and oversee the Iranian economy – determines that the threat of international sanctions is eroding their resource base. With little fanfare, the Iranian ambassador to Russia delivers the message that Iran will allow the International Atomic Energy Agency (IAEA) to conduct comprehensive inspections in exchange for an economic stimulus program that allows for substantial infrastructure development in the energy sector. Events in Iran and North Korea accelerate arms control negotiations between the US and Russia, with both sides agreeing to reduce down to 1,000 weapons by 2020.

The issues of North Korean and Iranian nuclear programs had been a major impediment in closer Sino-US ties, and their collective resolution opens doors for unprecedented major power cooperation. In November 2012, Chinese President Xi Jinping delivers a speech at the UN in which he announces that the Cold War has officially ended in Asia. He praises the ability of the international community to move beyond the era of great conflict and competition, declaring a “new world order.” Xi goes on to

talk about the special role that China will play in securing a peaceful balance in the region. In a sign of comity with the US, China offers 5,000 officers from the People's Liberation Army (PLA) to help train Afghan forces in Badakhshan province in northeastern Afghanistan. In secret negotiations, Beijing pressures the leaders of Pakistan's intelligence agency, the Inter-Services Intelligence (ISI), to support coalition forces in the Af-Pak region.

New leadership thinking in Beijing and the burgeoning of core security threats (e.g., international terrorism, piracy and failed states) and interests around the world have compelled China to become a more active player in the maintenance of international security. Greater Chinese participation in global governance is welcomed in Washington, given that the US is increasingly constrained by fiscal concerns and at this point more acceptant of the oncoming multipolar world. Obama begins his second term in January 2013 by traveling to Beijing. In a speech at the Chinese Institute for Contemporary International Relations, Obama references China's participation in South Asia and praises the willingness of the Chinese Communist Party to “police its own neighborhood.”

Upon return to the US, Obama leads a United Nations Security Council meeting in which the permanent five members announce their agreement to expand the council and to give permanent (though non-veto) status to Japan, Germany, India and Brazil. Peace between the great powers has eased historical rivalries and increased international willingness to give additional authority and responsibility to regional leaders (although given China's opposition to Japan's permanent seat at the council, the new members are not extended veto-wielding power).

The following day, the United Nations General Assembly passes a resolution denouncing the proposed new Security Council formulation, and avowing that the P5+4 proposal only reinforces the

inequality and unfairness that UN reform was meant to address.

In a sign of unity, the P5+4 agree to renew efforts towards nuclear disarmament, including the signing of a multilateral no-first-use pledge. In a joint declaration, leading nations for the first time all place their nuclear weapons on low alert, calling the weapons “a relic of a foregone era.” States cancel the upcoming international meeting of the IAEA given that there is so little on the nonproliferation agenda. The 2014 National Security Strategy of the US refers to the “growing irrelevance of nuclear weapons.” For the first time anyone can remember, the issue of nuclear weapons is not on the agenda of a US-Russian summit in Moscow. Energy and trade deals dominate instead, as both countries are thought to be reducing their weapons in good faith.

By 2015, academics and analysts who once spoke of a democratic peace are now arguing what always seemed obvious: The world is more peaceful when the most powerful countries in the world are getting along. The catchwords of the day are “great power peace,” and the Chinese notion of the relationship between economic development and international harmony gains currency. As such, governments in the developing world are pressured to focus on investment and development. Those unwilling to accept models of market or state-driven capitalism are increasingly isolated from the major powers. The International Monetary Fund and the World Bank reorient away from good governance to emphasize technocratic fiscal and monetary policy.

Despite multilateral cooperation across a number of issues, nagging security threats continue to emerge in international politics. Although the situation in Afghanistan stabilized by the summer of 2015, and the government in Kabul legitimately governs much of the country, remnants of the Taliban continue to commit scattered attacks of terrorism. In the face of continuing non-state threats to national governments, unprecedented coordination between China, Russia, Pakistan, India and the US has managed to root Al Qaeda out of central Asia, but new unexpected cells have started to appear in a number of states, including Malaysia, Saudi Arabia and Nigeria. These states, still allied as partners with great

powers, continue to look to the UN for protection from domestic threats.

New social movements are emerging in opposition to the seemingly heavy hand of the unified major powers. A number of disparate organizations use information technologies to launch a blog-based petition against “the oppressors in the West and East who dominate our culture, steal our wealth, and advocate an atheistic agenda.” The petition receives over 200 million signatures in the first week. Signatories cohere under the rubric of Muchos, meant to connote the size of those felt left behind by the burgeoning international system. The populist message has in turn created an increasingly robust network of advocates across the globe, particularly in those parts of the world that continue to suffer poverty and inequality in the face of ongoing global economic development. The movement is assisted by sophisticated communications technologies and social networking platforms, which allow groups to share ideology, plans, and tactics. Communications technologies and the development of near perfect translation software are creating new networks between places and people that have historically been unable to communicate. This permits novel transnational movements that are relatively divorced from culture and nationality.

In parallel, new cells of violent actors emerge as sympathizers with the Muchos. They see themselves as the warriors of the Muchos movement, and have come to see violence as their only recourse. Many mainstream Muchos members condemn the use of violence, but they have little control over, much less knowledge about, these new violent organizations.

Meanwhile, Time Magazine declares 2017 “one of the most important years in the history of modern science and technology.” This is in reference to two discoveries: a vaccine for HIV/AIDS, and the ability to mass-produce hydrogen-fueled zero-emission automobiles. A spike in demand for natural gas is an economic boom to Russia, who is able to smoothly transition from a leading oil exporter to a leading natural gas exporter. Likewise, Iran remains a new and cooperative actor in international politics as it profits enormously from the emphasis

on natural gas exploitation. The contemporaneous advances in HIV/AIDS treatments are cause for great hope in the world, though the vaccine remains extremely expensive (\$100,000 per person) and supplies are limited. In response to domestic pressures, those countries that contributed to the joint research that ultimately produced the vaccine (the P5+4) agree to vaccinate their own populations before selling the vaccine to other countries.

Lower reliance on crude oil is having mixed effects. As a result of the demise of petroleum-powered cars, demand for oil has fallen dramatically. This has alleviated potential sources of conflict between the US, China and Russia, and analysts note that 2018 marks the 15-year anniversary, the longest period since the creation of the state system, since a major power initiated war. Without the need to pander to oil-rich states, the Security Council as a whole is increasingly willing to talk tough to states such as Nigeria, Sudan, Venezuela and Angola. Meanwhile, with fewer resources to buy off their supporters, regimes once thought safe and secure are no longer able to deliver on populist promises. A sharp reduction in oil prices has therefore had severely destabilizing effects in these countries. One result is weak states with ungoverned territories are capitalized upon as safe havens and training grounds for the violent streams of the Muchos.

Fear of concerted major power meddling is increasing among the less powerful states of the world. Facing pressure from the G-20 to enact particular economic reforms, a handful of regimes, including those in Venezuela, Bolivia, Syria and Burma, decide to become state sympathizers of the Muchos. They do so to cultivate the kind of domestic populism and nationalism that can legitimize their rule. They also build off of notions of global inequality and exploit historical experiences of colonialism. Domestic politics and the ultimate aim of regime survival are driving them away from relenting to the wishes of the major powers.

Cognizant of the problems of destabilization in regimes with increasingly radicalized populations, the P5+4 answer Yemen's call to help police the country's porous border with Oman. In the second week of the multilateral peacekeeping operation, a

mysterious virus kills 120 Russian troops, which is later determined to have been a low-grade biological weapon. Multinational interrogations allegedly involving torture at black sites in Karachi yield confessions from Nigerian mercenaries who were based in Dubai. The material is said to have come from Angola, which yields harsh threats from the Security Council that international occupation will be necessary if the government is unable to control its borders. The Muchos release pictures purportedly taken during the interrogations in Karachi. They show Nigerian children subjected to waterboarding. The Muchos declare on Twitter: "P5+4 show real face in Karachi. Muchos: unite and revenge!"

The following month, the UN authorizes the placement of 5,000 multinational troops along the shores of Madagascar, where pirates continue to stage bold attacks on international shipping around the Horn of Africa. The mission proves to be another bloody experience for the international community. For the first time, non-state organizations are able to acquire and successfully use sophisticated surface-to-air missiles. Three UN transportation aircrafts are shot down on a refueling mission over Mozambique. Coalition forces also face extremely dangerous threats from advanced Unmanned Aerial Vehicle that have been purchased somewhere in northern Africa on the black market. Fighting asymmetric war against non-state actors is proving difficult for forces designed for some combination of conventional war and counterinsurgency. That said, the political will for the operation in Madagascar remains strong in contributing countries, as leaders see the high level of violence as evidence of the need for the mission.

The year 2019 is a banner year for economies in the industrialized world. Investment bankers in New York and London are hailing the return to the good old days, and stock markets (much to do with technological breakthrough) are skyrocketing. With enough wealth to go around, Shanghai and Singapore affirm their positions as first-tier economic centers. Leaders from the most powerful states are frequently arguing that the combination of economic growth and international goodwill has created unprecedented opportunities to do good in the

world. Later that year, the G-30 meets in Tokyo, where all participants agree to contribute one percent of GDP to the UN. A significant increase in the UN budget has provided renewed impetus to establish a standing UN military to enforce peace and security under Chapter VII of the United Nations Charter.

Weak regimes in the southern hemisphere can see the writing on the wall: The great powers are united and increasingly forceful in the maintenance of international security. On the official website of the Muchos movement, the leader declares that the only way to stop the “global tyrants” is to acquire nuclear weapons. She goes on to say that if weak governments do not start their own development programs, local Muchos cells should do so individually. Her goal, she says, is to have a bomb able to “extend deterrence” to friends and allies who agree to collectively contain the power of the few. Meanwhile, intelligence experts report that a handful of extremely wealthy members of Muchos are believed to be willing to bankroll the purchase or production of a nuclear weapon. States sympathetic to the Muchos are obvious places to engage in any such endeavors.

GG2020 NUCLEAR GOVERNANCE WORKING GROUP FELLOWS

Jeff Colgan

Jeff Colgan is an Assistant Professor at the School of International Service at American University in Washington DC. His research specializes on oil and international politics. He is currently working on a book entitled *Petro-Aggression: How Oil Makes War*, building on an article published in *International Organization* (Oct 2010). Colgan is also the author of *The Promise and Peril of International Trade* (2005).

Jeff completed his PhD at Princeton University's Woodrow Wilson School of Public and International Affairs. As an undergraduate, he studied nuclear engineering at McMaster University, where he graduated summa cum laude. He was then a Canada-US Fulbright Scholar at UC Berkeley, where he earned a Master's in Public Policy. Colgan has worked with the World Bank, McKinsey & Company, and The Brattle Group.

Arzu Hatakoy

Since November 2010, Arzu Hatakoy is Special Assistant to the Deputy Special Coordinator and United Nations Resident and Humanitarian Coordinator at the Office of the United Nations Special Coordinator for the Middle East Peace Process (UNSCO) in Jerusalem. Prior to that, she served at the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) in New York as a Desk Officer for OCHA's operations in the Democratic Republic of Congo. Before joining the UN, Arzu worked as a negotiation consultant at the Kennedy School Negotiation project and trained public and private sector clients on the Harvard Negotiation Concept in 2005 and 2006. During the same period, she served as a voluntary mediator in Boston, Massachusetts small claims courts through the Harvard Mediation Program. In addition, Arzu has prior experience in development consulting with the German Development Institute and the GTZ and as a researcher with various academic institutions such as the German Institute for International and Security Affairs. She holds a doctorate from the Free University of Berlin, a Master in Public Administration from Harvard University and a Master in Political Science from Sciences Po Paris.

Shixin Jiao

Shixin Jiao is a research fellow in the Asia-Pacific Institute of Shanghai Academy of Social Science (SASS), China. His areas of expertise include international institutions, Sino-US relations (focusing on the Sino-US interactions in the course of China's integration into international regimes), global governance, and the integration of East Asia and China in world affairs. He published a book entitled "The trade-off of interests: the role of the United States in China's accession to international mechanisms" (World Affairs Press 2009) as well as several academic articles in leading Chinese journals. He holds a MA in political science from Hebei Normal University, Shijiazhuang, and received his PhD in international politics from Fudan University, Shanghai.

Katrin Kinzelbach

Katrin Kinzelbach is a Thyssen Fellow at the Global Public Policy Institute, Berlin. Her current research focuses on how the People's Republic of China challenges and alters the international human rights regime. Katrin previously worked at the Ludwig Boltzmann Institute of Human Rights in Vienna (2007-2010). Prior to that, she served in various positions for the United Nations Development Programme, focusing on democratic governance, crisis prevention and recovery (2001-2007). She also worked on short-term assignments for UNHCR in Geneva as well as for the OSCE in Bosnia-Herzegovina and in Croatia. Katrin holds a PhD in Political Science from the University of Vienna, a Master in Peace and Security Studies from King's College, London and a Magister/Laurea dual degree awarded by the Universities of Florence and Bonn.

Ely Ratner

Ely Ratner is an Associate Political Scientist at the RAND Corporation, where he performs research and long-range analysis on the rise of China, the People's Liberation Army, East Asian security, and international politics in the developing world. He is a Research Fellow for the National Asia Research Program and a Term Member at the Council on Foreign Relations. His commentary and research have appeared in *The Washington Quarterly*, *Foreign Policy*, *Foreign Affairs*, *The National Interest*, *Democracy*, *Journal of Conflict Resolution*, and *Chinese Journal of International Politics*. Ely previously worked as a Professional Staff Member on the US Senate Foreign Relations Committee. He received his PhD in Political Science at the University of California, Berkeley and his BA from the Woodrow Wilson School of Public and International Affairs at Princeton University.

Joel Sandhu

Joel Sandhu is a Research Associate with the Global Public Policy Institute (GPPi) and program coordinator for the Global Governance 2020 program. At GPPi, Joel is part of the 'Joint Stakeholders in Global Energy Governance' program and the 'Rising Powers and Global Governance' team. His research focus includes nuclear nonproliferation and disarmament, India's foreign and security policy and EU-China/EU-India relations. His commentary and research have been featured in the Munich Security Conference, *EU Observer*, *Pragati: The Indian National Interest Review*, *The Lisbon India Monitor*, and *The Statesman*. Prior to joining GPPi, Joel worked with Policy Network in London as a policy officer on the Globalisation and Social Justice research team. He also worked with Sister Cities International US and served as a research specialist in the office of the former Speaker of the US House of Representatives, Jim Wright. Joel received his BA in Political Science and International Relations from Texas Christian University, US, and a MA in International Relations and International Law from the University of Sussex, UK.

Liang Wang

Liang Wang is assistant to the Managing Director of the World Bank based in Washington DC. He provides analytical and informational support to the Managing Director overseeing the World Bank's operations in Africa, South Asia, and Europe and Central Asia regions, as well as the Human Resources department. Prior to joining the World Bank, Liang has worked on various assignments with the Center for Strategic and International Studies in Washington, the UN Development Programme in Beijing, Greenpeace in Hong Kong, and the Chinese Academy of Social Sciences in Beijing. His interests in international affairs include development policy, global governance, international security, US-Asia relations, environmental politics, and civil society. His writings have been published in the *Washington Quarterly*, the *South China Morning Post*, and the *Straits Times*. Liang holds a Master of International Studies degree from George Washington University, an MPhil degree from the University of Hong Kong, and a BA degree from the Foreign Affairs College in Beijing. He has also studied at Sciences Po in France and University of Oslo in Norway.

Zachary Wasserman

Zack Wasserman is a PhD candidate in Modern International History at Yale University where he studies globalization and the transformation of the American political economy during the Cold War. Before graduate school, Zack served as the Managing Director of Pacific Stainless LLC, an international steel firm with offices and manufacturing facilities in the United States, China and the Philippines. He holds degrees in International Relations from Yale and from Georgetown University's School of Foreign Service. Zack speaks German and Mandarin Chinese, and in 2008 he received the American Academy of Diplomacy's Leonard Marks Foundation Award for Creative Thought and Writing on American Foreign Policy.

Contact

Global Governance 2020 Project Team
Global Public Policy Institute (GPPi)
Reinhardtstr. 15
10117 Berlin
Germany
E-mail: gg2020@gppi.net

Partners



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