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Kathleen A. Doty
Pacific Northwest National Laboratory

Jessica S. Burniske
Pacific Northwest National Laboratory

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Connecting Nuclear Security to International Frameworks on Gender and Security

Kathleen A. Doty and Jessica S. Burniske
Pacific Northwest National Laboratory

Abstract

The international community is slowly beginning to recognize the intersections between law and policy as it relates to international security—particularly arms control, nonproliferation, and disarmament—and the body of human rights law that addresses gender equality. Notably absent from this discussion is the field of nuclear security. Despite its historical underpinnings as an inherently domestic activity, nuclear security is thoroughly grounded in international treaty law. However, nuclear security is often overlooked in the international security context and has not been well-situated in international instruments that address gender equality. We argue that gender equality in nuclear security should be understood as an important component of broader efforts to achieve equal opportunities for women in work and is critical to ensuring women are included in conflict prevention efforts. Linking nuclear security to broader international efforts to increase gender equality in security and conflict prevention will provide a clearer structure and framework for gender equality initiatives in the nuclear security field. This link is critically important given that estimates indicate that women comprise only 20% of the nuclear workforce. Moreover, situating nuclear security in a broader international legal framework will simultaneously help states meet their gender equality commitments emanating from other instruments.

This paper will first analyze the relationship between nuclear security and broader international security efforts, in particular arms control treaties and nonproliferation regimes. It will then survey the relevant international and regional frameworks for gender equality, particularly those that have applicability in the security context. This paper will next explore the relationship between nuclear security and these frameworks on gender. We find that some instruments provide support for gender equality initiatives in nuclear security because of their mandate to states to provide structural gender

equality, and others are particularly relevant when they call for women's participation in conflict prevention. This paper concludes with recommendations to states that are concerned about the underrepresentation of women in nuclear security.

Keywords: nuclear security, nonproliferation, conflict prevention, gender, gender equality, security

1. Introduction

The international community is slowly beginning to recognize the intersections between law and policy as it relates to international security—particularly arms control, nonproliferation, and disarmament—and the body of human rights law that addresses gender equality. For example, during the tenth Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), participants in a session on diversity, equity, and inclusion “identified a need to better connect disarmament and nonproliferation with other peace, development, human rights, and environment agendas” [1]. Moreover, more recent arms control regimes such as the Arms Trade Treaty, the Convention on Cluster Munitions, and the Treaty on the Prohibition of Nuclear Weapons recognize the disproportionate effects of these categories of weapons on women and girls [2–4].¹

Linkages between the field of nuclear security and the body of international law addressing gender equality have been less established. With the goal of preventing, detecting, and responding to intentional malicious acts involving nuclear and other radioactive material or directed against facilities where such substances are used, nuclear security aims to prevent harm and potential conflict that could result from such an event occurring. Owing to its conception as a domestic responsibility, nuclear security is often overlooked in the international security context and has not been well-situated with the international instruments that address gender equality.

Despite a lack of direct connection to the body of international law addressing gender, the nuclear security community, in a series of recent statements, declarations, and resolutions, has expressed support for gender equality in the field. For example, the *Outcome Document of the 2022 Conference of the Parties to the Amendment to the Convention on the Physical Protection of Nuclear Material* stated, “[t]he Conference reaffirmed the importance of diversity and inclusivity, including gender equality, within nuclear security workforces” [5]. Similarly, the *Ministerial Declaration from the 2020 International Conference on Nuclear Security* pronounced, “[w]e commit to promote

¹ See Arms Trade Treaty, Preamble: “Bearing in mind that civilians, particularly women and children, account for the vast majority of those adversely affected by armed conflict and armed violence” [2]. The Treaty goes on to create obligations for states to include gender in the export review process in Article 7(4): “The exporting State Party...shall take into account the risk of the conventional arms...being used to commit or facilitate serious acts of gender-based violence or serious acts of violence against women and children” [2]. See also Convention on Cluster Munitions, Preamble: “Bearing in mind also United Nations Security Council Resolution 1325 on women, peace and security” [3]. See also Treaty on the Prohibition of Nuclear Weapons, Preamble: “Cognizant that the catastrophic consequences of nuclear weapons...have a disproportionate impact on women and girls, including as a result of ionizing radiation” [4].

geographical diversity and gender equality, in the context of International Atomic Energy Agency (IAEA) nuclear security activities, and encourage Member States to establish an inclusive workforce within their national security regimes” [6]. Likewise, in a resolution adopted by the IAEA General Conference in 2022, the Eleventh Plenary Committee “[r]equests the Secretariat to continue paying due regard to the principle of professionalism and to promote workforce diversity, including gender equality and geographical diversity, in the context of its nuclear security activities, and encourages Member States to establish an inclusive workforce within their national security regimes” [7]. Particularly in light of this growing attention to the issue, identifying and establishing linkages to international frameworks for gender equality may prove particularly helpful to bolster efforts to promote gender equality within nuclear security.

The intersections between nuclear security and international frameworks addressing gender and security appear to be an area unexplored by other scholars. After a broad review of the field, the identified research tends to focus on the challenges facing women in science writ large [8–10], and to a lesser degree, some research has focused more specifically on the challenges facing women working in arms control and disarmament [11, 12] or nuclear security [13–15]. From what has been written across these various disciplines, a common theme emerges: women face significant and systemic challenges to entering, working in, and advancing in these fields. One way to begin to address gender equality in nuclear security is to explore connections with legal instruments and frameworks for women’s rights and women’s participation in international security and conflict prevention.

This research article will first analyze the relationship between nuclear security and broader international security efforts—in particular, arms control and nonproliferation. It will then survey the relevant international frameworks for gender equality, particularly those that have applicability in the security context. This article will then draw linkages between these distinct bodies of law and make recommendations for how to further connect them. This study will provide a new structure for viewing efforts to achieve gender equality in the nuclear security field and assist states in accessing existing international and regional frameworks and resources.

2. Law on Nuclear Security

The responsibility for nuclear security—that is, “the prevention of, detection of, and response to, criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities”—rests on states [16]. Although nuclear security is accepted as a “fundamental requisite” for the use of nuclear energy [17], this understanding did not arise initially from international agreement. Rather, the international community has long held that “the ultimate responsibility for nuclear security within a State rests entirely with that State,” and states may pass the necessary legislation and regulations according to their domestic needs [17].

Despite the generally domestic nature of nuclear security obligations, on account of the need for regional and international cooperation in this area, states have concluded

several treaties that contain nuclear security standards and concepts, including the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment [18], the Convention on Early Notification in the Event of a Nuclear Accident [19], the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency [20], and the International Convention for the Suppression of Acts of Nuclear Terrorism [17, 21, 22].² Moreover, the IAEA plays a role in “promoting nuclear security and combating nuclear terrorism,” which derives from Article II of its statute and has been confirmed in resolutions of the Board of Governors and the General Conference [17].³ The IAEA’s contribution to promoting nuclear security and protection against nuclear terrorism has been recognized by the Security Council under Chapter VII of the United Nations (UN) Charter in Resolutions 1373 (2001) and 1540 (2004) [17].

This coupling of nuclear security and the protection against nuclear terrorism is reinforced by Security Council Resolution 1540 (2004), enacted under Chapter VII of the UN Charter, which requires that all states, “in accordance with their national procedures, shall adopt and enforce appropriate effective laws which prohibit any non-State actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear...weapons and their means of delivery, in particular for terrorist purposes” [23]. Under Resolution 1540, states must also “take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear...weapons and their means of delivery, including by establishing appropriate controls of related materials and to this end shall...(d) Develop and maintain appropriate effective physical protection measures” [23]. Nuclear security is thus clearly linked to nonproliferation efforts aimed at non-state actors.

In the context of proliferation by state actors, though, the nexus with nuclear security is more tenuous. Nuclear security is absent from the text of the primary international instrument in this area: the NPT. It is also not directly reflected in the three pillars of the treaty: nonproliferation, disarmament, and peaceful uses of nuclear energy. Although states such as the United Kingdom and the United States have at various points called for conceiving of nuclear security as a “fourth pillar” of the NPT regime [25], other scholars have called for conceiving of nuclear security as a foundational basis of each of the three pillars of the NPT, despite the lack of a legal requirement emanating from the treaty [26]. This perspective remains an active part of the international discussion; at the 10th Review Conference of the NPT, the Nuclear Threat Initiative, along with the Norwegian Ministry of Foreign Affairs and Global Affairs Canada, hosted a side event on the theme of nuclear security’s foundational role in the three NPT pillars. In particular, the organizers argued that “nuclear nonproliferation is not possible if a state or a terrorist group might be able to acquire a stolen nuclear weapon or materials” [27].

² See also [22]. Although not a legally binding document, more than 140 states have expressed a political commitment to implement the Code. See International Atomic Energy Agency. *List of States*. 2022. https://nucleus.iaea.org/sites/ns/code-of-conduct-radioactive-sources/Documents/Status_list%2031%20October%20%202022.pdf.

³ Article II of the IAEA statute reads in the relevant part: “To accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity throughout the world” [17]. The relevant IAEA Board of Governors resolutions include nuclear security plans approved in 2002, 2005, and 2009.

Therefore, despite its historical underpinnings as an inherently domestic activity, nuclear security is thoroughly grounded in international treaty law. The connection between nuclear security and a broader international framework for security is also evident; although it is more clearly reflected in the non-state actor context, states parties to the NPT also tend to view nuclear security as part of the foundation for nonproliferation in a state actor framework. This view gives rise to the question that many other subfields of security are also grappling with: how does this niche area in international security intersect with the human rights framework, particularly as it pertains to gender?

3. International and Regional Law on Gender

a. UN Charter, the Universal Declaration of Human Rights, and the Beijing Declaration and Platform for Action

Principles of gender equality are foundational to the modern international law system. The Preamble to the UN Charter declares, “We the peoples of the United Nations determined...to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small” [28]. Moreover, the purposes of the United Nations, as articulated in Article 1(3), include “promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion” [28]. Three years after the adoption of the UN Charter, the UN General Assembly adopted the Universal Declaration of Human Rights [29]. Article 1 of the Declaration proclaims, “in perhaps the most resonant and beautiful words of any international agreement” [30], that “all human beings are born free and equal in dignity and rights” [29].

Adopted in 1995, the Beijing Declaration and Platform for Action [31] represents the commitments made by 189 states to realize gender equality and to eliminate discrimination against women and girls. The Declaration explicitly affirms the equal rights guaranteed to men and women alike in the UN Charter [28] and in the Universal Declaration of Human Rights [29], along with other relevant human rights instruments. It reaffirms the necessity for women’s full participation in “all spheres of society, including participation in the decision-making process and access to power” [31]. Moreover, the Declaration recognizes the vital role that women play in conflict prevention, describing women as a “fundamental force for leadership, conflict resolution, and the promotion of lasting peace at all levels,” and that women should play a leading role in nuclear disarmament efforts, “which contributes to...the prevention of the proliferation of nuclear weapons in all its aspects” [29].

b. International Covenant on Civil and Political Rights and International Covenant on Economic, Social, and Cultural Rights

In the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social, and Cultural Rights (ICESCR), states “undertake to ensure the equal rights of men and women to the enjoyment” of the rights set forth in

each respective agreement [32, 33]. As their titles imply, these rights include a full range of civil, political, economic, social, and cultural rights, including such principles as equality before the law and equal pay for equal work [32, 33].

Article 6 of the IESCR provides for the non-derogable right to work that is freely chosen or accepted [33, 34]. The “core obligation” of Article 6 “encompasses the obligation to ensure nondiscrimination and equal protection of employment” [34], and specific to gender equality, the Committee on Economic, Social, and Cultural Rights emphasizes “the need for a comprehensive system of protection to combat gender discrimination and to ensure equal opportunities and treatment between men and women in relation to their right to work by ensuring equal pay for work for equal value” [34].

In General Comment No. 16 of the Committee on Economic, Social, and Cultural Rights, the Committee notes that “the equal right of men and women to the enjoyment of economic, social, and cultural rights...imposes three levels of obligations on States parties—the obligation to respect, to protect, and to fulfil. The obligation to fulfil further contains duties to provide, promote, and facilitate” [34]. Accordingly, states agree to take steps toward the full realization of the right, including by providing “technical and vocational guidance and training programmes, policies, and techniques to achieve steady economic, social, and cultural development and full and productive employment under conditions safeguarding fundamental political and economic freedoms to the individual” [33]. Thus, although the IESCR emphasizes the need for structural equality in the right to work, states agree to implement meaningful policies and programs to ensure equal opportunities for women.

c. Convention on the Elimination of Discrimination against Women

Building upon the rights guaranteed to individuals under the Universal Declaration of Human Rights [29], the ICCPR [32], and the IESCR [33], the Convention on the Elimination of Discrimination Against Women (CEDAW) recognizes that “extensive discrimination against women continues to exist,” and that such discrimination “violates the principles of equality of rights and respect for human dignity,” creating substantial obstacles to the equal participation of women in the political, economic, cultural, and social spheres [35]. To strive toward the elimination of all forms of discrimination against women, CEDAW requires states to take certain measures to guarantee equal rights for women. These measures span the public and political spheres by guaranteeing women’s right to vote, participate in the formation of government policy, hold political office, and have “the opportunity to represent their governments at the international level and to participate in the work of international organizations” [35]. CEDAW also requires states to provide equal opportunities for women and men in education, to “eliminate discrimination against women in the field of employment,” and to include the right to the same employment opportunities, the right to freely choose one’s profession and employment, and the right to equal pay for work [35].

Speaking directly to international security and disarmament, the Convention’s preamble reads: “Affirming that the strengthening of international peace and security, the

relaxation of international tension, mutual co-operation among all States irrespective of their social and economic systems, general and complete disarmament, in particular nuclear disarmament under strict and effective international control...will promote social progress and development and as a consequence will contribute to the attainment of full equality between men and women” [35]. This preamble is operationalized through treaty reporting requirements to the CEDAW. In particular, noting that conflict prevention efforts have tended to exclude women’s voices and women’s experiences in their work, the Committee has emphasized “the low participation of women in institutions working on preventive diplomacy and on global issues such as military expenditure and nuclear disarmament” [36]. Yet, the Committee continues, “a gender perspective and analysis,” informed by the equal participation of women and men, “is necessary” [36]. To that end, states must specifically report on efforts made to ensure women’s equal participation in entities and processes charged with preventive diplomacy and in conflict prevention. States must report extensively on their efforts to comply with those provisions of the CEDAW, which includes describing specific policy formation, providing statistical data, and developing a critical analysis of women’s participation in entities such as nongovernmental organizations. The Committee has also recommended that states “reinforce and support women’s formal and informal conflict prevention efforts” and “ensure women’s equal participation in national, regional, and international organizations” [36].

In its explanatory comments to the CEDAW, the Committee explicitly connects the necessity for equality between women and men with conflict prevention and nuclear disarmament. The Committee explains that “many crucial decisions” in conflict prevention and nuclear disarmament “are taken with limited participation of women” [37]. To that end, the Committee calls upon states to ensure that their constitutions and domestic legislation comply with the CEDAW—in particular, its requirements to guarantee equal rights for women in the public and political spheres.

d. Women, Peace and Security Agenda

In addition to the treaty law governing women’s rights, the United Nations Security Council has acted to ensure women’s full and equal representation and participation in peace processes and security efforts. UN Resolutions 1325 [38], 1820 [39], 1888 [40], 1889 [41], 1960 [42], 2106 [43], 2122 [44], 2242 [45], 2467 [46], and 2493 [47] together make up the Women, Peace and Security (WPS) agenda. The WPS agenda encompasses four main interrelated concepts, or pillars, including participation, protection, prevention, and relief and recovery. It is generally accepted that disarmament and arms control intersect with all four pillars of the WPS agenda [48]. Of particular importance to the intersection of the WPS agenda and nuclear security are the participation and prevention pillars.

The participation pillar calls for the increased representation of women in peace processes and security efforts and is derived from the preamble and operative paragraph 1 of Resolution 1325 [38]. There, the Security Council stresses the importance of women’s “equal participation and full involvement in all efforts for the maintenance and promotion of peace and security, and the need to increase their role in

decision-making with regard to conflict prevention and resolution” [38]. Accordingly, the Security Council urges member states to “ensure increased representation of women at all decision-making levels in national, regional, and international institutions and mechanisms for the prevention, management, and resolution of conflict” [38]. Resolution 1820 further “urges the Secretary-General and his Special Envoys to invite women to participate in discussions pertinent to the prevention and resolution of conflict, the maintenance of peace and security” [39]. Resolution 2122 reiterates the Security Council’s intention that when establishing and renewing the mandates of United Nations missions, it will “include provisions to facilitate women’s full participation and protection in:...disarmament, demobilization and reintegration programs, security sector and judicial reforms” [44].

The prevention pillar of the agenda focuses on the prevention of conflict and all forms of violence against women and girls in conflict; of the pillars, it has received the least attention [49]. This pillar is reflected in Resolution 1325 paragraph 1 [38], discussed previously, and Resolution 1820, which “[u]rges the Secretary-General and his Special Envoys to invite women to participate in discussions pertinent to the prevention and resolution of conflict, the maintenance of peace and security...and encourages all parties to such talks to facilitate the equal and full participation of women at decision-making levels” [39]. This idea is expanded upon in Resolution 2122, which “requests the Secretary-General...as part of their regular briefings, to update the Council on progress in inviting women to participate, including through consultations with civil society, including women’s organizations, in discussions to the prevention and resolution of conflict, the maintenance of peace and security and post-conflict peacebuilding” [44].

Implementation of the WPS agenda has been far-reaching. In 2010, the General Assembly created UN Women, or the United Nations Entity for Gender Equality and Empowerment of Women, which works to ensure that the WPS agenda is a focus of the United Nations’ work [50]. In total, 103—or 53%—of UN member states have adopted National Action Plans (NAPs), which are policy documents that implement at the domestic level the obligations contained in the WPS agenda [51]. The United States, in addition to its NAP, subsequently passed WPS implementing legislation and adopted a whole-of-government strategy requiring agencies—the US Department of State, the US Agency for International Development, the US Department of Homeland Security, and the US Department of Defense—to make demonstrable progress on WPS implementation [52, 53]. Regional and multilateral organizations such as NATO and the European Union have also adopted WPS implementation plans, similar to NAPs used by states [50]. Other international organizations have adopted gender policies that reference and incorporate WPS principles and aim to align with them. For example, the UN Office for Disarmament Affairs (UNODA) gender policy, acknowledging that “[d]isarmament, arms control, and nonproliferation efforts are strengthened when they analyze and apply a gender lens” [48], articulates externally and internally focused goals to “achieve gender parity, diversity, and women’s equal, full, and effective participation and leadership in disarmament and arms control bodies and decision-making” [48]. The second goal in the gender policy is explicitly to “strengthen synergies” with the WPS agenda [48]. Thus, the WPS agenda apparatus is far-reaching, and states

may have to consider regional or national-level obligations arising from WPS implementation plans that are more specific than the resolution text itself.

Although the WPS agenda has been criticized as being “slow to engage with the field of disarmament and arms control,” many state NAPs deal with disarmament in the context of small arms and light weapons or mines [54]. The Philippines’ first NAP (in 2009) mentions weapons of mass destruction and nuclear arms, and Ireland’s most recent NAP (in 2019) addresses gender in the context of nuclear weapons and disarmament policy [54]. Reform of security sectors is often also identified in state NAPs [55]. NPT states parties have also expressly endorsed recommendations on gender, in accordance with Security Council Resolution 1325 [38], to actively support gender diversity in their delegations [56]. And, as noted previously, international organizations such as the UNODA have adopted gender policies reflecting the WPS agenda. As discussions of diversity and inclusion take place within the nuclear nonproliferation community, “a need to better connect disarmament and nonproliferation with other peace, development, human rights and environment agendas,” including the WPS agenda, has been identified a means for making nuclear nonproliferation and disarmament more successful [57].

e. UN General Assembly Resolutions on Women, Disarmament, Nonproliferation, and Arms Control

The UN General Assembly has also adopted a series of resolutions on women, disarmament, nonproliferation, and arms control. Beginning with Resolution 65/69 (2010) [58], the General Assembly called upon member states to “promote the equitable representation of women in all decision-making processes with regard to matters related to disarmament, nonproliferation, and arms control,” as well as to “support and strengthen the effective participation of women in the field of disarmament at the local, national, regional, and subregional levels” [58]. Six subsequent General Assembly resolutions build on these efforts, urging member states to “promote equal opportunities for the representation of women in all decision-making processes with regard to matters related to disarmament, nonproliferation, and arms control, in particular as it relates to the prevention of armed violence and armed conflict,” and to “empower women...to participate in the design and implementation of disarmament, nonproliferation, and arms control efforts” [59].⁴ Although General Assembly resolutions, unlike Security Council resolutions, are not binding on states, this series of resolutions emphasizing the need for increased gender parity in the context of disarmament, nonproliferation, and arms control should be understood as guidance to states in this area.

f. UN Sustainable Development Goals

In 2015, as part of the 2030 Agenda for Sustainable Development [60], the UN General Assembly adopted 17 sustainable development goals (SDGs), building on years of

⁴ For additional examples, see G.A. Res. 68/33, U.N. Doc. A/RES/68/33 (Dec. 9, 2013); G.A. Res. 69/61, U.N. Doc. A/RES/69/61 (Dec. 11, 2014); G.A. Res. 71/56, U.N. Doc. A/RES/71/56 (Dec. 13, 2016); G.A. Res. 73/46, U.N. Doc. A/RES/73/46 (Dec. 12, 2018); and G.A. Res. 75/48, U.N. Doc. A/RES/75/48 (Dec. 17, 2020).

efforts by UN member states to develop concrete objectives to foster sustainable development, protect the environment, and eliminate poverty. Each goal contains certain targets and indicators that explain how the particular SDG can be achieved. To monitor implementation of the SDGs, the UN Secretary General issues an annual report, which is informed by countries' reports on their progress implementing the goals.⁵

Although “achieving gender equality and women’s empowerment is integral to each of the 17 goals” [61], SDG 5 addresses gender specifically and aims to “achieve gender equality and empower all women and girls” [62]. Its targets and indicators include to “end all forms of discrimination against all women and girls everywhere,” to “ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life,” and to “adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels” [62]. The IAEA has expressed its support for the SDGs and their target of gender equality. Rafael Mariano Grossi, Director General of the IAEA, explained, “Gender equality and the empowerment of women lie at the heart of the Sustainable Development Goals, and they are vital to fully realizing the rights and potential of everyone. These fundamental aims must also inform our work at the IAEA” [63].

Other SDGs relevant to nuclear security and gender equality include SDG 16, peace, justice, and strong institutions, which in target 16.a aims to “strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime” [64]; SDG 8, decent work and economic growth, which in target 8.5 aims, “By 2030, [to] achieve full and productive employment and decent work for all women and men” [65]; and SDG 7, which calls for access to affordable, reliable, sustainable, and modern energy for all [66]. The IAEA connects its work to 9 of the 17 SDGs, including SDG 7 [67]. As the IAEA emphasizes, the SDGs are “integrated and indivisible,” meaning that gender equality can and should be incorporated into each of the SDGs and their targets [67]. This integration between all the SDGs further emphasizes the connection between nuclear security, which relates to SDG 7, and gender equality, which relates to SDG 5.

g. Regional Instruments

Regional legal agreements reached among states in Latin America, Africa, Asia, and Europe contain protections for women and for their economic, social, political, and cultural rights.⁶ Although many of the provisions are broad in scope, some contain

⁵ For instance, see United Nations. *The Sustainable Development Goals Report 2022*; United Nations, 2022. <https://unstats.un.org/sdgs/report/2022/>.

⁶ For example: American Convention on Human Rights; Additional Protocol to the Convention on Human Rights in the Area of Economic, Social, and Cultural Rights (Protocol of San Salvador); African Charter on Human and Peoples’ Rights; Protocol to the African Charter on Human and Peoples’ Rights on the Rights of Women in Africa; Declaration of the Advancement of Women in the ASEAN Region; Ha Noi Declaration on the Enhancement of Welfare and Development of ASEAN Women and Children; Charter

specific directives for states about the rights that should be protected under the state's domestic laws. Echoing international instruments on the rights of women, including the ICCPR [32], IESCR [33], and CEDAW [35], these agreements call upon states to prohibit discrimination against women on the basis of sex and to protect women as they exercise their rights in the home, the workplace, and society. Similar to the IESCR, regional agreements also tend to protect the rights of women to pursue work in a field of their choice under conditions that are protective of their rights to safe work and fair and equal pay [68–74].⁷

Some regional instruments also contain provisions relevant to women in conflict prevention and security more broadly. For instance, the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa, which is the African Union's regional agreement on women's rights in Africa, provides that "women have the right to a peaceful existence and the right to participate in the promotion and maintenance of peace" [70] and that states "shall take all appropriate measures to ensure the increased participation of women...in the structures and processes for conflict prevention, management, and resolution at local, national, regional, continental, and international levels" [70].

Regional instruments may also contain mandatory or optional reporting requirements for states, similar to international treaties addressing women's rights. For instance, under the Additional Protocol to the Convention on Human Rights in the area of Economic, Social, and Cultural Rights (also referred to as the Protocol of San Salvador), the states parties "undertake to submit periodic reports of the measures they have taken to ensure due respect for the rights set forth in this protocol" [68]. Periodic reports are also required by the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa [70]. These reports enable states to highlight progress made

of Fundamental Rights of the European Union; European Convention for the Protection of Human Rights and Fundamental Freedoms; Treaty on the European Union; Treaty on the Functioning of the European Union; European Social Charter (revised).

⁷ See Additional Protocol to the Convention on Human Rights in the Area of Economic, Social, and Cultural Rights (Protocol of San Salvador) [68] art. 7 (protecting "[t]he right of every worker to follow [her] vocation and to devote [herself] to the activity that best fulfills [her] expectations..."); African Charter on Human and Peoples' Rights [69] art. 15 (providing that "[e]very individual shall have the right to work under equitable and satisfactory conditions and shall receive equal pay for equal work"); Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa [70] art. 13 (calling on States parties to "adopt and enforce legislative and other measures to guarantee women equal opportunities in work and career advancement and other economic opportunities"); Southern African Development Community Protocol on Gender and Development [71] art. 19 (calling on States parties to "review, amend, and enact laws and policies that ensure women and men have equal access to wage employment in all sectors of the economy"); Declaration of the Advancement of Women in the ASEAN Region [72] (calling on member states "to promote and implement the equitable and effective participation of women in all fields and at various levels of the political, economic, social, and cultural life of society at the national, regional, and international levels"); Charter of Fundamental Rights of the European Union [73] art. 23 ("Equality between men and women must be ensured in all areas, including employment, work, and pay"); Treaty on the Functioning of the European Union [74] art. 153 (providing that the European Union shall "support and complement" the work of Member States in promoting "equality between men and women with regard to labor market opportunities and treatment at work").

on the implementation of the treaty's provisions, such as the increased participation of women in certain areas of society, in the workplace, and in the political sphere.

Various regional entities and organizations monitor and report on the rights of women, as well as the implementation of regional agreements relating to women's rights. For some regions, a commission or body of representatives may oversee these various issues, while in other regions, a rapporteur may monitor and report on the implementation of women's rights. Latin America has both an Office of the Rapporteur on the Rights of Women, which is part of the Inter-American Commission on Human Rights, and several commissions that oversee and report on women's rights in the region. These commissions include the Economic Commission and Social Commission for Latin America and the Caribbean, the Inter-American Program on the Promotion of Women's Human Rights and Gender Equity and Equality, and the Inter-American Commission on Women. In Africa, the Special Rapporteur on the Rights of Women in Africa monitors and reports on women's rights across the continent. Asia does not have a singular body that oversees women's rights for the entire continent, but the regional Association of Southeast Asian Nations (ASEAN), comprising 10 member states in southeast Asia, has created the ASEAN Commission on the Rights of Women and Children. Europe has the Gender Equality Commission, part of the Council of Europe, and the European Network of Equality Bodies, which unites the various equality bodies that exist throughout the European Union. Together, these entities and organizations oversee the implementation of women's rights, as established in international and regional instruments, throughout their respective regions.

4. Analysis

Although nuclear security is often conceived as a niche, domestic area, it comprises a critical component of global nonproliferation and conflict prevention efforts. Given estimates that women comprise only 20% of the nuclear workforce [14], as well as national and international efforts to increase gender parity in the field,⁸ linking nuclear security to broader international efforts to increase gender equality in security and conflict prevention will provide a clearer structure and framework for these initiatives and help states meet their gender equality commitments contained in other instruments.

The UN Charter [28], the Universal Declaration of Human Rights [29], and the Beijing Declaration and Platform for Action [31] provide the foundational international law underpinnings for securing gender equality. Subsequent instruments, including the IESCR [33] and CEDAW [35], provide helpful benchmarks aimed at structural equality, such as eliminating employment discrimination and the right to choose a profession and pursue employment. The IESCR, in particular, includes implementation obligations such as policies, training, and other programs to increase women's ability to participate in the workforce. Regional instruments further amplify these obligations. Although this framework does not amount to a mandate to achieve gender parity in nuclear security, these instruments provide support for states wishing to implement policies and

⁸ For examples, see Women in Nuclear Global and its related country chapters (<https://win-global.org/>), the IAEA's Women in Nuclear Security Initiative, and Women of Color Advancing Peace, Security, and Conflict Transformation (<https://www.wcaps.org/>).

programs aimed at increasing gender equality in domestic industries. The reporting mechanisms established by these treaty regimes also provide a platform for states to celebrate successes in this area.

The legal framework for integrating women in security and conflict prevention should also be considered in efforts to increase gender parity in the nuclear security field. Nuclear security, as a key to supporting global nonproliferation efforts, should be understood as critical to maintaining peace and security, as well as conflict prevention. CEDAW [35] calls for equal participation of women in conflict prevention efforts; although the commentary to CEDAW in some places is specific to disarmament, it also speaks more broadly to conflict prevention. Moreover, the WPS agenda, with its far-reaching implementation apparatus, should be considered a guiding framework for efforts in nuclear security. The participation pillar, which calls for women's equal participation in efforts to maintain security, and the prevention pillar, which calls for preventing conflict (despite its more limited scope in the Security Council resolution to UN activities), apply directly to the nuclear security field. These pillars are bolstered by the series of UN General Assembly resolutions that provide a critical link between the WPS agenda and the specific fields of disarmament, nonproliferation, and arms control. Although some aspects of the WPS agenda are starting to filter into the nonproliferation community, such as the NPT states that have endorsed recommendations by citing Resolution 1325 [38] to increase the number of women on their state delegations, ample room exists for expanded thinking about how to incorporate the WPS agenda principles into nonproliferation and nuclear security activities.

Finally, the UN SDGs provide an opportunity to amplify efforts to increase gender representation in nuclear security. SDG 5, dealing with gender equality and women's empowerment, is an obvious starting place, and Rafael Mariano Grossi, Director General of the IAEA, has stated that this goal must inform the work of the IAEA. However, understanding that women's equality is integral to all 17 goals, nuclear security could also look to SDGs 7 (affordable and clean energy), 8 (decent work and economic growth), and 16 (peace, justice, and strong institutions) for a nexus to their work.

Understanding the relationship between the international human rights framework for gender equality and nuclear security provides a starting place for states seeking to increase parity in the field. Moreover, situating nuclear security in the broader context of nonproliferation and conflict prevention enables a closer mapping of those efforts to existing international frameworks. Together, these frameworks offer opportunities for adding greater structure to initiatives aimed at increasing the representation of women in nuclear security, as well as for states to laud their progress. The next section offers specific recommendations for states to take advantage of these frameworks.

5. Recommendations

States that are concerned about the underrepresentation of women in nuclear security can take several key steps to better align with and take advantage of existing resources that exist within the relevant international legal frameworks.

First, states should ensure they are or become party to relevant international and regional agreements governing gender equality. They should also give effect to the treaty provisions through implementation in their domestic legal frameworks. This action may include directing relevant competent authorities to promulgate regulations or adopt policies that promote gender equality in relevant industries, such as nuclear security.

Even absent treaty implementing legislation, relevant authorities may wish to consult the obligations and guidelines at the international level and adopt policies that support the inclusion and participation of women in the field of nuclear security. Using the WPS agenda and the SDGs as a guide, states could set benchmarks for women's participation in the nuclear sector and devise strategies to achieve them. These might focus on the retention of women, increased mentorship of women, or efforts to strengthen the pipeline of women entering the field of nuclear security. Efforts to establish goals or benchmarks and strategies to achieve them could benefit from the input and participation of state regulatory bodies, industry, and civil society.

In addition to disseminating and promoting such policies domestically, states could communicate their strategies for achieving gender equality in nuclear security through mechanisms such as their national reporting structure on WPS and their NAP implementation or through annual CEDAW [35] reporting. In their reporting to international and regional bodies, states should highlight progress made toward gender equality in the nuclear security field as one critical component of promoting the inclusion of women in conflict prevention efforts and in national institutions engaged in conflict prevention. This progress promotes states' success in their efforts and provides helpful approaches that other states could adopt as they seek to achieve gender equality in the nuclear security sector. It could establish those states as a model for others to follow, enhancing prestige and establishing them as a leader in efforts toward gender equality.

States could also seek guidance on achieving gender equality in nuclear security from regional organizations and entities, such as special rapporteurs dedicated to gender equality or other bodies with a focus of gender equality. Those entities and organizations may have research and resources that could inform and enhance a state's efforts to support and bolster the women in the nuclear security field. International organizations focused on nuclear security and related areas may also recognize the importance of gender equality in their work, and accordingly, they may have developed helpful information, tools, or guidance that states could consider as they seek to increase the representation of women in the nuclear security field.⁹

6. Conclusion

When gender equality in nuclear security is understood as an important component of broader efforts to achieve equal opportunities for women in work and as critical to ensuring women are included in conflict prevention work, it presents an opportunity to connect with established treaty frameworks and international agendas with robust reach

⁹ See, for instance, [15].

and resources. This positioning presents a structure for framing domestic law, policy, and training and development programs to encourage women's participation in the field. It also provides states with metrics to demonstrate that they are meeting international obligations and opens leadership opportunities regionally and internationally.

This analysis lays the groundwork for additional research that more adequately maps individual states and regions to international obligations related to gender, as well as a more comprehensive exploration of the connections between nuclear security and the WPS agenda.

7. References

1. United Nations Office for Disarmament Affairs. *Stepping it up for Diversity, Equity and Inclusion at the NPT Review Conference*, 2022. United Nations.
<https://www.un.org/disarmament/update/stepping-it-up-for-diversity-equity-and-inclusion-at-the-npt-review-conference/>.
2. United Nations. *Arms Trade Treaty*, 3013 U.N.T.S. 269 et seq.; United Nations: New York, 2013.
3. United Nations. *Convention on Cluster Munitions*; 2688 U.N.T.S. 39; United Nations: New York, 2008.
4. United Nations. *Treaty on the Prohibition on Nuclear Weapons*; 3380 U.N.T.S. CN.475.2017.TREATIES-XXVI-9; United Nations: New York, 2017.
5. 2022 Conference of the Parties to the Amendment to the Convention on the Physical Protection of Nuclear Material. *Outcome Document*, ACCPPNM/RC/2022/4; International Atomic Energy Agency: Vienna, 2022.
6. 2020 International Conference on Nuclear Security: Sustaining and Strengthening Efforts. *Ministerial Declaration*; International Atomic Energy Agency: Vienna, 2020.
7. International Atomic Energy Agency General Conference. *Resolution Adopted on 30 September 2022 During the Eleventh Plenary Meeting*; GC(66)/RES/7; International Atomic Energy Agency: Vienna, 2022.
8. Fathima, F. N.; Awor, P.; Yen, Y.-C.; Gnanaselvam, N. A.; Zakhm, F. Challenges and Coping Strategies Faced By Female Scientists—A Multicentric Cross Sectional Study. *PLoS ONE* **2020**, *15* (9). DOI: 10.1371/journal.pone.0238635.
9. Ledin, A.; Bornmann, L.; Gannon, F.; Wallon, G. A Persistent Problem: Traditional Gender Roles Hold Back Female Scientists. *EMBO Reports* **2007**, *8* (11). DOI: 10.1038/2Fsj.embor.7401109.
10. Martinez, N. E. Contributions from Women to the Radiation Sciences: A Brief History. *Health Physics* **2017**, *112* (4), 376–383. DOI: 10.1097/hp.0000000000000646.
11. Borrie, J.; Dimmen, A. G.; Hugo, T. G.; Waszink, C.; Egeland, K. *Gender, Development, and Nuclear Weapons: Shared Goals, Shared Concerns*; United Nations Institute for Disarmament Research: Geneva, 2016.
12. Dalaqua, R. H.; Egeland, K.; Hugo, T. G. *Still Behind the Curve: Gender Balance in Arms Control, Non-Proliferation, and Disarmament Diplomacy*, United Nations Institute for Disarmament Research: Geneva, 2019.

13. Hurlburt, H.; Weingarten, E.; Stark, A.; Souris, E. *The “Consensual Straitjacket”: Four Decades of Women in Nuclear Security*, 2019. New America.
<https://www.newamerica.org/political-reform/reports/the-consensual-straitjacket-four-decades-of-women-in-nuclear-security/#authors>.
14. World Institute for Nuclear Security. *Gender and Nuclear Security: Challenges and Opportunities*; WINS Special Report Series; World Institute for Nuclear Security: Vienna, 2019.
15. World Institute for Nuclear Security. *Advancing Gender Parity in Nuclear Security*; WINS International Best Practice Guide; World Institute for Nuclear Security: Vienna, 2021.
16. International Atomic Energy Agency. *Objective and Essential Elements of a State’s Nuclear Security Regime*; IAEA Nuclear Security Series No. 20; International Atomic Energy Agency: Vienna, 2013.
17. International Atomic Energy Agency. *The International Legal Framework for Nuclear Security*; IAEA International Law Series No. 4; International Atomic Energy Agency: Vienna, 2011.
18. International Atomic Energy Agency. *Convention on the Physical Protection of Nuclear Material and its 2005 Amendment*; International Atomic Energy Agency: Vienna, 2005.
19. International Atomic Energy Agency. *Convention on Early Notification in the Event of a Nuclear Accident*; International Atomic Energy Agency: Vienna, 1986.
20. International Atomic Energy Agency. *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*; International Atomic Energy Agency: Vienna, 1986.
21. United Nations. *International Convention for the Suppression of Acts of Nuclear Terrorism*; 2445 U.N.T.S. 89, A/RES/59/290; United Nations: New York, 2007.
22. International Atomic Energy Agency. *The Code of Conduct on the Safety and Security of Radioactive Sources*; International Atomic Energy Agency: Vienna, 2004.
23. United Nations Security Council. *Resolution 1540*; S/RES/1540 (2004); United Nations: New York, 2004.
24. UK Government. *The Road to 2010: Addressing the Nuclear Question in the Twenty First Century*; UK Cabinet Office: London, 2009.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/238560/7675.pdf.
25. Clinton, H. R. *Remarks at the United States Institute of Peace*, 2009. US Department of State. <https://2009-2017.state.gov/secretary/20092013clinton/rm/2009a/10/130806.htm>.
26. Bowen, W.; van Dassen, L. Nuclear Security and the Three Pillars of the NPT: Identifying a Lasting Relationship. In *Proceedings of the International Conference on Nuclear Security: Enhancing Global Efforts*, Vienna, July 1–5, 2013; International Atomic Energy Agency: Vienna, 2014.
27. Nuclear Threat Initiative. *Nuclear Security: A Foundational Element of the Non-Proliferation Regime*. <https://www.nti.org/events/nuclear-security-a-foundational-element-of-the-non-proliferation-regime/> (accessed 2022-12-15).
28. United Nations. *United Nations Charter*; United Nations: San Francisco, 1945.

29. United Nations. Universal Declaration of Human Rights; United Nations: Paris, 1948.
30. Hussein, Z. R. A. Introduction. In Universal Declaration of Human Rights, illustrated edition; United Nations: New York, 2015.
31. UN Women. Beijing Declaration and Platform for Action; United Nations: New York, 2015.
32. United Nations. International Covenant on Civil and Political Rights; 999 U.N.T.S. 171; United Nations: New York, 1966.
33. United Nations. International Covenant on Economic, Social, and Cultural Rights; 993 U.N.T.C. 3; United Nations: New York, 1966.
34. United Nations Committee on Economic, Social, and Cultural Rights. The Equal Right of Men and Women to the Enjoyment of All Economic, Social, and Cultural Rights (art. 3 of the International Covenant on Economic, Social, and Cultural Rights); General Comment No. 16, E/C.12/2005/4; United Nations: New York, 2005.
35. United Nations. Convention on the Elimination of All Forms of Discrimination against Women; United Nations: New York, 1979.
36. Committee on the Elimination of Discrimination against Women. General Recommendation No. 30 on Women in Conflict Prevention, Conflict, and Post-Conflict Situations; CEDAW/C/GC/30; United Nations: New York, 2013.
37. Committee on the Elimination of Discrimination Against Women. IV. General Recommendations Adopted by the Committee on the Elimination of Discrimination Against Women—General Recommendation No. 23: Political and Public Life; United Nations: New York, 1997.
38. United Nations Security Council. *Resolution 1325 (2000)*; S/RES/1325 (2000); United Nations: New York, 2000.
39. United Nations Security Council. *Resolution 1820 (2008)*; S/RES/1820 (2008); United Nations: New York, 2008.
40. United Nations Security Council. *Resolution 1888 (2009)*; S/RES/1888 (2009); United Nations: New York, 2009.
41. United Nations Security Council. *Resolution 1889 (2009)*; S/RES/1819 (2009); United Nations: New York, 2009.
42. United Nations Security Council. *Resolution 1960 (2010)*; S/RES/1960 (2010); United Nations: New York, 2010.
43. United Nations Security Council. *Resolution 2106 (2013)*; S/RES/2106 (2013); United Nations: New York, 2013.
44. United Nations Security Council. *Resolution 2122 (2013)*; S/RES/2122 (2013); United Nations: New York, 2013.
45. United Nations Security Council. *Resolution 2242 (2015)*; S/RES/2242 (2015); United Nations: New York, 2015.
46. United Nations Security Council. *Resolution 2467 (2019)*; S/RES/2467 (2019); United Nations: New York, 2019.
47. United Nations Security Council. *Resolution 2493 (2019)*; S/RES/2493 (2019); United Nations: New York, 2019.
48. United Nations Office for Disarmament Affairs. *UNODA Gender Policy: 2021–2025*; United Nations: New York, 2021.

49. [49] United Nations. *Women, Peace and Security*. https://unrcca.unmissions.org/sites/default/files/unrcca_handout_wps_2020.pdf (accessed 2022-12-15).
50. UN Women. *Preventing Conflict, Transforming Justice, Securing the Peace: A Global Study of the Implementation of the United Nations Security Council Resolution 1325*; United Nations: New York, 2015.
51. Women's International League of Peace and Freedom. *1325 National Action Plans*. <http://1325naps.peacewomen.org/#:~:text=NATIONAL%20ACTION%20PLANS%3A%20AT%20A,an%20allocated%20budget%20for%20implementation>.
52. United States Congress. *Women, Peace, and Security Act of 2017*; Public Law 115–68, 131 Stat. 1202; US Government: Washington, DC, 2017.
53. US Department of State. *US Women, Peace, and Security Congressional Report 2021*; US Government: Washington, DC, 2021.
54. Myrtilin, H. *Connecting the Dots: Arms Control, Disarmament, and the Women, Peace and Security Agenda*; United Nations Institute for Disarmament Research: Geneva, 2020.
55. Ghittoni, M.; Lehouck, L.; Bastick, M. *Policy Brief: A Security Sector Governance Approach to Women, Peace, and Security*; Geneva Centre for Security Sector Governance, Organization for Security Cooperation in Europe Office for Democratic Institutions and Human Rights, and UN Women: 2019.
56. Preparatory Committee for the 2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons. *Chairman's Working Paper: Recommendations by the Chair to the 2020 NPT Review Conference*; NPT/CONF.2020/PC.III/WP.49; United Nations: 2019.
57. United Nations Office for Disarmament Affairs. *Stepping it up for diversity, equity and inclusion at the NPT Review Conference, 2022*. United Nations. <https://disarmament.unoda.org/update/stepping-it-up-for-diversity-equity-and-inclusion-at-the-npt-review-conference/>.
58. United Nations General Assembly. *Resolution 65/69*; A/RES/65/69; United Nations: New York, 2011.
59. United Nations General Assembly. *Resolution 67/48*; A/RES/67/48; United Nations: New York, 2012.
60. United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development*; United Nations: New York, 2015.
61. UN Women. *Women and the Sustainable Development Goals (SDGs)*. <https://www.unwomen.org/en/news/in-focus/women-and-the-sdgs> (accessed 2022-12-15).
62. United Nations Department of Economic and Social Affairs. *Goal 5: Achieve gender equality and empower all women and girls*. <https://sdgs.un.org/goals/goal5>.
63. International Atomic Energy Agency. *Gender at the IAEA*. <https://www.iaea.org/about/overview/gender-at-the-iaea>.
64. United Nations Department of Economic and Social Affairs. *Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to*

- justice for all, and build effective, accountable, and inclusive institutions at all levels. <https://sdgs.un.org/goals/goal16>.
65. United Nations Department of Economic and Social Affairs. *Goal 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all*. <https://sdgs.un.org/goals/goal8>.
 66. United Nations Department of Economic and Social Affairs. *Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all*. <https://sdgs.un.org/goals/goal7>.
 67. International Atomic Energy Agency. *Sustainable Development Goals (SDGs)*. <https://www.iaea.org/about/overview/sustainable-development-goals>.
 68. Organization of American States. *Additional Protocol to the Convention on Human Rights in the Area of Economic, Social, and Cultural Rights (Protocol of San Salvador)*; Organization of American States: San Salvador, 1988.
 69. Organization of African Unity (African Union). *African Charter on Human and Peoples' Rights*; African Union: 1986.
 70. African Union. *Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa*; African Union: 2003.
 71. Southern African Development Community. *Southern African Development Community Protocol on Gender and Development*; Southern African Development Community: 2008.
 72. Association of Southeast Asian Nations. *Declaration of the Advancement of Women in the ASEAN Region*; Association of Southeast Asian Nations: Bangkok, 1988.
 73. European Convention. *Charter of Fundamental Rights of the European Union*; European Union: 2000.
 74. European Union. *Treaty on the Functioning of the European Union*; European Union: 1957.