International Journal of Nuclear Security

Volume 8
Number 2 *IJNS and NSW Special Issue: Women in Nuclear Security*

Article 9

10-2023

Nuclear Security: Making Gender Equality a Working Reality

Muhammed Ali Alkış
Odesa Center for Nonproliferation

Polina Sinovets
Odesa Center for Nonproliferation

International Journal of Nuclear Security, Vol. 8, No. 2, 2023—IJNS and NSW Special Issue: Women in Nuclear Security

Nuclear Security: Making Gender Equality a Working Reality

Muhammed Ali Alkiş and Polina Sinovets
Odesa Center for Nonproliferation

Abstract
Gender equality is an indispensable part of both democracy and justice, and it is fundamental to peace and security worldwide. As various research on gender equality has shown, teams with diversity, equity, and inclusion achieve the best outcomes. Having gender equality and women's presence in the workforce in nuclear fields is a requirement to contribute to peace and security discussions, adding value and sustaining policies and long-lasting positive outcomes. In this regard, the paper will discuss the importance of gender equality and why the Odesa Center for Nonproliferation has committed itself to this issue. The article also details the Odesa Center for Nonproliferation's commitments as a member organization of the Gender Champions in Nuclear Policy.

Keywords: diversity, inclusion, equity, gender equality, nuclear, security

1. Introduction
Nuclear science and technology have made significant contributions to humanity, from energy generation to healthcare, agriculture, and research. Nevertheless, women have been and continue to be underrepresented in the science, technology, engineering, and mathematics sectors in general and in nuclear science and technology in particular, despite significant advancements in gender equality in many areas of work and life over the past years. In the nuclear field, very few women reach executive levels. The gender gap has significant ramifications for the future of nuclear technology applications and states' ability to use these technologies to address critical environmental, energy, and other concerns [1].

DOI: 10.7290/ijns220431

Although women are an essential component of the workforce, several studies on the participation of women in the workforce show that women only make up approximately 20%–25% of the nuclear workforce. At the same time, the figure is even less in specific parts of the nuclear industry, such as nuclear security and cybersecurity [2]. Because women are underrepresented in nuclear security and the nuclear field in general, organizations should prioritize understanding and tackling the barriers women face in joining and thriving in the field [3]. Evidence has proven that diversity has positive effects on organizational performance, which has resulted in an all-time high commitment to gender equality [4].

In this vein, many international organizations started to recognize how vital diversity, equity, and inclusion is in the workplace by improving the representation of women and focusing on creating awareness about gender equality to empower women in the workplace, including the nuclear field. In this context, the Odesa Center for Nonproliferation (OdCNP) believes that "a gender-inclusive workplace considers, recognizes, and promotes the skills and potential of both men and women, irrespective of their gender, race, ethnicity, ability, and age" [5].

With this perspective, the OdCNP announced its gender equality program in August 2022. The authors of this paper have a close connection to OdCNP's gender equality program: Polina Sinovets, the head of OdCNP, appointed Muhammed Ali Alkış as the first Gender Champion of the OdCNP. The rationale behind this recent development at the OdCNP is to promote gender balance and the development of female leaders in the nuclear field to ensure robust, diverse, and sustainable nuclear academic studies with the participation of female team members at all levels. As a center located in Odesa, Ukraine, the members of the OdCNP have been scattered around Europe because of the Russian invasion of Ukraine. Comprising members who have firsthand experience of war and the threat of the use of nuclear weapons on their territories, the OdCNP believes that gender equality is a key to democracy and justice, as well as an essential need to achieve and maintain peace and security.

In this regard, the paper will discuss what gender equality is and why it is essential to achieve, especially in the nuclear field. Then, it will focus on the challenges and best practices for gender equality in nuclear security. The last section will touch upon the OdCNP's commitment to gender equality and detail the membership of the Gender Champions in Nuclear Policy (GCNP).

2. Gender Equality

The United Nations Children's Fund (UNICEF) defines gender equality as "equal valuing by society of the similarities and the differences of men and women" [6]. This concept implies that women, men, girls, and boys should have equal conditions, treatment, and opportunities. This idea is essential for realizing their potential, human rights, and dignity, as well as for contributing to and benefitting from economic, social, cultural, and political development [6]. At this point, it is essential to point out that the preferred terminology within the United Nations (UN) is *gender equality* rather than *gender equity*. According to the UN, the latter "denotes an element of interpretation of social justice,

DOI: 10.7290/ijns220431

usually based on tradition, custom, religion or culture, which is most often to the detriment to women" [7]. Within this perspective, the UN believes that such use of *gender equity* is unacceptable; therefore, it was agreed that the term equality would be utilized in the UN at the Beijing Conference in 1995 [7]. This perspective is shared in this article, too.

However, it is important to define what *gender equity* and *gender parity* mean in order to have a better understanding of the issue. In this context, gender equity means the "provision of fairness and justice in the distribution of benefits and responsibilities between women and men" [8]. Gender equity is a term that refers to the fact that "women and men have different needs and power and that these differences should be identified and addressed in a manner that rectifies the imbalances between the sexes" [8]. Despite being sometimes used interchangeably, *equality* and *equity* represent separate notions. Although international human rights treaties relate to *equality*, the term *equity* is commonly employed in other fields. In this context, the term *gender equity* has been misused from time to time, resulting in unintentional assumptions about women's responsibilities in society. In other words, it resulted in an understanding that women should be treated *fairly* for their stereotypical roles. This might, in return, result in continuation of uneven gender interactions. In this context, it is important to point that there should be utmost attention to the terminology not to be seen as an unwillingness "to speak more openly about discrimination and inequality" [8].

On the other hand, gender parity refers to "relative equality in terms of numbers and proportions of women and men, girls and boys, and is often calculated as the ratio of female-to-male values for a given indicator" [9]. It should be noted here that when calculating male-to-female ratios, the term *sex ratio* is used instead of *gender parity*. However, gender parity, in the context of gender equality and this article, refers to the equal contribution of men and women to all aspects of life, whether private or public [9].

In this context, it is safe to state that gender equality is a fundamental human right and a keystone of a prosperous, modern world that needs sustainable, inclusive growth. In this regard, gender equality is vital for achieving a reality where both men and women actively contributing at home, at work, and in public life for a better world [10]. In this framework, gender equality means "equal rights, responsibilities, and opportunities of women and men and girls and boys" [11]. However, the European Institute for Gender Equality (EIGE) reminds us that gender equality is not to be understood as that women and men will become the same. Instead, it should be acknowledged that both women's and men's rights, responsibilities, and opportunities are not dependent on their gender. In this vein, it suggests that the interests, needs, and priorities of both men and women are considered [11].

Thus, gender equality should not be seen just as a women's issue but that it fully engages men and women. The EIGE underlines that gender equality is seen not only as a human rights issue but also as a precondition for sustainable development [11]. Furthermore, it is also necessary from the perspective of democracy and justice and plays a pivotal role in achieving and maintaining peace and security. According to some

DOI: 10.7290/ijns220431

research, diverse teams lead to the best outcomes. Women's presence and contributions to peace and security discussions lead to the sustainability of policies and significant positive outcomes [12].

a. Gender Equality in Nuclear

Gender inequality affects all aspects of social and economic life in all states. Despite positive developments, such as the increased number of women in the labor force, when women enter the labor force, they are less likely to advance in their careers to higher levels, and they tend to earn less. For example, a full-time female professional earns around 15% less on average than their male counterpart [10]. Additionally, women come across negative stereotypes of their social identity in male-dominated fields, creating an imbalance and additional stress, impairing their performance. Thus, the numerical minority status of women in these fields results in a structural barrier, triggering gender stereotypes and a social identity threat [13].

Unfortunately, the nuclear community is not an exception in this regard. Laura Holgate, a Gender Champion, and Michelle Hover think that gender inequality in the nuclear community is caused by the lack of gender equity, which they define as the fairness of treatment for individuals regardless of gender [12]. It is a known fact that women have different but unique challenges in the nuclear field. This challenge gets stronger when women want to remain in the field and access opportunities for advancement. As a result of these challenges, the nuclear field cannot reach a state of gender equality [12]. For example, the fields of nuclear arms control, nonproliferation, deterrence, and diplomacy have not achieved gender balance, which is defined as "equal participation of women and men in all areas of work, projects or programs," as the field has been dominated by men [14]. In an ideal scenario of gender equality in the nuclear field, women and men would participate proportionally to their share of the population. Nevertheless, women still participate less than expected based on the sex distribution in the population, resulting in an underrepresentation of women, whereas men participate more than expected, resulting in an overrepresentation of men and gender inequality [14]. These data were reflected in statistics in a report in 2018, which showed that women comprised only 27% of experts at 22 security-focused think tanks in Washington, DC [4]. Similarly, women made up only 31% of the delegates during the negotiation process of the 2017 Treaty on the Prohibition of Nuclear Weapons. Other pieces of evidence of gender inequality exist in the nuclear field [4]. For example, a World Institute for Nuclear Security (WINS) study points out that the nuclear workforce is only composed of approximately 20% women [15].

As the nuclear community handles mission-critical challenges concerning the present and future of humanity, the world cannot afford to leave half of humankind aside while seeking solutions [12]. Therefore, it is essential to attract and keep engineers, scientists, academics, and policymakers in the nuclear field with gender equality in mind. This focus will lead to diversity in the nuclear workforce and improve trust in nuclear technologies. However, in its current form, inspiration for women to work in nuclear fields, especially in nuclear security–related positions, is low because of various reasons detailed in the following sections [2].

DOI: 10.7290/ijns220431

b. Gender Equality in Nuclear Security

Nuclear security focuses on the protection of nuclear materials, other radioactive materials, and related facilities to prevent theft by mainly non-state actors within the international nuclear security regime. However, the changing nature of the threats, especially after the Russian invasion of Ukraine, has challenged the traditional approach to nuclear security, as it seems unlikely to be effective against the full spectrum of today's risks and threats, including the ones posed by state actors. Because the threats posed by adversaries are changing, professionals are required to adapt to changing conditions. This change brings a broader understanding that nuclear security measures shift from the traditional "guns, guards, and gates" approach to a more comprehensive one, acknowledging the significance of integrated risk management. This new approach recognizes security as a general organizational accountability and governance issue [16]. In this framework, nuclear security, more than ever, needs capable nuclear security professionals who fully understand the need to protect and secure nuclear and other radioactive materials while preventing its theft and misuse. Nuclear security measures, including the protection of materials and facilities from sabotage, are only possible with individual competence. In this regard, a workforce covering diverse experience, expertise, and perspectives is one of the ways to ensure that competence [16].

Nuclear security continues to be male-dominated, which has been documented in different assessments [15]. According to WINS, nuclear security is not only male-dominated but also perceived as a male-dominated field because of the heavy affiliation of professionals working formerly in male-dominated occupations such as the military, law enforcement, intelligence, and security services [15]. In this vein, Elana Buglova, the director of the International Atomic Energy Agency (IAEA) Division of Nuclear Security, believes that the commitment to achieving nuclear security globally could be achieved with the efforts of both men and women [3]. Although diversity and gender equality are known to bring benefits to all fields, women are still underrepresented in nuclear security, as well as in the nuclear field in general. This lack of representation requires a complete understanding of and tackling the barriers women face in the field [3].

In this regard, work–life balance is among the most significant challenges to women's progress in the nuclear security sector. Continued overworking, the requirement for constant availability, and heavy workloads do not fit into unpaid caretaker responsibilities, which primarily fall on women. Similarly, maternity leave is another significant challenge to women's progress in the nuclear security sector. There are many considerations about breastfeeding, childcare responsibilities, the timeframe for maternity leave, and the effect of maternity leave on promotion and professional development, resulting in gender inequality. Additionally, the lack of female role models because of historical underrepresentation, sexual harassment, bullying, different cultures, and the gender pay gap still pose risks to gender equality despite positive developments in the last decade [16].

DOI: 10.7290/ijns220431

Like any other professional sector, nuclear security also needs access to not just half but the entire potential workforce. In this framework, all organizations should do their best to increase women's presence in nuclear security while providing equal access to opportunities for promotion. This mission requires having an organizational culture with accompanying structures, policies, and procedures in line with gender equality principles [16]. To achieve gender equality in general and in the nuclear security sector, WINS has compiled best practices to consult when considering how to achieve and sustain gender equality in the nuclear security sector [15].

In this regard, continual professional development plays a crucial role in advancing gender parity because professionals in nuclear security are required to keep up-to-date with changing needs. Participation of both male and female professionals in ongoing learning levels will lead to addressing issues stemming from gender inequality, contributing to advancement in the field and promotions for a gender-equal world. Additionally, recruitment from a gender-diverse pool in line with gender equality principles will contribute to overcoming current gender inequality challenges resulting from nuclear security's workforce drawing from individuals with military, security, or law enforcement backgrounds, which are male-dominated professions. This traditional recruitment results in need to recruit from a more diverse pool [15]. Additionally, advocating for a female role model, creating inclusive teams, and investing in developing women's leadership skills are other necessary steps to achieve gender equality in nuclear security. As such, enforcing zero-tolerance policies for harassment and bullying, as well as fostering a gender-inclusive workplace, will contribute to gender equality while recognizing management's role to minimize and remove barriers of gender inequality as a prerequisite to addressing current challenges [15].

3. Making Gender Equality a Working Reality

The importance of gender equality has been recognized by many organizations, including the Black Sea Women in Nuclear Network, CRDF Global, the GCNP, the IAEA, International Gender Champions, the Nuclear Threat Initiative (NTI), the OdCNP, the Vienna Centre for Disarmament and Non-Proliferation, WINS, Women in International Security, Women in Nuclear Global, and Women of Color Advancing Peace, Security, and Conflict Transformation. Although each organization contributes to gender equality with unique approaches, this article focuses on how the OdCNP and the GCNP contribute to achieving gender equality.

a. Odesa Center for Nonproliferation

OdCNP was established in 2015 as a result of many years of educational cooperation between Odesa I. I. Mechnikov University (ONU) with the Swedish Radiation Safety Authority (SSM). The aim of this cooperation was to promote strategic studies, nuclear nonproliferation, and nuclear security for the young people in Ukraine and across all of Central Europe and the Black Sea region, creating a new generation of experts in those fields.

The OdCNP was established as the result of the systematic education and training cooperation between ONU and the SSM. In 2006, the SSM started to sponsor the first

DOI: 10.7290/ijns220431

fellowships in nonproliferation and PhD students at the James Martin Center for Nonproliferation Studies in Monterey, California, USA. In addition to the sponsorships, the first OdCNP International Summer School for students, young teachers, and experts was conducted in 2009, and the OdCNP has continued to organize annual summer and winter schools since then with the support of its international stakeholders and the participation of students from Ukraine, Turkey, Poland, Russia, Georgia, and Moldova.These summer schools provided high-quality, up-to-date training in a wide range of specially selected methods of professional training for the new generation of nonproliferation experts [17].

The mission of OdCNP is to provide a platform for education, training, research, and outreach for the new generation of experts on nuclear security and nuclear and weapons of mass destruction nonproliferation experts not only in Ukraine but in the entire region. The OdCNP is expected to become an academic and teaching basis for students and experts from Central Eastern Europe and the Black Sea region [17].

The objective of OdCNP is to catalyze the development of nonproliferation expertise in Ukraine, as well as in Central and Eastern Europe and the Black Sea region, by means of national and international dialogue, education, training, and research. The main areas of the OdCNP include the education and training of students and young specialists, academic research, outreach, and awareness in the field of nonproliferation—aimed at audiences such as journalists, high school students, and the general public—establishing and sustaining a platform for dialogue and joint projects with experts from universities and research centers from Ukraine, Europe, and the United States, as well as from nuclear and missile industries and governmental bodies [17].

Since its establishment, the main focus has been on keeping the principle of gender equality and providing the same opportunities for young males and females in the field. This principle, while being always preserved, was officially codified in August 2022, appointing the first Gender Champion of the OdCNP. The main idea was to create awareness about gender balance and the role of female leaders in the nuclear field to ensure robust, diverse, and sustainable nuclear academic studies with the participation of female team members at all levels. In this context, the OdCNP believes that gender equality is a key to democracy and justice, as well as an essential need to achieve and maintain peace and security.

Following the commitment to gender equality at the organizational level, the OdCNP Gender Champion and an author of this paper, Ali Alkis, became a member of GCNP in October 2022. In addition to the panel parity pledge, he committed to undertake three SMARTIE commitments that can be accomplished in 1 year to advance gender equality in the OdCNP’s processes, practices, policies, and programmatic work. SMARTIE commitments are specific, measurable, ambitious, relevant, timely, inclusive, and equitable. The OdCNP will report on the progress toward these pledges for inclusion in an annual report published by the GCNP.

DOI: 10.7290/ijns220431

The commitments undertaken by the OdCNP Gender Champion for 2023 are as follows:

- Promote gender diversity in senior management positions, aiming that 50% of board and manager positions are held by women and guaranteeing that at least 40% of such positions are held by women.
- Achieve an average of 50% women's participation in a specific number of the organization's largest public events annually.
- Ensure the organization's expert listservs have at least 40% women [18].

With the gender equality program and SMARTIE commitments, the OdCNP hopes to incorporate talents with different perspectives, interests, passions, skill sets, and ways of approaching problems, which will undoubtedly improve the quality of technical solutions and decisions that are urgently needed.

b. Gender Champions in Nuclear Policy

GCNP is a leadership network bringing together gender champions working in nuclear policy with the aim of breaking down gender barriers and making gender equality a working reality in their spheres of influence. The members of the GCNP include presidents, directors, and other institutional heads of organizations whose agendas and/or members address nuclear-related topics (e.g., nonproliferation, disarmament, deterrence, nuclear weapons policy, nuclear security, nuclear, and nuclear energy) [19].

Launched on November 14, 2018, in Washington, DC, by the NTI, the GCNP has 82 gender champions representing 82 organizations committed to gender equality principles [20]. It might be useful to define what *gender champion* means before giving more information about the GCNP. In this context, *gender champion* refers to those who are "senior leaders that advance gender equality through the management of their own organizations and in their work with others by making concrete and measurable commitments to women in the workplace" [21].

Inspired by and modeled on the International Gender Champions, the GCNP is designed to integrate and supplement decades of accomplishment in advancing gender equality in the nuclear field by adding commitment at the leadership level of the nuclear policy sector. The GCNP believes that the engagement of gender champions plays a crucial role in the kinds of policy, behavioral, environmental, and cultural changes, and humanity cannot afford to lose more time in improving in these areas in order to achieve an effective gender balance in the nuclear field [19].

Although the relationship between the OdCNP and the GCNP is relatively new, the commitments taken by the gender champion of the OdCNP indicate how enthusiastic the OdCNP is about gender equality despite the ongoing Russian invasion of Ukraine.

4. Conclusion

Clearly, much remains to be accomplished to narrow and finally close gender gaps in the nuclear sector in general and in the field of nuclear security in particular. Although

DOI: 10.7290/ijns220431

gender inequality is a global problem for various reasons (e.g., violence against women, the gender wage gap, and the unequal sharing of unpaid work), the nuclear field has its unique challenges in achieving and ensuring gender equality. In this vein, the works and contributions of organizations such as the OdCNP and the GCNP, as well as other international organizations, lead the way forward for a better world in which both women and men will enjoy equal rights, responsibilities, and opportunities irrespective of their gender, race, and age.

5. References

1. Nuclear Energy Agency. *Women in nuclear energy.* https://www.oecd-nea.org/jcms/pl_66333/women-in-nuclear-energy (accessed 2023-01-03).
2. Datta, A.; Goel, A.; Jain, A. K. Women in Nuclear Science and Technology in India: Challenges and Opportunities. *Int. J. Nucl. Secur.* **2022**, *7* (2). DOI: 10.7290/ijns075fhw.
3. Buglova, E. Foreword. *Int. J. Nucl. Secur.* **2022**, *7* (2). DOI: 10.7290/ijns079374.
4. Robichaud, C.; Pourrat, N. *Balancing for Better in Nuclear Security.* https://www.carnegie.org/our-work/article/balancing-better-nuclear-security/ (accessed 2023-01-20).
5. Iftakhar, N.; Fayyaz, S. Gender Inclusive Nuclear Regulatory Body of Pakistan. *Int. J. Nucl. Secur.* **2022**, *7* (2). DOI: 10.7290/ijns07pa2h.
6. UNICEF. *Gender Equality: Glossary of Terms and Concepts*; UNICEF Regional Office for South Asia: Kathmandu, 2017.
7. UN Women Training Centre. *Gender Equality Glossary: G*. https://trainingcentre.unwomen.org/mod/glossary/view.php?id=36&mode=letter&hook=G&sortkey=&sortorder= (accessed 2023-01-20).
8. European Institute for Gender Equality. *Gender Equity*. https://eige.europa.eu/thesaurus/terms/1175 (accessed 2023-04-17).
9. European Institute for Gender Equality. *Gender Parity*. https://eige.europa.eu/thesaurus/terms/1195 (accessed 2023-04-17).
10. Organisation for Economic Co-operation and Development. *The Pursuit of Gender Equality: An Uphill Battle*; OECD Publishing: Paris, 2017. DOI: 10.1787/9789264281318-en.
11. European Institute for Gender Equality. *Gender Equality*. https://eige.europa.eu/thesaurus/terms/1168 (accessed 2023-01-20).
12. Holgate, L. S. H.; Dover, M. *Gender Champions in Nuclear Policy*; Nuclear Threat Initiative: Washington, DC, 2020.
13. Udum, Ş. Structural Causes of the “Gender Gap” in Nuclear Security: An Overview. *Int. J. Nucl. Secur.* **2022,** *7* (2). DOI: 10.7290/ijns073qse.
14. European Institute for Gender Equality. *Gender Balance*. https://eige.europa.eu/thesaurus/terms/1148 (accessed 2023-04-17).
15. World Institute of Nuclear Security. *Advancing Gender Parity in Nuclear Security*; WINS International Best Practice Guide; World Institute for Nuclear Security: Vienna, 2021.
16. World Institute of Nuclear Security. *Gender and Nuclear Security: Challenges and Opportunities*; Nuclear Security: Challenges and Opportunities; World Institute for Nuclear Security: Vienna, 2019.

17. Odesa Center for Nonproliferation. *About Us*. http://odcnp.com.ua/about-us (accessed 2023-04-17).
18. Gender Champions in Nuclear Policy. *Ali Alkis*. https://gcnuclearpolicy.org/champion/ali-alkis/ (accessed 2023-01-22).
19. Gender Champions in Nuclear Policy. *About*. https://gcnuclearpolicy.org/about/about/ (accessed 2023-01-22).
20. Gender Champions in Nuclear Policy. *Champions*. https://gcnuclearpolicy.org/champions/ (accessed 2023-01-22).
21. Equality and Human Rights Commission. *A quick guide to being a gender champion in your workplace*. https://www.equalityhumanrights.com/sites/default/files/a-quick-guide-to-being-a-gender-champion-in-your-workplace.pdf (accessed 2023-04-17).

DOI: 10.7290/ijns220431