



# General Assembly

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## Committee on the Peaceful Uses of Outer Space

### **Report on the United Nations/Canada Space for Women expert meeting: building capacity to promote and advance gender equality in the space sector**

(Montreal, Canada, 30 October–3 November 2023)

#### **I. Introduction**

1. The Office for Outer Space Affairs and the Government of Canada jointly hosted the Space for Women expert meeting on the theme “Building capacity to promote and advance gender equality in the space sector” from 30 October to 3 November 2023.
2. The expert meeting is part of Space for Women, a programme of the Office for Outer Space Affairs aimed at promoting and advancing gender equality and the empowerment of women and girls in science, technology, engineering and mathematics and the space sector, and at ensuring that women and girls play an active and equal role in space science, technology, innovation and exploration.
3. The present report contains a description of the background, objectives and programme of the expert meeting. It provides a summary of the discussions and the resulting observations and recommendations.

#### **II. Background and objectives**

4. In its roles as a capacity-builder and promoter of international cooperation in space, the Office for Outer Space Affairs has a strong interest in bringing more girls and young women into the fields of science, technology, engineering and mathematics and the space sector, both as part of the broader United Nations effort to combat gender inequality and as a means of improving access to the benefits of space for everyone, everywhere.
5. The objectives of the Space for Women programme are to raise awareness of the importance of gender equality and the empowerment of women in science, technology, engineering and mathematics and the space sector; to strengthen and deliver targeted capacity-building activities; to encourage women and girls to pursue education and careers in the space sector and in science, technology, engineering and mathematics; to ensure that the benefits of space reach women and girls and that they can benefit from, and contribute to, space science, technology, innovation and exploration; and to contribute to achieving Sustainable Development Goals 4 (on



quality education) and 5 (on gender equality) and to realizing the “Space2030” Agenda. The programme includes the organization of annual expert meetings.

6. The fourth Space for Women expert meeting was organized in cooperation with the Canadian Space Agency and was held in Montreal, Canada, from 30 October to 3 November 2023.

7. The expert meeting built on the results of the previous meetings and focused on developing the capacity of participants to promote and advance gender equality and empower women and girls in the space sector.

8. More specifically, the objectives of the expert meeting were:

(a) To support the development of skills to integrate gender mainstreaming into national space strategies and policies, including in science, technology, engineering and mathematics and in the development of research, technology and applications;

(b) To understand women’s perspectives and needs in the context of space research, space science and space technology, and their applications;

(c) To discuss further action to achieve the targets set out in the 2030 Agenda for Sustainable Development, including removing bias and barriers to gender equality and realizing the objective of a gender-balanced workforce by 2030;

(d) To empower participants to encourage gender equality efforts for change at the institutional and organizational levels and take individual action to support women and girls in the space sector and in science, technology, engineering and mathematics;

(e) To bring together experts to contribute to the event through presentations, the sharing of expertise and experience, and the preparation of a gender mainstreaming toolkit for the space sector;

(f) To take stock of progress made and measures implemented since the previous expert meetings.

9. The Office for Outer Space Affairs and the Canadian Space Agency acted as co-organizers of the expert meeting and handled all administrative and organizational matters.

10. The expert meeting was held at the International Civil Aviation Organization in Montreal, and the costs associated with the local organization of the event were covered by the Government of Canada.

### **III. Attendance**

11. The expert meeting brought together experts from governmental institutions, such as national space agencies and ministries, and representatives of the private sector, civil society, universities, research institutions and international organizations.

12. Participants were selected on the basis of their educational background and their work experience in the areas of gender equality and gender mainstreaming in the space sector and in science, technology, engineering and mathematics, including with regard to implementing programmes and projects related to the topics addressed. The co-organizers cooperated in the selection of participants and in the preparations for the meeting.

13. Funds provided by the United Nations were used to cover the travel and other costs of 20 participants from 18 countries.

14. The event was attended by a total of 69 participants. The following 36 Member States were represented: Argentina, Australia, Austria, Belgium, Bolivia (Plurinational State of), Botswana, Brazil, Cameroon, Canada, China, Colombia, Costa Rica, France, Germany, Ghana, Italy, Japan, Kenya, Malaysia, New Zealand,

Nigeria, Pakistan, Paraguay, Poland, Portugal, Republic of Korea, Russian Federation, Saudi Arabia, South Africa, Sweden, Tajikistan, Thailand, Uganda, United Kingdom of Great Britain and Northern Ireland, United States of America and Zimbabwe.

#### IV. Programme

15. The programme of the expert meeting was developed by the Office for Outer Space Affairs in collaboration with the Canadian Space Agency. Preliminary information about the programme was also shared with the co-hosts of previous expert meetings, namely, the Ministry of Science, Technology and Innovation of Brazil and the Korea Aerospace Research Institute of the Republic of Korea. The evaluation of and lessons learned from the United Nations/Republic of Korea Space for Women expert meeting, held in 2022, were also taken into account in developing the programme.

16. The main focus of the expert meeting was on building the capacity of participants to promote and advance gender equality and empower women and girls in the space sector and in the fields of science, technology, engineering and mathematics in accordance with Sustainable Development Goals 4 and 5. Participants also contributed to the preparation of the first gender mainstreaming toolkit for the space sector.

17. During the expert meeting, participants delivered presentations and engaged in question-and-answer sessions during five thematic plenary discussions. Participants also contributed to working group discussions on the toolkit. The event included a series of keynote speakers from international organizations, Governments, industry, academia and the Mohawk Council of Kahnawà:ke.

18. During the event, experts participated in plenary discussions, which included oral presentations, on the following five themes:

- (a) Measuring the participation of women in the space workforce: existing efforts and progress;
- (b) How does space technology advance gender equality? Showcasing successful examples of women's empowerment through space technology and applications;
- (c) Gender mainstreaming in space policy, strategy, technology and exploration: good practices and lessons learned;
- (d) Inspiring through storytelling: women professionals in the space sector;
- (e) Working together to advance gender equality.

19. Participants also collaborated in reviewing a draft of the first gender mainstreaming toolkit dedicated to the space sector. The preliminary document was co-drafted by the Office for Outer Space Affairs and the Canadian Space Agency. Four working groups focused on the different sections of the toolkit, which were devoted to the following topics: committing at all levels to advance gender equality, promoting equal opportunities within, creating dedicated programming to empower all women and girls, and measuring and reporting on gender equality outcomes.

20. By the end of the event, a series of recommendations had been put forward by participants on how to improve the toolkit. Participants also offered recommendations on how international, regional, national and local organizations, both public and private, can strengthen gender equality efforts in the fields of science, technology, engineering and mathematics and space. Those recommendations were presented to all participants by the working groups on the last day of the meeting.

21. A networking and poster session was organized in order for participants to showcase their work and projects and to connect with other experts.

22. On 3 November 2023, the Canadian Space Agency organized a side event that was open to the Canadian space sector in order to share key takeaways from the expert meeting. The event included a panel discussion, an industry exposition and an informal networking session.

23. The final programme and presentations are available on the expert meeting page of the Space for Women website ([www.space4women.unoosa.org](http://www.space4women.unoosa.org)).

## V. Summary of the expert meeting

24. The expert meeting started with an opening reception organized by the Government of Canada on 30 October 2023. Several distinguished speakers gave welcome remarks: Aarti Holla-Maini, Director of the Office for Outer Space Affairs; Lisa Campbell, President of the Canadian Space Agency; Sarah bint Yousif al-Amiri, Minister of State for Public Education and Advanced Technology of the United Arab Emirates and Chairperson of the United Arab Emirates Space Agency; Jennifer Gibbons, Astronaut of the Canadian Space Agency; and Salvatore Sciacchitano, President of the Council of the International Civil Aviation Organization.

25. The working sessions of the expert meeting were held from 31 October to 2 November 2023. During the opening session, on 31 October 2023, official representatives from the Office for Outer Space Affairs and the Canadian Space Agency gave opening remarks. The Elder Otsi'tsakèn:ra (Charles Patton) gave thanksgiving addresses to open and close the meeting. A video message from Amina J. Mohammed, Deputy Secretary-General of the United Nations, was screened for the participants.

26. The five themes of the expert meeting had been identified on the basis of the outcomes of and lessons learned from the previous expert meetings in order to ensure the continuity of efforts and in-depth discussion. Selected participants gave presentations on those themes in the thematic plenary discussions.

27. The first thematic plenary discussion, entitled “Measuring the participation of women in the space workforce: existing efforts and progress”, was devoted to examining existing measures related to the participation of women in the space sector. One speaker gave a presentation on the domestic efforts undertaken by the Republic of Korea, the co-host of the previous expert meeting, and highlighted the funding support provided for the Office for Outer Space Affairs to conduct a global study on the topic, which stemmed from the recommendations of all previous expert meetings. The endeavours of the Canadian Space Agency in relation to the participation of women in the Canadian space sector were also presented. Both cases highlighted the relevance of quantitative and qualitative data in understanding the current state of affairs and taking informed decisions for policymaking. The need to ensure the further inclusion of women and girls in the space sector and in science, technology, engineering and mathematics was stressed.

28. The second thematic plenary discussion, entitled “How does space technology advance gender equality? Showcasing successful examples of women’s empowerment through space technology and applications”, highlighted examples of how space technology benefits everyone when women are included in the decision-making process and have access to space technologies and related training. The discussion included examples related to mitigating climate-induced inequalities in agriculture and food security through data-driven solutions, using geospatial technologies for fire mapping and drought and water source monitoring, and using satellite data to improve health care for women and provide education in remote communities. The case studies showed a ripple-down effect fostering inclusive decision-making, improving productivity, promoting fairer income distribution and building resilience.

29. The third thematic plenary discussion, entitled “Gender mainstreaming in space policy, strategy, technology and exploration: good practices and lessons learned”,

drew attention to strategies for implementing effective gender mainstreaming practices at all levels through client-centred, intersectional and equitable approaches in order to ensure that the benefits of space reach everyone. Throughout the discussion, experts highlighted the need to apply a gender lens to technologies and innovations in all phases – from decision-making to the development of, access to and use of such technologies – and to monitoring and accountability. Examples of gender mainstreaming in space policy at the global, national and regional levels were given, and an analysis of workplace experiences relating to gender, disability, ethnicity and sexuality in the space sector was presented.

30. The fourth thematic plenary discussion, entitled “Inspiring through storytelling: women professionals in the space sector”, stressed the lived experiences of participants as women working in the space sector and in the fields of science, technology, engineering and mathematics, including the related opportunities, challenges and motivations. The diversity of speakers showed the differences in the experiences and challenges that women and girls face in different countries at different phases of their education and careers. The barriers start at a young age, and challenges related to entering and remaining in the space workforce arise and persist as women continue their careers in the field. Speakers identified gender stereotypes, unconscious bias, access to education, workplace harassment and sexism as factors that prevent and discourage women from remaining in the fields of science, technology, engineering and mathematics and space. Allies, women’s networks and support groups were identified as important elements that strengthen the position of women in the workforce in those fields.

31. The fifth thematic plenary discussion, entitled “Working together to advance gender equality”, focused on approaches for working together to promote, recruit and retain women and girls in the space sector. Speakers presented projects showcasing how space educational projects support access to education in science, technology, engineering and mathematics and increase diversity in the space industry. Other topics included promoting women and girls through mentorship and career guidance, and retaining them through multi-stakeholder networks aimed at supporting women and gender minorities working in the space sector. Participants highlighted how stakeholders could work together to promote gender equality and diversity in the fields of science, technology, engineering and mathematics, thus fostering a more inclusive and diverse workforce in the space industry.

32. Participants also collaborated in reviewing the first gender mainstreaming toolkit dedicated to the space sector. One of the primary objectives of those discussions was to identify local, national or regional examples of activities and measures that exemplified lessons learned and best practices that could be included in the toolkit and replicated in the participants’ specific contexts. The four working groups discussed the different sections of the toolkit, the titles of which were as follows:

(a) “Commit at all levels to advance gender equality”, which focused on institutional commitment and organizational policies with regard to gender mainstreaming, as well as on resource allocation, leadership and training;

(b) “Promote equal opportunities within”, which stressed measures dedicated to increasing the representation of women within organizations, including in leadership and decision-making processes, while ensuring that gender-inclusive measures and support are in place to retain them;

(c) “Create dedicated programming to empower all women and girls”, which focused on systemic barriers faced by women, in particular those from systemically disadvantaged groups, and on building and strengthening individual and organizational capacity to establish and nurture inclusive initiatives;

(d) “Measure and report on gender equality outcomes”, which covered key aspects of measurement and reporting, including the collection, analysis, monitoring and evaluation of gender data to enhance accountability and track progress.

## VI. Observations and recommendations

33. During the expert meeting, participants highlighted that biases and stereotypes reinforced by cultural norms prevented young girls from pursuing education in science, technology, engineering and mathematics. It was stressed that caregivers, including parents, needed to be involved and create the conditions to encourage girls to persevere in education in those fields. Raising awareness among caregivers and educators on these topics, including gender stereotypes and negative social norms, was considered important to help adjust cultural expectations for women and girls over time and across generations. Schools had the responsibility to address structural and systemic barriers and to ensure that girls and young women were aware of and had access to opportunities in science, technology, engineering and mathematics, including hands-on training and experiential learning, starting from primary school and continuing into secondary and post-secondary education. At the same time, it was considered fundamental that both public and private organizations seek to address structural and systemic barriers to accessing science, technology, engineering and mathematics education by conducting outreach activities and creating targeted programmes for girls and young women, prioritizing opportunities for those from underprivileged or rural areas.

34. Participants recommended enhancing funding opportunities and allocating more resources to make opportunities in science, technology, engineering and mathematics and the space sector more accessible for women and girls. Grants should be made available for women and girls to complete primary school, secondary school and post-secondary programmes and training, and to participate in capacity-building opportunities such as conferences and workshops. Resources should also be allocated to research activities led by women and to research specifically focused on women. Governments could set targets in public procurement processes to increase the availability of funding opportunities for women-owned businesses and women entrepreneurs. Participants also suggested that cost-benefit analyses would be helpful in identifying the impact of resource allocation on the conditions of women in the space sector in order to continue to invest in the most efficient measures. Partnerships between the Office for Outer Space Affairs, Member States and other organizations should be fostered to increase funding opportunities for women to attend relevant capacity-building activities, including Space for Women expert meetings.

35. Participants highlighted the need to provide and invest in professional development opportunities for women in the space sector. Organizations in both the public and private sectors should provide opportunities to women in all types of positions to advance through the various stages of their careers. Such opportunities must include mentorship programmes, individual and group coaching sessions, and training. The Space for Women mentorship programme of the Office for Outer Space Affairs was highlighted as an impactful project in this area.

36. The exchange of information among institutions and networks was deemed important for highlighting gender mainstreaming and equality policies and practices that were effective and had the desired impact, as well as for identifying policies and practices that did not work. Since organizational styles and challenges vary, multiple examples of inclusion initiatives should be presented. International and regional organizations could further facilitate such exchanges by organizing or participating in events and panel discussions. Participants underlined that once the toolkit was finalized, it should be promoted among Member States in order to amplify existing practices at the global, national, regional and local levels.

37. Increased partnership and collaboration opportunities between institutions was considered crucial. Participants came from different countries that faced different gender equality challenges in science, technology, engineering and mathematics and in the space sector. While cooperation in learning and capacity-building between developing and developed countries was stressed, participants from developing countries highlighted the importance of South-South and regional cooperation to connect countries that faced similar challenges and needed to find common solutions.

Partnerships between the space sector and other sectors, such as health care and agriculture, were also highlighted as critical for advancing gender equality in alignment with other Sustainable Development Goals.

38. Bottom-up, grass-roots networks were also highlighted as powerful community-building instruments for retaining women and gender minorities and increasing their sense of belonging in the field. Participants emphasized that those horizontal networks, which were built and nurtured through the principles of allyship and solidarity, were very impactful in driving bold action. Women engaging alongside men, and men engaging with other men in promoting women in science, technology, engineering and mathematics and in the space sector, were identified as beneficial for amplifying allyship efforts. While Space for Women was already open to the participation of men in its activities, their engagement in the expert meetings was further encouraged.

39. With regard to removing structural and systemic barriers, participants focused on ways to ensure that the needs and perspectives of women and gender minorities were included in the design phases of policies and programmes. Participants also stressed that inclusivity must continue beyond the design phase and be included in the implementation, monitoring and reporting phases to ensure accountability. Promoting the use of inclusive language and design principles that reflected political, cultural and gender norms, contexts and power structures in all organizational communications, policies and projects was considered significant. To implement women-centred technologies, well-developed business cases were stressed as critical for ensuring successful implementation. Participants highlighted that gender-responsive outcomes, indicators and targets represented necessary elements in designing gender-responsive programmes, policies and technologies, and in better measuring and reporting on gender equality outcomes. Both quantitative and qualitative data should be collected in order to better understand the impacts on and the lived experiences of women and girls in science, technology, engineering and mathematics and in the space sector.

40. A set of recommendations on gender mainstreaming practices at the organizational level was also proposed. They included mandatory training for all staff, with a particular emphasis on in-depth training for managers and executives to enhance their understanding of inclusion, diversity, equity and accessibility. Participants noted that Governments had a role in making training resources on gender mainstreaming, diversity, equity and accessibility freely available, in particular for use and capacity-building in smaller entities. Diversity, equity and inclusion needed to be considered as part of an organization's culture in order to ensure that they were effectively integrated into its work. Increasing efforts to achieve the fair, inclusive and equitable representation of women within organizations could also include targets for balanced representation at all levels. The importance of breaking down structural and systemic barriers to ensure equitable facilities and opportunities for all genders, along with implementing supportive policies for work-life balance, parental leave and flexible work arrangements, was also highlighted. The establishment and enforcement of a zero-tolerance policy for harassment and effective mechanisms for addressing bullying and harassment were identified as necessary for creating safe and inclusive environments for women.

41. One key concept that emerged throughout the meeting was intersectionality. Participants highlighted the need to understand and consider the experiences of women and gender minorities on the basis of their different social identities, including gender, age, culture, ethnicity, sexual orientation and ability. Intersectionality was also considered important for gender equality because it helped individuals understand the interaction between different forms of discrimination and how they led to compounded barriers to gender equality. With an understanding of intersectionality, effective measures to address ongoing structural and systemic barriers experienced by marginalized groups could be developed, leaving no one behind. Participants also noted the need to consider gender diversity and minorities in all efforts to achieve gender equality.

42. Other recurring topics included accountability and transparency. For instance, participants noted that accountability mechanisms such as performance reviews should be integrated into organizational practices in order to ensure that gender mainstreaming training was efficient. In addition, they highlighted the need for an improved accountability framework with clearly defined responsibilities, measures and targets for all parties to implement gender equality at the organizational level. Monitoring, evaluation and reporting efforts should also be prioritized to measure the progress and effectiveness of policies and programmes. Participants also highlighted the need to follow up on the implementation of the toolkit at future expert meetings.

43. Participants further indicated that all of those efforts should be undertaken with a long-term view and commitment in mind, in order to ensure their sustainability over time. International, regional and national organizations, including the private sector, should allocate adequate resources to implement the recommendations and build on existing efforts. Participants also proposed including an item on gender equality in the space sector in the agenda of the Committee on the Peaceful Uses of Outer Space.

## VII. Conclusion

44. The United Nations/Canada Space for Women expert meeting brought together experts to share insights and expertise on topics relating to gender equality in science, technology, engineering and mathematics and the space sector. The presentations and discussions clearly highlighted the need to continue working to advance the education and careers of women and girls in those areas. By providing recommendations, experts identified specific activities, measures and examples that public and private organizations can adapt and implement to support women and girls in entering education and careers in science, technology, engineering and mathematics and the space sector, and to retain them in those fields. The feedback and examples collected through the working group discussions were considered and integrated into the gender mainstreaming toolkit for the space sector, which will be published in advance of the sixty-seventh session of the Committee on the Peaceful Uses of Outer Space, in 2024.

45. The Space for Women programme should continue to promote and advance gender equality and the empowerment of women and girls in the space sector and in science, technology, engineering and mathematics. The programme should continue to focus on evidence-based awareness-raising, targeted capacity-building and policy-relevant advice, as well as on capitalizing on the convening power of the United Nations to exchange information and lessons learned among Member States. Through the United Nations/Canada expert meeting, Space for Women also proved to be an outstanding global platform for community-building, networking and partnership development among individuals and organizations with a view to fostering international, regional, national and local efforts related to gender equality.

46. In order to achieve the targets set out in the 2030 Agenda, including a gender-balanced workforce and Sustainable Development Goals 4 and 5, the recommendations put forward at the expert meeting should be fulfilled. The support of Member States, resource mobilization and multi-stakeholder efforts are considered necessary to execute those recommendations and ensure the continued capacity of the Office for Outer Space Affairs to implement the Space for Women programme.

47. A follow-up meeting will be held under the auspices of the Office for Outer Space Affairs in 2024.