



# General Assembly

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## Committee on the Peaceful Uses of Outer Space

### **Report on the United Nations/Brazil/United Arab Emirates Space for Women expert meeting: initiatives, challenges and opportunities for women in space (21 and 22 October 2021, Dubai, United Arab Emirates)**

#### **I. Introduction**

1. The mandate of the Office for Outer Space Affairs of the Secretariat is to bring the benefits of space to humankind, and the Office is committed to ensuring that those benefits reach women and girls and that women and girls play an active and equal role in space science, technology, innovation and exploration.
2. The Sustainable Development Goals seek to change the course of the twenty-first century by addressing key challenges, such as poverty, inequality and violence against women. The empowerment of women is a precondition, as women have a critical role to play in the achievement of all the Goals, with many targets specifically recognizing the equality and empowerment of women as both the objective and part of the solution.
3. Sustainable Development Goal 5, on gender equality, is known as the “stand-alone gender goal” because it is dedicated exclusively to achieving those ends. The targets under Goal 5 include ensuring the empowerment of women – including at decision-making levels in leadership – in terms of political and economic participation, and ensuring a life free of violence and harmful practices, control over reproductive health and rights, and reforms to give women access to economic resources, including natural resources.
4. Importantly, one of the targets under Sustainable Development Goal 5, specifically target 5.b, calls for enhancing the use of enabling technology, in particular information and communications technology, to promote the empowerment of women. In order to achieve gender equality and empower all women and girls, the Office for Outer Space Affairs addresses Goal 5 in an all-inclusive manner and promotes space technology in line with target 5.b in particular.
5. Space matters when it comes to the right of women to benefit from science and technology, and as a dimension of achieving the Sustainable Development Goals. Space-related science, technology, innovation and exploration will contribute to bettering humankind and the sustainability of the planet in many areas, such as agriculture, climate change, disaster response, transportation, health, communication and many other applications.



6. Lastly, the fields of science, technology, engineering and mathematics in their own right, and as fundamental fields in the space sector, offer economic and career opportunities for women. Those disciplines represent high-growth industries in which a skilled workforce is in demand. Equal access to those opportunities – including at leadership levels – needs to be provided to girls and women.

## **A. Background and objectives**

7. The meeting was part of the Space for Women project of the Office for Outer Space Affairs, a United Nations capacity-building initiative aimed at facilitating access to the benefits of space exploration, education in science, technology, engineering and mathematics, and careers in those fields for women and girls around the world.

8. The Space for Women project supports thematic priority 7, on capacity-building for the twenty-first century, developed in the context of the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50), with a special focus on the empowerment of women in developing countries. The project encourages women and girls to pursue education in science, technology, engineering and mathematics and serves to raise awareness of career opportunities and the importance of gender equality and empowerment in the space sector.

9. The main objectives of the expert meeting were as follows:

(a) Raise awareness of the role of women in the advancement of space science, technologies, applications and exploration;

(b) Identify the main initiatives, challenges and opportunities for women in the aerospace sector;

(c) Enhance the participation of women in aerospace careers in terms of the number of women in the organizations of the sector and mainly in terms of the accessibility of leadership positions;

(d) Promote discussion on how space technologies and applications can help women and girls to overcome the current gendered structures of inequality, promoting empowerment and inclusiveness;

(e) Present models of women who can be an inspiration for young women and girls in their pursuit of careers in the aerospace sector;

(f) Use gender-sensitive lenses to look at the effects of institutionalized attitudes and gestures reflecting policies that are often legitimated in terms of masculine characteristics, contributing to the perceived inauthenticity of women's voices in matters of policymaking in the aerospace sector;

(g) Discuss how capacity-building initiatives can support the achievement of the objectives and targets proposed.

10. The event was initially planned to be held in Brasilia from 30 November to 2 December 2020; however, owing to the global health situation caused by the coronavirus disease (COVID-19) pandemic, the meeting had to be postponed to October 2021. With the support of the Government of the United Arab Emirates, represented by the Mohammed Bin Rashid Space Centre, the organizers were able to hold the expert meeting on the margins of the Expo in Dubai, United Arab Emirates, on 21 and 22 October 2021.

11. The expert meeting was held at the Dubai Exhibition Centre, and the costs associated with the organization as well as with the accommodation of participants from developing countries were covered by the Federal Government of Brazil. The Government of the United Arab Emirates acted as host and supporter of the meeting.

12. The United Nations and the Federal Government of Brazil, together with the Government of the United Arab Emirates, acted as co-organizers of the expert meeting and handled all administrative and organizational matters.

## **B. Attendance**

13. The expert meeting brought together experts from international organizations, Governments and non-governmental organizations, as well as officials and representatives of the private sector and research institutions, experts from United Nations entities and civil society leaders.

14. Participants were selected on the basis of their scientific and educational background and their experience in implementing programmes and projects related to the topics addressed. The organizers and the programme committee cooperated in the selection of participants and in the preparations for the expert meeting.

15. Funds provided by the United Nations were used to cover travel and other costs for 29 participants from 18 countries.

16. The expert meeting was attended by a total of 60 registered participants. The following 20 Member States were represented: Brazil, Canada, Chile, Ethiopia, Germany, Ghana, India, Israel, Italy, Kenya, Mexico, Netherlands, Nigeria, Paraguay, Republic of Korea, Russian Federation, South Africa, United States of America, Uruguay and Zimbabwe.

17. Representatives of the United Nations Development Programme and the Office for Outer Space Affairs also attended the expert meeting.

## **C. Programme**

18. The programme of the expert meeting was developed by the Office for Outer Space Affairs in cooperation with the Ministry of Science, Technology and Innovation of Brazil, the Brazilian Space Agency, the National Institute for Space Research of Brazil and the Mohammed Bin Rashid Space Centre.

19. The main focus of the meeting was to discuss how the benefits of space can reach women and girls and how to ensure that they can play an equal and active role in the areas of space science, technology, innovation and exploration. During the meeting, the participants had the opportunity to engage in presentations, discussions, lectures and networking, the main aim of which was to promote gender equality and the empowerment of women in the space arena in accordance with Sustainable Development Goals 4 (quality education) and 5 (gender equality).

20. The programme was designed to address those objectives and included plenary and discussion sessions. Time was also allotted for group and breakout discussions in order to raise awareness and promote further concrete policies and actions towards gender equality and the empowerment of women in the areas of space science, technology, innovation and exploration.

21. The following specific themes were addressed at the expert meeting: promoting careers in science, technology, engineering and mathematics fields and in the space sector, and achievements and highlights of gender empowerment in the space sector (session 1); making space for women in the aerospace industry and in science, technology, engineering and mathematics fields (session 2); the space sector as a driver for women's development (session 3); and making space work for women (session 4).

22. The expert meeting was advertised and promoted on various websites and social media platforms, which highlighted its importance and the interest shown in the topics addressed. The final programme and presentations, as well as select recordings, have been made available online on the web page of the expert meeting.

## II. Summary of the expert meeting

23. During the opening session, speakers highlighted the link between the development of the space arena and gender equality, and that space inspired people to achieve and expanded the possibilities of what could be achieved. It was underscored that women were still marginalized when it came to taking advantage of the benefits of the fields of science, technology, engineering and mathematics, and that it was therefore important for more women to go into those fields and the space field.

24. The opening session also provided an opportunity for official representatives of the Ministry of Science, Technology and Innovation of Brazil, the Brazilian Space Agency, the National Institute for Space Research of Brazil and the Mohammed Bin Rashid Space Centre to provide background information on the motivation for supporting actions and activities related to the importance of gender equality and gender empowerment in the space sector. In addition, speakers stressed the important role of the Office for Outer Space Affairs as a capacity-builder, global facilitator and gateway for women and girls in the space sector.

25. During session 1, on promoting careers in science, technology, engineering and mathematics fields and in the space sector, and achievements and highlights of gender empowerment in the space sector, the presenters shed light on opportunities in the space sector and why gender empowerment and equality would be key to a fruitful space economy. Furthermore, the changing space environment, which would require a more inclusive and diverse workforce, was discussed, and initial proposals of impactful actions and measures were presented.

26. The participants in the expert meeting underlined that, while the pursuit of diversity brought many benefits to organizations and fostered their success, in addition to opening up opportunities for women, significant cultural change was required. The true benefits of gender equality and the empowerment of women would accrue through broader paradigm shifts relating to science, technology, engineering and mathematics, inclusiveness and social good and the systemic change that would accompany such shifts.

27. In session 2, on making space for women in the aerospace industry and science, technology, engineering and mathematics fields, speakers highlighted women's capacity development for the future job market and explored the skills that would be needed in the labour market in 2030. The participants stressed that it was important to grant women equal access to all sectors while being cautious about not focusing on training women and girls for areas of work that were likely to disappear in the near future. They also highlighted that it was important to support women's development for the future and to focus on the skills that would be needed in the labour market in 2030.

28. During session 3, on the space sector as a driver for women's development, it was highlighted that space benefits mattered to women and that women's participation in the space sector was critical to the sector's own success. Studies in both the private and public sectors had shown that a diversity of skills and perspectives led to greater innovation and greater success. It was therefore noted that it was obvious at the macro level that all of the world's talent should be embraced more actively.

29. It was noted that, in order to ensure that women were able to gain access to and benefit from space technologies, they needed to have the appropriate awareness, skills and support. The increased relevance of space applications for the empowerment of women also needed to be achieved through the consultation and engagement of women in all stages of development and implementation, as they had different needs and experiences with regard to development challenges and opportunities.

30. Session 4, on making space work for women, was focused on the current landscape and addressed gaps, opportunities and challenges related to the empowerment of women in the aerospace industry and in science, technology,

engineering and mathematics fields. The issues focused on public sector and policy, education and media, as well as skills and leadership.

31. The expert meeting also provided an opportunity to develop recommendations in smaller breakout groups, which were held to discuss and address the following questions:

- *Group 1.* To empower: how can women and girls be empowered to pursue careers in science, technology, engineering and mathematics?
- *Group 2.* To inspire: in what ways can women and girls be inspired to become the next generation of female leaders in science, technology, engineering and mathematics?
- *Group 3.* To induce: how can systemic change be induced to raise female representation in science, technology, engineering and mathematics professions from 20 per cent to parity?
- *Group 4.* To incubate: how can female talent and natural curiosity in the fields of science, technology, engineering and mathematics be nurtured to incubate the next generation of female leaders in those fields?

### III. Observations and recommendations

32. The participants in the expert meeting recommended the creation of a working group of the Committee on the Peaceful Uses of Outer Space to specifically discuss matters of inclusiveness and diversity.

33. Furthermore, it was noted that the Office for Outer Space Affairs should facilitate greater collaboration with different entities focusing on gender and the empowerment of women and international organizations to benefit from specific expertise on the topics of women's rights and gender representation. A clear focus should be laid on the awareness of science, technology, engineering and mathematics professions in rural and developing areas in order to incubate new talent and empower women with limited access to those careers.

34. The use and creation of different online, social media and open-source tools should be evaluated and explored in order to allow for awareness-raising on employment opportunities in the space sector and the provision of background information, educational resources, individual stories and platforms for connection and direct engagement. It was proposed that the Office for Outer Space Affairs should consider creating a formal recognition for notable achievements by women in the space sector.

35. In order to allow for broader access to education and careers in science, technology, engineering and mathematics, it was recommended that the Office for Outer Space Affairs work on the creation of a scholarship programme for women wishing to pursue professional careers in the space sector, and generate extrabudgetary funds to provide entrepreneurial, incubation and seed funding for female entrepreneurs.

36. Participants in the expert meeting proposed the development of space education curricula to provide resources for educators wishing to promote science, technology, engineering and mathematics careers and opportunities in the space sector. In addition, the Office itself could consider the creation of master classes to build skills in the space sector.

37. The mentorship programme of the Space for Women project of the Office for Outer Space Affairs was regarded as a unique opportunity and offer. It was recommended to consider the development of dedicated programmes and courses for both mentees and mentors. Furthermore, professional recognition for participation in the programme – as a mentee or mentor – should be considered.

38. Participants identified the need for greater gender awareness as a main target for the Space for Women project and therefore recommended the equal inclusion of women and men and evidence-based awareness-raising, as well as the generation and exchange of data on gender equality issues.

39. Evidence-based awareness-raising and the collection of critical data were identified as crucial prerequisites for raising awareness, especially among Governments.

40. As an initial step, the participants in the expert meeting recommended initiating a stocktaking exercise and the collection of gender statistics and data disaggregated by sex and making them available and accessible through the creation of an online platform. The online tool could also support voluntary data-sharing among nations on all aspects of gender empowerment in the space sector.

41. The importance of a multidisciplinary approach through multi-stakeholder engagement was stressed for the Space for Women project in order to be able to share information, to identify cross-sectoral needs, to value user needs and to follow a bottom-up approach.

42. Based on the observation that the motivation to pursue a career in science, technology, engineering, mathematics or the space sector came from social clusters, peers and especially from families, the participants in the expert meeting stressed the need to address social and cultural norms. Therefore, the Space for Women project should also focus on greater awareness-raising among the general public with regard to the benefits of science, technology, engineering and mathematics fields and opportunities in the space sector and create regional peer networks to facilitate outreach and awareness-raising.

43. In that regard, participants in the expert meeting stressed the importance of showing the real-world purpose of education in science, technology, engineering and mathematics fields and promoting hands-on training, and underlined that the space field would provide the motivation necessary to demystify science and make it accessible, fun and interesting. In addition, the need to train the trainers and to specifically educate and address teachers was highlighted in that regard.

44. The role of the private sector in recruiting, retaining and promoting women in the space sector, including supporting women-owned enterprises through incubators and supply chains, was highlighted as an important area of intervention.

## **IV. Conclusion**

45. The participants in the expert meeting concluded that the Space for Women project should put strong emphasis on providing institutions and Governments with policy-relevant advice, knowledge management and evidence-based awareness-raising, research and data on gender empowerment, equity and equality.

46. As a starting point for equal opportunities and gender equality, participants in the expert meeting proposed the drafting of white papers, background papers and information documents to inform the discussions in the Committee on the Peaceful Uses of Outer Space.

47. In order to provide common ground and develop a comparable starting point for all stakeholders involved, the participants recommended developing a stocktaking exercise in order to provide a basis for discussions at the next Space for Women expert meeting and to be able to start measuring the impacts of and improvements brought about by dedicated gender empowerment activities in the space sector.

48. The participants concluded by recommending that a follow-up meeting be organized under the auspices of the Office for Outer Space Affairs in order to be able to make progress in the work envisaged. Thanks to the Government of the Republic of Korea, it was announced that the next Space for Women expert meeting would be held in Daejeon, Republic of Korea, in August 2022.