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English only

**Committee on the Peaceful
Uses of Outer Space**
Scientific and Technical Subcommittee
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**Report on the United Nations/Brazil/United Arab Emirates
Space for Women Expert Meeting: Initiatives, challenges
and opportunities for women in space
(21–22 October 2021, Dubai, United Arab Emirates)**

I. Introduction

1. The mandate of the Office for Outer Space Affairs 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 (SDGs) seek to change the course of the 21st century, addressing key challenges such as poverty, inequality, and violence against women. Women's empowerment is a precondition as women have a critical role to play in all of the SDGs, with many targets specifically recognizing women's equality and empowerment as both the objective, and part of the solution.
3. Goal 5 on gender equality is known as the stand-alone gender goal because it is dedicated to achieving these ends. SDG 5 targets include ensuring women's empowerment – including at decision-making levels in leadership – in political participation, economic empowerment, ensuring a life free of violence and elimination of 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 (5b) 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 Sustainable Development Goal 5 in an all-inclusive manner and especially promotes space technology in line with target 5b.
5. Space matters when it comes to the right of women to benefit from science and technology and also as a dimension of achieving the SDGs. Space-related science, technology, innovation and exploration will contribute to bettering humankind and the sustainability of our planet within many areas such as agriculture, climate change, disaster response, transportation, health, communication, and many more spinoffs and applications.



6. Finally, Science Technology, Engineering and Mathematics (STEM) in itself and as fundamental fields in the space sector specifically offer economic and career opportunities for women. These disciplines represent high growth industries where a skilled workforce is in demand. Equal access to these opportunities – including at leadership levels – needs to be made available to girls and women.

A. Background and objectives

7. Space for Women is a United Nations Office for Outer Space Affairs (UNOOSA) project that facilitates access to the benefits of space exploration, science and technology, engineering, and mathematics (STEM) education, and STEM careers for women and girls around the world.

8. The meeting was part of the "Space for Women" Project which falls under the United Nations Capacity Building Initiative. Space4Women encourages women and girls to pursue Science, Technology, Engineering, and Mathematics (STEM) education and raises awareness about career opportunities and the importance of gender equality and empowerment in the space sector.

9. The main objectives of the meeting were:

- Raise awareness about the role of women in the advancement of space science, technologies, applications and space exploration;
- Identify the main initiatives, challenges and opportunities for women in the aerospace sector;
- 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 to leadership positions;
- 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;
- Present models of women who can be an inspiration for young women and girls in their pursuit of careers in the aerospace sector;
- Use gender-sensitive lenses to look at the effects of institutionalized attitudes and gestures that reflect policies often legitimated in terms of masculine characteristics, contributing to the perceived inauthenticity of women's voices in matters of policy-making in the aerospace sector; and
- Discuss how capacity-building initiatives can help the achievement of the objectives and targets proposed.

10. The event was initially planned to be held in Brasília, Federal District, Brazil from 30 November to 2 December 2020, however, due to the global health situation caused by the COVID-19, the Expert Meeting in 2020 had to be postponed to October 2021. Thanks to the Government of the United Arab Emirates, represented by the Mohammed Bin Rashid Space Centre, the organisers were able to host the Expert Meeting on the margins of the EXPO in Dubai, United Arab Emirates from 21–22 October 2021.

11. The Expert Meeting was organised in the EXPO Convention Centre, Dubai, United Arab Emirates, and the costs associated with the organisation as well as with the accommodation of participants from developing countries was covered by the Brazilian Federal Government. The Government of the United Arab Emirates acted as a host and a supporter of the Expert Meeting.

12. The United Nations and the Brazilian Federal Government together with the Government of the United Arab Emirates acted as a co-organizer 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 and experts from United Nations entities as well as civil society leaders.

14. Participants were selected based on their scientific and educational background and considering their experience in implementing programmes and projects related to the topics addressed. The selection and preparations for the Expert Meeting were carried out in cooperation between the organizers and the programme committee.

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

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

17. Representatives of the United Nations Development Programme (UNDP) and United Nations Office for Outer Space Affairs also attended the Conference.

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 (MCTI), the Brazilian Space Agency (AEB), the National Institute for Space Research (INPE) and the Mohammed Bin Rashid Space Centre (MBRSC).

19. The main focus of the meeting was to discuss how the benefits of space can reach women and girls, and ensure they have 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, whose main aim was to promote gender equality and women empowerment in the space area in accordance with Sustainable Development Goals (SDGs) 4 (Quality Education) and 5 (Gender Equality).

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

21. The specific themes of the expert meeting addressed in session 1: *“Promoting careers in STEM fields and in the space sector, achievements and highlights of gender empowerment in the space sector”*; in session 2: *“Let’s make space in the aerospace industry and STEM fields for Women”*; in session 3: *“The space sector working as a driver for women development”* and in session 4: *“Making Space Work for Women”*.

22. The Expert Meeting was advertised and promoted on various websites and on social media tools such as Facebook and Twitter, highlighting 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 Expert Meeting web page.

II. Summary of the Expert Meeting programme

23. The opening session highlighted the link between the development in the space arena and gender equality and that space expands possibilities of what can be achieved and inspires to achieve. The opening underscored the existing fact that

women are marginalized in taking advantages of the benefits in STEM fields and therefore the importance for more women to go into STEM and space.

24. The opening also provided the opportunity for the official representatives from the Ministry of Science, Technology and Innovation of Brazil (MCTI), the Brazilian Space Agency (AEB), the National Institute for Space Research (INPE) and the Mohammed Bin Rashid Space Centre (MBRSC) to provide a background on the motivation to support actions and activities on the importance of gender quality and gender empowerment in the space sector. In the opening session the important role for the Office to act as a capacity-builder, global facilitator and gateway for women and girls in the space sector was stressed.

25. Session 1 on *'Promoting careers in STEM fields and in the space sector. Achievements and highlights of gender empowerment in the space sector'* allowed the presenters to shed light on opportunities in the space sector and why gender empowerment and equality will be key for a fruitful space economy. Furthermore, the changing space environment which requires a more inclusive and diverse workforce was discussed and first proposals for impactful actions and measures were presented.

26. The participants in the Expert Meeting underlined that while the pursuit of diversity brings many benefits to organizations and their success, in addition to opening up opportunities for women, significant cultural change is required. The benefits to gender equality and women's empowerment will truly accrue though broader paradigm shifts around STEM, inclusiveness and social good and the systematic change that would accompany this.

27. Session 2 on *"Let's make space in the aerospace industry and STEM fields for Women"* highlighted women's capacity development for the future job market and explored what talents will be needed in the 2030 labour market. The discussants stressed that it is important to grant women equal access to all sectors while being cautious about not focusing on training women and girls for work areas that are likely to disappear in the near future. It was highlighted that it is important to support women's development for the future and what talents will be needed in 2030 in the labour market, as it is important to grant equal access to all sectors in order not to train, teach and focus on work areas that are likely to disappear.

28. Session 3 on *"The space sector working as a driver for women development"* highlighted that space benefits matter for women and that women's participation in the space sector is critical to its own success. Studies in both private and public sectors have shown that a diversity of skills and perspectives leads to greater innovation and to greater success. It was therefore noted, that at the macro-level it is obvious that we should be more actively embracing all of the world's talent.

29. It was noted that to ensure that women are able to access and benefit from space technologies, they need to have the appropriate awareness, skills, and support. The increased relevance of space applications for women's empowerment also needs to be achieved through consultation and engagement of women in all stages of development and implementation as they have differentiated needs and experiences around development challenges and opportunities.

30. Session 4 on *"Making Space Work for Women"* on focussed on the current landscape and addressed gaps, opportunities and challenges around women's empowerment in the aerospace industry and STEM fields. The issues focussed 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 within smaller breakout groups which were designed to discuss and address the following questions:

- Group 1 – To Empower: How can women and girls be empowered to pursue careers in STEM?
- Group 2 – To Inspire: In what ways can women and girls be inspired to become the next generation of female leaders in STEM?

- Group 3 – To Induce: How can systemic change be induced to raise the female representation in STEM professions to parity from 20%?
- Group 4 – To incubate: How can female talent and natural curiosity in STEM be nurtured to incubate the next generation of female leaders in STEM?

III. Observations and recommendations

32. The participants to the Expert Meeting recommended the creation of a Working Group with the Committee on Peaceful Uses of Outer Space to specific discuss matters of inclusivity and diversity.

33. Furthermore, it was noted that the Office for Outer Space Affairs should facilitate great collaboration with different gender empowerment and focussed entities and international organisations to benefit from expertise specifically on women's rights and gender representation. A specific focus should be on the awareness of STEM profession in rural and developing areas in order to incubate new talent and empower women with limited access to these careers.

34. The usage 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, provision of background information and educational sources and individual stories as well as platforms for connection and direct engagement. It was proposed for the office to consider the creation of formal recognition for notable achievements by women in the space sector.

35. In order to allow for broader access to STEM education and careers it was recommended that the Office for Outer Space Affairs works on the creation of a scholarship programme for women wishing to pursue professional careers in the Space sector as well as generate extra budgetary funds to provide entrepreneurial, incubation and seed funding for female entrepreneurs.

36. Participants to expert meeting proposed the development of space education curricula to provide a resource for educators wishing to promote STEM careers and the opportunities in the space sector. Additionally, the office itself could consider the creation of master's classes to build skills in the space sector.

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

38. The participants identified the need for greater gender awareness as a main target for a "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 collection of critical data was identified as crucial and an important prerequisite to raise awareness especially among governments.

40. As an initial step the participants to the expert meeting recommended to initiate a stock-taking exercise and the collection of gender statistics and data disaggregated by sex and to make it available and accessible through the creation of an online platform. This online tool could also support voluntary data sharing between nations on all aspects of gender empowerment in the space sector.

41. The importance of a multidisciplinary approach through multi-stakeholder engagement was recommended for a dedicated project in order to be able to share information, identify cross-sectorial needs as well as value user needs and to follow a bottom-up approach.

42. Based on the observation that the motivation to pursue a STEM career or in the space sector comes from within social clusters, peers and especially from within families, the participants to the expert meeting stressed the need to address social and cultural norms. Therefore, a “Space for Women” Project should as well focus on greater awareness raising about the benefits of STEM fields and opportunities within the space sector among the general public as well as create regional peer networks to facilitate outreach and awareness raising.

43. In that regard the Expert Meeting recommend the importance to show real-world purpose of STEM education as well as to promote hands-on training and underlined that the space field would provide a necessary motivating area in order to demystify science and make it accessible, fun and interesting. Furthermore, 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 Space, including supporting women owned enterprise through incubators and supply chains, was highlighted as an important area of intervention.

IV. Conclusion

45. The participants to the expert meeting concluded that the “Space for Women” Project should put a strong emphasis on providing policy-relevant advice, knowledge management and evidence-based awareness raising, research and data to institutions and governments on gender empowerment, equity and equality.

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

47. In order to provide common grounds and a develop a comparable starting point the participants recommended the development of a stock-taking exercise to provide the basis for discussions at the next Space for Women expert meeting as well as to be able to start measuring impacts and improvements of dedicated gender empowerment activities in the space sector.

48. The participants concluded with the recommendation to organize a follow up meeting under the Office’s framework in order to be able to progress on the work established. Thanks to the Government of the Republic of Korea it was announced that the next Space for Women expert meeting will be held in Daejeon in August 2022.
