United Nations A/AC.105/1343

General Assembly

Distr.: General
25 April 2025

Original: English

Committee on the Peaceful Uses of Outer Space
Sixty-eighth session
Vienna, 25 June–4 July 2025

Report on the United Nations/Kenya Space for Women expert meeting: integrating women in space activities and solutions

(Nairobi, 27–29 November 2024)

I. Introduction

1. The Office for Outer Space Affairs and the Government of Kenya jointly hosted the Space for Women expert meeting on the theme "Integrating women in space activities and solutions" from 27 to 29 November 2024.

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 (STEM) 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 recommendations and way forward.

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 STEM 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 STEM 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 STEM; 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

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

6. The fifth Space for Women expert meeting was organized in cooperation with the Kenya Space Agency and was held at the United Nations Office at Nairobi from 27 to 29 November 2024.

7. The fifth expert meeting was focused on the increasing integration of women and girls in space activities and solutions and built on the outcomes from the previous meetings held in the United States of America, the United Arab Emirates, the Republic of Korea and Canada.

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

(a) To bring together experts to share expertise, knowledge, experience and practical solutions, and chart a way forward with respect to gender equality in the space domain;

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

(c) To build women’s capacity to leverage space capabilities and integrate their unique skills, perspectives and knowledge in the development of solutions;

(d) To establish a cross-regional network of professionals to advance space solutions to benefit local and national communities in addressing challenges specific to their needs;

(e) To analyse results of the comprehensive study on women’s participation in the space workforce at the global level;

(f) To advance the implementation of the *Gender Mainstreaming Toolkit for the Space Sector* through the engagement of champion agencies and the sharing of best practices;

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

(h) To facilitate educational programmes and initiatives at the grass-roots level to ensure that all women and girls have equal access to opportunities regardless of their status or position;

(i) To support mainstreaming of gender in national space strategies and policies, including in the STEM fields;

(j) To initiate the development of a toolkit for unlocking STEM education for women and girls in marginalized communities.

9. The Office for Outer Space Affairs and the Kenya Space Agency acted as co-hosts of the expert meeting and worked in close collaboration on substantial, administrative and logistical matters.

III. Attendance

10. The expert meeting brought together experts from governmental institutions, such as national space agencies and entities, and universities, research institutions, non-governmental organizations, civil society, the private sector and international organizations.

11. Participants were selected on the basis of their academic, professional and personal experience with gender mainstreaming in the space sector and in STEM. Focus was placed on their level of engagement in capacity-building projects, especially at the grass-roots level. The co-organizers cooperated in the selection of participants and preparations for the meeting.

12. Funds provided by the United Nations were used to cover the travel and other costs of 17 participants from 15 countries.

13. The event was attended by a total of 115 participants, including 55 speakers. The following 34 Member States were represented: Australia, Bolivia (Plurinational State of), Cameroon, Canada, China, Colombia, Costa Rica, France, Gabon, Germany, Ghana, India, Israel, Italy, Kenya, Namibia, Nepal, Netherlands (Kingdom of the), Nigeria, Pakistan, Philippines, Republic of Korea, Senegal, Serbia, Slovakia, South Africa, Spain, Sudan, Sweden, Tunisia, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay and Zimbabwe.

14. For the first time, the opportunity to attend the plenary sessions online was offered to anyone interested. Online attendance averaged 60 participants per day.

IV. Programme

15. The programme of the expert meeting was developed by the Office for Outer Space Affairs in collaboration with the Kenya Space Agency. The organizational team benefited from the advice provided by the Canadian Space Agency and developed the programme in line with the lessons learned from the United Nations/Canada Space for Women expert meeting, held in 2023, both in terms of logistics and content. In particular, the Canadian Space Agency provided valuable support in the preparation of methodology for the breakout discussions, which greatly contributed to their successful implementation.

16. The expert meeting was focused on sharing successful initiatives and best practices to promote and advance gender equality and empower women and girls in the space sector and in the STEM fields, pursuant to Sustainable Development Goals 4 and 5. In particular, successful capacity-building initiatives at the grass-roots level were specifically emphasized with the aim of fostering interest and widening opportunities for women and girls in their communities.

17. Spanning three days, the programme included a series of thematic sessions, panel discussions, keynote addresses, storytelling segments and video messages, in a plenary setting, covering a wide range of key topics aimed at strengthening the understanding and advancement of gender equality in the fields of space and STEM. Participants were consistently given the opportunity to engage with the speakers to delve deeper into the topic. Furthermore, participants participated in interactive breakout discussions and a workshop segment where they initiated discussions on the elaboration of a STEM education toolkit. Participants also attended an evening reception hosted by the Kenya Space Agency on 27 November 2024.

18. The discussions included the participation of 55 speakers and covered the following themes:

(a) Measuring the participation of women in the space workforce: quantitative data on women's participation in the space workforce and measuring gender barrier perceptions;

(b) Advancing the gender-sensitive policy uptake through the implementation of the *Gender Mainstreaming Toolkit for the Space Sector*;

(c) Unlocking women's leadership in the space sector;

(d) Empowering women in space research and innovation;

(e) Actionable and tailored capacity-building initiatives for STEM education at the grass-roots level;

(f) Successfully raising global awareness of women's participation in the STEM and space sectors;

(g) Women entrepreneurship in the space sector: the keys to success.

19. In the afternoon of the second day, participants gathered in a workshop segment to initiate consultations on the concept of a STEM education toolkit for women and girls from marginalized communities.

20. The fifth expert meeting was also an occasion to conduct online consultations with policymakers from sub-Saharan Africa on a project that successfully connected schools in remote areas through satellite connectivity and e-learning programmes, including the potential replicability of this model in other parts of the region.

21. Throughout the expert meeting, breakout discussions were conducted in four working groups, which provided experts with an opportunity to reflect on and further discuss the topics raised during the sessions and panel discussions held in plenary. Each working group identified a set of recommendations and later presented them in plenary. The expert meeting culminated in the selection of the top recommendations on ways to increase the opportunities for all women and girls, regardless of their origins, to access and thrive in the fields of STEM and space. Participants also made recommendations on how international, regional, national and local efforts could be strengthened to foster gender mainstreaming in those sectors, with particular emphasis on the need for action at the local level.

22. On 11 February 2025, International Day for Women and Girls in Science, the Office for Outer Space Affairs held a side event entitled “The Space4Women project: celebrating women and girls in science!” on the margins of the sixty-second session of the Science and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, during which the representative of Kenya shared the main takeaways from the United Nations/Kenya Space for Women expert meeting, alongside all past Member States that had hosted such expert meetings.

23. The final programme and a summary of the meeting are available on the expert meeting page of the Space for Women website (https://space4women.unoosa.org/https%3A//space4women.unoosa.org/news/2024-space4women-expert-meeting-recap-and-resources).

V. Summary of the expert meeting

24. The focus of the fifth Space4Women expert meeting was to promote and foster capacity-building efforts, especially at the grass-roots level, with a view to raising awareness and furthering opportunities for women and girls at the most local levels to pursue STEM education and build a career in the space sector. While on the first day of the meeting the aim of the programme was to provide a broad, comprehensive and policy-oriented overview of the issue of women’s inclusion in the space and STEM sectors, discussions on the second day focused on capacity-building initiatives and grass-root level efforts as solutions. The meeting concluded on the third day with the identification of recommendations for the future.

25. The expert meeting started on the morning of 27 November 2025 with an opening ceremony with remarks from the following distinguished speakers: the Director of the Office for Outer Space Affairs, the Vice-President of Policy, Communications and Strategic Planning of the Canadian Space Agency (via video message), the Director General of the Kenya Space Agency, the Principal Secretary of the State Department for Foreign Affairs of Kenya and the Cabinet Secretary of the Ministry of Defence of Kenya.

26. After a group photo, the expert meeting continued with an introductory session. The project manager of Space4Women from the Office for Outer Space Affairs presented the project and its main achievements, establishing the framework and context of the fifth expert meeting. A representative from the Canadian Space Agency reported on the fourth expert meeting, held in Canada in 2023, to ensure the continuum of the work and help guide the expert meeting on the basis of lessons learned. The project manager of Space4Women then introduced the topics and presented the working methods and desired outcomes of the fifth expert meeting.

27. With a view to providing participants with a comprehensive understanding of the situation of gender equality in the space sector, a representative of the Global Institute for Women's Leadership of the Australian National University presented the Landmark Study on Gender Equality in the Space Sector, which had been conducted under the auspices of the Space4Women project with the support of the Republic of Korea, providing actual quantitative data on women's participation in the space workforce. A representative of the Korea Aerospace Research Institute then presented the study on gender barrier perception in science and engineering conducted by the Institute, which offered insightful methodological points on gathering and analysing qualitative data on women's participation in the space sector, and also provided an overview of the case of the Republic of Korea. Finally, the representative of the Canadian Space Agency presented the *Gender Mainstreaming Toolkit for the Space Sector*, elaborated under the framework of the Space4Women project with the support of the Canadian Space Agency, which offered a tangible solution to bridge gender gaps.

28. The panel on the theme "Championing the implementation of the Gender Mainstreaming Toolkit: advancing the gender-sensitive policy uptake" gathered representatives and equal opportunity advocates from national space agencies and the private sector. Representatives shared strategies, challenges and success stories from their respective organizations, emphasizing the need to advance gender-sensitive policies in line with the *Gender Mainstreaming Toolkit for the Space Sector*. A representative of the Kenya Space Agency provided an in-depth look at the Agency's efforts to champion gender mainstreaming, outlining the Agency's gender mainstreaming policy of 2020, which was grounded in the country's policy framework, including the African Union Agenda 2063, the Kenyan Constitution and the National Gender and Equality Commission Act of 2011. A representative of the Senegal Space Study Agency described the country's commitment to gender inclusivity, highlighting the pivotal role of the Agency, which had been established under the President's Office, in promoting education at all levels. She drew attention to the importance of platforms like the European Space Education Resource Office project in fostering engagement with STEM among youth. A representative of the German Space Agency highlighted that, despite the persistent gender gap in space careers in Germany, a critical opportunity was emerging for women, as 12.9 million people were expected to retire in the country within the next 15 years, noting that it was the "time for women to shine" and calling on women to seize opportunities and redefine their roles in the space industry. A representative of a private space company showcased its "Azalea" mission, led by an all-female engineering team, as an inspiring example of gender mainstreaming in the private sector, and emphasized the value of women's perspectives in space engineering and the broader importance of diversity for innovation, equity and sustainable growth. She also posed the question of how the *Gender Mainstreaming Toolkit for the Space Sector* could be promoted in the space sector. Finally, a representative from the Philippine Space Agency explained how the Toolkit was applicable to the context of the Agency, highlighting the creation of a gender and development committee, which was responsible for integrating gender standards and requirements in the programme cycles and providing trainings, while also pointing out the need to increase the budget dedicated to such work. The panel concluded that the implementation of the Toolkit, an invaluable tool for any organization, would continue, emphasizing the specific need to strengthen efforts to improve the retention of women, implement unconscious bias training, expand leadership access and increase budgets for dedicated programmes and roles that drove gender equality from within.

29. The panel on the theme "Unlocking women's leadership in the space sector" analysed ways of breaking barriers to leadership positions for women, in view of the fact that, as noted in the Landmark Study, women were specifically underrepresented in higher-level roles. The panel highlighted the diverse perspectives and experiences of women leaders from different countries, defining leadership as decision-making, influence on policy and high-level involvement in an organization's operations. A representative of a private space company highlighted the need to close gaps in

managerial roles by supporting, mentoring and educating women globally, particularly through mentorship programmes. A representative of the National Space Research and Development Agency of Nigeria noted that there had been progress in women holding leadership roles despite persistent challenges, including limited government support, lack of role models and societal stereotypes. A representative of the Department of Science, Technology and Innovation of South Africa shared how challenging norms could fuel innovation, advocating for initiatives like Space4Women. A representative of the Philippine Space Agency emphasized the results of capacity-building partnerships in her organization and the importance of ensuring the participation of women in policymaking. Finally, a panellist from the Kenya Space Agency underscored that leadership was a journey requiring resilience, emotional intelligence and self-reflection as vital tools. Collectively, the panel members called for early mentorship, including from positive male mentors, intentional policies, the creation of platforms for women's voices and the integration of emotional intelligence into leadership practices. Finally, they encouraged women to believe in their abilities and overcome barriers.

30. The panel on the theme "Space exploration for all: analogue missions as a tool for innovation" gathered scientists and analogue astronauts to explore the issue of women's inclusion in space exploration. The panel began with a keynote address by a representative of the Colombian non-governmental organization that had led the organization of the Valquiria Mission, the first all-female and pan-Latin American Mars analogue mission, which was underway at the time of the expert meeting. The aim of the mission was to conduct targeted research to advance women's inclusion in space exploration, specifically looking at women's health, nutrition and team behaviour, and assessing life support technologies for women. Panellists recalled the need for diversity in teams, as diversity brought a broader range of perspectives, more options for problem-solving, and enhanced creativity and innovation. An astrobiologist from a research institute in the United States pointed out that, given that teamwork was vital in analogue missions, women had the opportunity to embrace collaborative efforts and leverage their natural strengths, such as those relating to observation and leadership, to find innovative ways to complete tasks together even when physical limitations arose. However, although their complementary strengths made women invaluable contributors to the success of missions, they remained largely underrepresented in human spaceflights. A space healthcare expert at an Italian company mentioned that biological factors were often still used as justification for excluding them, resulting in a vicious circle where prioritizing men as the representatives of humanity limited progress, particularly in terms of designing technologies that suited women. Today, the gradual increase in women's participation in the space sector was driving more comprehensive innovation in spaceflight technologies as well as significant advances in space medicine, as the biological impact of spaceflight differed greatly from one human to another. The need for gender-balanced representation in space exploration had thus become essential to benefit humanity as a whole and accelerate technological progress. As an aerospace engineer at a research institute in Spain pointed out, the journey in the space sector was often described as "a baton passed from one generation to the next" and it was now the current generation's turn to drive progress. Panellists agreed that sparking interest in space-related topics in young girls at an early age was essential and mentorship was a most valuable tool to create the "chain of inspiration" women and girls needed.

31. The second day started with the session on the theme "Actionable initiatives for education at grass-roots level", which was aimed at presenting successful capacity-building initiatives to increase the interest and capacities of women and girls in the STEM fields at the local level. The founder of the Nigerian non-governmental organization Edufun Technik described her journey to fund her organization from the grass-roots – beginning with her own story of joining the information technology field at the age of 17 – with the aim of tackling challenges for girls relating to STEM, including by bridging last-mile access through mentorship, energy and hands-on learning. Guided by the goal of empowering girls by facilitating Internet access,

preventing early marriage and scaling resources, her initiative had already had an impact on 250,000 girls, enabling their access to computers, teachers and opportunities for a brighter future. A space education advocate from the University of Karachi described her experience with creating diverse initiatives to empower girls in the STEM fields across Pakistan. Robotics and space science training for students and teachers included initiatives that promoted inclusive education by addressing biases, designing equitable curricula and highlighting female role models. Such initiatives constituted a call to action for inclusive education programmes, textbook reforms, pedagogical kits and mentorship. A representative of a space start-up in Ghana presented the role of the CanSat project in bridging gender gaps in Ghana. The programme enabled high school students to design experimental satellites that could be contained within the volume and shape of a soft drink can. She underscored the project's teaching model, which was rooted in astronomy, electronics, data analysis, climate change and space engineering, and the SheSat Ghana programme dedicated to girls. Despite challenges, such as location constraints, funding, societal pushback and rigid curricula, the initiative constituted a real asset to foster passion and advance the STEM skills of young students. The founder of the "Youth for Sustainable Development" project targeting younger girls (aged 4 to 17) in Cameroon presented the project's activities, which included classroom sessions to build knowledge from the ground up by teaching basic aerospace principles and engineering concepts. She highlighted that fun and hands-on projects at young age, including building rocket models and activities involving robotics and astronomy, had a profound impact on science education and gradually sharpened young minds. A member of Space Foundation Nepal presented its STEM and space engineering training activities for undergraduates and their key contribution to the development of the space capacities of Nepal in line with the country's pressing needs. She described how, with the objective of putting Nepal in space from the ground up, the Foundation had successfully empowered more than 2,000 young persons across all seven provinces of Nepal through various space training projects, satellite bootcamps and the production of a free, open-source learning website. Bridging the gap from the grass-roots level, the organization intended to uplift space education and the space industry and its social impact in Nepal, despite recurring challenges linked to limited funding, manufacturing capabilities and technical infrastructure. Finally, the founder of the Kenyan non-governmental organization Travelling Telescope, which promoted astronomy in remote areas by offering telescope viewing opportunities and planetarium sessions for young people, highlighted the impacts of the projects on more than 500,000 Kenyan school students and how business and tourism fed into space education in the country, creating economic opportunities for women, youth and society. Panellists concluded by mentioning the need for further international collaboration for their respective projects, which would bring more visibility, funding and opportunities.

32. The panel on the topic "Empowering women in space research and innovation" was introduced by a video message that retraced the inspiring journey of the all-female crew from the San Pablo Bolivian Catholic University that won the Space4All HyperGES fellowship, sponsored by the Office for Outer Space Affairs, for their hypergravity experiments on blood cells. The women scientists and researchers on the panel shared their experiences with institutional empowerment and examples of effective initiatives that had encouraged them in their career in space research. A research coordinator from the San Pablo Bolivian Catholic University emphasized that empowerment came from having the necessary skills for one's work while acknowledging that mistakes were part of growth. She also stressed that women holding leadership positions should be normalized rather than being seen as exceptional. A systems engineer from the National Aeronautics and Space Administration (NASA) of the United States highlighted that emotional empowerment was a key factor in enabling others. She defined empowerment as having the skills to be effective, authentic and overcome cultural expectations. She also noted that institutional empowerment involved policies that created safe work environments, such as the gender inclusion efforts of her own organization. A

Tunisian aerospace engineer representing a German private space company described empowerment as being in a position to guide work rather than doing work for others and stressed the importance of exposure and capacity-building, citing scholarships, fellowships and professional recognition as key motivators. Leading by example and making skills visible were crucial elements of her empowerment journey. A representative of the University of Nairobi viewed empowerment as a transformative journey that shifted perspectives, particularly for women in space-related fields. She illustrated her point with a personal story about mentoring a young boy while carrying out geographic information system data-collection in the field, highlighting the often unseen ripple effects of empowerment. A representative of the Namibia University of Science and Technology discussed her efforts to found the Namibia Women in Engineering association, initially starting with 15 female lecturers. She shared her experience of overcoming self-doubt when she had been elected president of the engineering council and how she had used that position to launch initiatives that empowered young girls in engineering, emphasizing the need to push beyond one's comfort zone. The session concluded with an open discussion, where participants were invited to share their own examples of deliberate empowerment efforts that had had a meaningful impact.

33. The panel on the topic "Sharing actionable and tailored capacity-building solutions for reaching gender equality in space and STEM" focused on empowering women and girls in STEM. A representative of the All Nations University in Ghana shared the evolution of the CanSat laboratory, which had launched key initiatives, such as satellite training and virtual projects, during the coronavirus disease (COVID-19) pandemic. She highlighted the African Space Station Project, a free online resource supported by the Ministry of Education of Ghana. A representative of the United States Space Command discussed integrating the women, peace and security framework, which emphasized gender equality for peaceful resource sharing, into space operations. The founder of the She Is Foundation in Colombia explained how the organization, in collaboration with NASA, had launched the first Spanish-language STEM programme, which has benefited over 17,000 women across six countries, combining mentorship, scholarships and hands-on training to inspire girls to pursue higher education and address societal challenges like early pregnancy. The founder of the Cosmic Girls Foundation in the Kingdom of the Netherlands presented a global initiative that offered girls aged 14 to 19 opportunities in astronautics and STEM. Supported by international partners, the programme culminated in a suborbital space flight for one participant, fostering confidence, collaboration and empowerment. Additionally, a senior lecturer from the Lok Jagruti University in India reflected on her journey, highlighting challenges related to career breaks faced by women, and underscored the importance of creating systems and targeted capacity-building to re-engage women scientists. The importance of inclusive training environments, including protective policies and multilingual offerings, motivational messaging, global partnerships to foster knowledge exchange and community-impact programmes addressing societal challenges, such as early pregnancy and rural access to education, were emphasized. The session concluded with a call for greater awareness, resource sharing and collaboration to inspire and support women and girls in STEM, ensuring lasting global impact.

34. After the closure of the plenary on the second day, participants gathered in a workshop segment with the objective of reflecting on ways to improve STEM education for women and girls in marginalized communities to advance gender equality in the space sector. The workshop constituted the first consultations on the elaboration of a STEM education toolkit for women and girls from underprivileged communities and concluded with participants offering firsthand recommendations. Working in four groups, participants first mapped the needs, gaps, and barriers faced by women in communities in respect of STEM education and then reflected on the scope of the toolkit. Participants highlighted that the toolkit should serve as a comprehensive resource to scope challenges, offer baseline information, help identify training needs, guide policies and guide the sustainability of projects to train women and girls in STEM, with a view to ultimately increasing their participation in those

fields. The target audience and users should include decision- and policymakers, the private sector, international organizations and development programme leads, non-governmental organizations, education institutions – including STEM interschool competitors – and science hubs, as well as parents, civil society, community representatives and anyone willing to make a change. Experts highlighted that a toolkit should provide: (a) a guide to mapping recurring challenges to address at the policy level and policy guidance to shift mindsets; (b) educational resources, including an inclusive educator manual for different age groups and accessible materials for marginalized communities; (c) project management tools, including measurable goals, evaluation methods and actionable procedures for sustainable implementation; (d) case studies and success stories showcasing successful initiatives, highlighting female role models and documenting regional best practices; and (e) community empowerment and outreach resources. Participants also underscored the benefits of Space4Women expert meetings, interviews with key informants and surveys to collect key data.

35. The special session for policymakers entitled “Unlocking education for girls in marginalized communities through satellite communication” took place in a hybrid format, under the moderation of a representative of the Southampton Education School. Policymakers from multiple sub-Saharan African countries were briefed about the iMlango programme, which successfully connected over 245 remote primary and secondary schools in Kenya to the Internet through satellite connectivity and developed an e-learning programme that unlocked STEM education for more than 80,000 underprivileged girls. The potential of replicating and scaling this satellite-enabled solution and e-learning model was subsequently discussed.

36. The last day opened with the panel on the topic “Raising global awareness: successful outreach initiatives” which highlighted successful efforts to raise global awareness of the importance of addressing gender and systemic barriers in the space sector, particularly in underrepresented and rural communities. A representative of a consulting firm in Uruguay shared the firm’s work to promote gender equality and overcome educational inequalities in the STEM fields in Latin America, while a representative of the non-governmental organization Cosmos for Humanity discussed ways of creating an inclusive space for women in the field of space sustainability through their Space Women Alliance (SWAN) platform, a database of female talents available for public speaking and job opportunities. A representative of the Serbian Office for Space Sciences, Research and Development shared the Office’s achievements, including the “women-led space innovation hub” which ensured a consistent gender balance in its scientific events, and its plans for targeted partnerships with academia. A representative of a satellite company based in the United Kingdom showcased the iMlango programme, which enhanced e-learning in remote areas and successfully engaged communities in support of girls’ education. Finally, the founder of the Costa Rican foundation Latin Women in Space presented the foundation’s community in Latin America, which inspired, educated and empowered women to play a leading role in space exploration and aerospace science through vocational training, economic empowerment, collaboration with academic institutions to promote women’s participation in research and development, networking, and awareness-raising campaigns and events. Concluding that discrimination was still prevalent in the societies of today, the panel shed light on the critical need for targeted and deliberate programmes to foster inclusion and drive systemic change in the space sector by, inter alia, encouraging women to assume public speaking’s roles and lead research centres, and setting up specific educational programmes for girls in underprivileged communities.

37. The last panel of the expert meeting, entitled “Entrepreneurship for women in the space sector: the keys to success”, featured successful women space entrepreneurs and explored strategies to empower women entrepreneurs in the space sector while highlighting their unique challenges and opportunities. A space entrepreneur from South Africa emphasized the benefits of business preparedness and shared concrete pitching techniques, also highlighting the need for programmes targeting skill

development in the areas of strategic thinking, communication, financial literacy and relationship building. A space entrepreneur from Italy shared her experience facing critical barriers, such as lack of self-confidence, gender bias and lack of work-life balance. She stressed the importance of empowering women to step out of their comfort zones, overcome the confidence gap through mentorship and practice, and push their limits by moving beyond familiar roles and taking calculated risks as well as developing leadership resilience in respect of innovation and decision-making. Finally, a space entrepreneur from Kenya shared how she had navigated her journey from passion to enterprise in the African context, where women were "sometimes thrown into the deep end and must learn by fire". She stressed the importance of being innovative by learning critical skills such as communication, negotiation and marketing, while developing critical thinking and market awareness to identify opportunities and create impactful solutions. The panel concluded that empowering women to become entrepreneurs requires a combination of skills, resources and supportive networks to break systemic barriers and unlock their full potential. The panel called for the expansion of pitching training programmes, the creation of funding pathways and the promotion of community-level mentorship to nurture young talent and inspire future innovators, noting that all of those topics could be covered in an entrepreneurship toolkit for women in space.

38. To close the discussions and generate insights for the audience, all panel moderators were invited to a last discussion to develop recommendations for follow-up actions. In response to a question about key takeaways, the moderators mentioned that identifying influential figures and being purposeful in planning would be an asset in achieving the goals of the Space4Women initiative. It was also emphasized that recognizing the opportunities available to women and ensuring their active participation in shaping the industry were crucial for progress. The moderators particularly highlighted the significant impacts women had already made on the space sector, as well as the importance of having a clear vision and mission for women in the industry. When asked about the actions that should be prioritized next, it was suggested that more men should be included in the conversation to drive broader progress, as collective efforts were key to achieving change. The need to focus on measurable results to track success was also emphasized, along with ensuring the sustainability of projects by involving women in proven initiatives. The importance of resuming mentorship programmes was also highlighted as a critical next step. Regarding policies to take back to governments, it was proposed that broader participation of national space agencies in initiatives like Space4Women was necessary to ensure diverse perspectives and actionable outcomes. Amplifying women-led initiatives through regular communication and leveraging the efforts of existing organizations was recommended to gain government support. Additionally, engaging senior-level stakeholders and facilitating data collection to measure the impact of initiatives were seen as crucial steps in driving meaningful change. In the closing remarks, it was stressed that consistency and proactive leadership were key to achieving lasting change. The role of mentorship in inspiring the next generation was also highlighted, alongside the importance of believing in youth and their potential to achieve great things in the space sector.

39. Before concluding, participants were invited to present the recommendations they had formulated in the four working groups and to vote on the top eight recommendations of the expert meeting. Experts specifically recommended strengthening efforts at the grass-roots level; creating national focal points and regional collaboration groups; investing further in capacity-building, training, mentorship and infrastructure; unlocking more funding opportunities for courses and training resources; and fostering strategic communication with policymakers and governments.

40. Two keynote addresses were also delivered at the closing of the expert meeting:

(a) A representative of the Southampton Education School of the University of Southampton presented the School's research on inclusive online learning with a focus on Africa. The speaker highlighted the immense potential of online learning as

a flexible, equitable solution, particularly for women, though challenges remained with respect to access and curriculum focus. She also emphasized the need for frameworks that integrated community, engagement, pedagogy, equity and design to create sustainable and inclusive online learning systems globally. Her recommendations for system-wide change centred on leadership at the grass-roots level, responsible development of artificial intelligence, ethical deployment and culturally responsive policies. She concluded with an optimistic outlook, underscoring that while challenges persist, positive disruptions and framework-based research were essential for realizing a globally equitable future in online learning;

(b) A representative of a learning-related company in Kenya gave a presentation on how the company had successfully partnered with a private satellite provider to use satellite connectivity to enable excellence in mathematics in basic education in rural Kenya, through the iMlango project. Using Ka-band satellites, broadband connectivity had powered the programme to ensure the successful implementation of e-learning in 245 remote and rural schools across Kenya. She provided details on the "four-class gap", which referred to the fact that, because students in a typical classroom had mathematics abilities spanning a range of four years, teachers could not consistently meet each child's individual learning needs, culminating in unresolved gaps in students' knowledge and a loss of confidence. E-learning in STEM was presented as a successful solution that could be adapted to individual learning abilities and needs to gradually bridge the gap in mathematics abilities and restore self-confidence. The project offered an insightful example of how space technology could support STEM education in underprivileged communities, adding to the discussions regarding the elaboration of a STEM education toolkit.

41. In addition, four young women from Colombia, Kenya and Tunisia had the opportunity to share with the plenary their experiences with entering the space sector, highlighting the high value of the mentoring support they had received, including from Space4Women, as well as the research and skill-building opportunities from which they had benefited.

VI. Recommendations and way forward

42. Throughout the three-day expert meeting, experts shared insights and recommendations nourished by the panel discussions, presentations and working groups. The recommendations below are of particular interest with respect to advancing gender equality in the STEM and space fields in future:

(a) **Foster action at the grass-roots level.** Too often, action remains at the highest and global levels, leaving underprivileged women and girls behind. Decentralizing actions to the most local levels is critical to ensure that no women or girls are left behind when it comes to pursuing education and careers in STEM. In that regard, solutions such as establishing local chapters of Space4Women and local focal points should be explored;

(b) **Develop a STEM education toolkit for women and girls in underprivileged communities**. Initial consultations for the elaboration of a STEM education toolkit for women and girls from underprivileged communities were conducted during the expert meeting and generated valuable inputs. Such a toolkit would represent a tangible solution to the recuring challenges discussed during the expert meeting and efforts towards its elaboration should be pursued;

(c) **Recognize the power of mentorship and the vital role of the Space4Women Mentorship Programme**. Throughout the discussions, experts highlighted the critical role of mentorship and demonstrated its benefits. In particular, the Space4Women Mentorship Programme proved to be highly impactful for beneficiaries owing to its global resonance and the quality of its mentors. Participants called for the Space4Women Mentorship Programme to be continued;

(d) **Unlock more funding opportunities for women and girls**. Education is at the core of gender equality in the space sector. In that regard, efforts must be strengthened to ensure adequate and equal education in the STEM fields to nurture the interest, self-confidence and skills of women and girls, at all levels. Participants called for more funding opportunities for women and girls, including scholarships and mentorship programmes. Space4Women can be a vehicle to unlock more opportunities and disseminate key information;

(e) **Pursue implementation of the *Gender Mainstreaming Toolkit for the Space Sector***. The Toolkit was described as a key resource for any space entity to undertake gender mainstreaming efforts, including supporting organizations taking measures to increase the representation of women and creating enabling environments where women can thrive. Awareness-raising activities should continue to ensure the successful implementation of the Toolkit. In addition, the Toolkit should be viewed as a living document that can be constantly adapted to any context, so that it can serve as a resource for any entity, including in the private sector, that is part of the global space community;

(f) **Include more men in the conversation**. Progress will only be achieved when this dialogue extends beyond women. The involvement of men who are dedicated to increasing women's participation in the space sector was particularly inspiring. Participants strongly called for greater male participation in the conversation going forward;

(g) **Track and advance achievements.** Experts highlighted the need to be able to focus on measurable results to track and advance achievements. In this sense, the Landmark Study on Gender Equality in the Space Sector could potentially serve as a great tool of reference to track progress towards reaching gender equality in the space sector globally;

(h) **Raise awareness among policymakers and communities**. Strategic communication with policymakers and governments, but also within communities, including with teachers and parents, remains essential to ensure that efforts made and the tools developed bring results and are used.