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**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
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Item 5 of the provisional agenda*
Space technology for sustainable
socioeconomic development**

Report on the Space4Water Portal of the United Nations Office for Outer Space Affairs: launch, current scope and future plans

I. Introduction and Purpose

1. This report introduces the Space4Water Portal, a web portal developed in 2018 by the United Nations Office for Outer Space Affairs, which was on 29 October 2018 in New York, United States of America.
2. The Space4Water Portal is a multi-stakeholder web platform for interdisciplinary knowledge exchange on space solutions and technologies for water-related topics. It aims to strengthen the links between experts and expert communities. Special focus is also given to capacity-building and inclusiveness of actors from developing countries
3. The Committee on the Peaceful Uses of Outer Space, at its fifty-eighth Session in 2004, had before it a proposal by Austria for the inclusion of a new agenda item entitled “Space and water” in the agenda of the Committee (A/AC.105/2003/CRP.18). The Committee agreed that the item should be included on the agenda of the Committee for its forty-seventh session. On the basis of the work accomplished and progress made in 2004, the Committee would decide at that session whether to continue to include that item on its agenda.
4. In 2016, the United Nations Office for Outer Space Affairs and the Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW) signed a Memorandum of Understanding (MoU) to collaborate on their common goal of promoting the use of space-based technology for increased access to water. The Parties agreed on overarching themes such as, the organization of water-related capacity-building workshops and conferences under the Programme of Space Applications of the Office, the joint fund-raising for projects to assist Member States in addressing water-related development goals by utilizing space technologies and geospatial data, the

* [A/AC.105/C.1/L.373](#).



development of the Space4Water Portal, joint outreach and awareness raising to achieve the objectives defined through the UNISPACE+50 process.

5. The Office and PSIPW have been co-organizing a series of international conferences addressing the use of space technologies in water management since 2008. The first conference took place in Saudi Arabia, the second in Argentina in 2011, the third in 2014 in Morocco, and the fourth in Pakistan in 2018.

6. The development of the Space4Water Portal demonstrates that the Office streamlines its activities to achieve *SDG 6: Ensure availability and sustainable management of water and sanitation for all*. The partnership with PSIPW demonstrates the Office's push to mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals. It is proposed as a contribution to the achievement of *SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development*. Partnerships with other actors in the space and water management sector are considered an integral element of the Space4Water Portal initiative to foster the interoperability and sharing of knowledge and resources.

A. Vision

7. The vision is to enable all stakeholders involved in the space and water communities to access data and knowledge, to be creative and to realize their full potential in contributing to a world in which the availability and sustainable management of water and sanitation for all has become a reality.

B. Objectives

8. Through its collaboration with PSIPW, UNOOSA has developed and launched the Space4Water Portal. The portal brings together organizations active in the field to share information on projects, initiatives, satellite missions, software, community portals, capacity-building and training material, conferences, workshops, data, as well as news articles and publications in the sector. Shared information is categorized and shared publicly in a user-friendly format.

9. The Space4Water Portal serves as:

- (a) a platform for interdisciplinary knowledge exchange on space solutions and technologies for water-related topics;
- (b) an initiative to make information in the field discoverable and comparable;
- (c) a multi-stakeholder platform;
- (d) a platform to support capacity-building;
- (e) a portal for expert communities sharing information on software, applications, publications, projects and initiatives; and
- (f) a portal which is inclusive for actors from developing countries.

10. Water is crucial for life and for the achievement of the most recent global SDGs. Drinking water is a scarce resource, and freshwater scarcity continues to increase and creates a challenge to growing populations around the world, often leading to conflict and other economic impacts. In addition to direct contributions to SDG 6 and 17, the portal also supports actions for SDG 3, 7, 11, 14 and 15.¹

¹ SDG 3: Ensure healthy lives and promote wellbeing for all at all ages;
SDG 6: Ensure availability and sustainable management of water and sanitation for all;
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all;
SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable
SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably

11. Space technologies and space-based solutions can benefit water management overall, can help monitor sustainable development goals and indicators directly or indirectly related to water, and can facilitate improved water use and water resource sharing internationally. Furthermore, it can assist in water-related disaster management and crisis response activities. The benefits of such technologies have often been proved in the past, and the Office has organized numerous capacity-building events and workshops to share best practices and success stories on these over the last decades. It is key therefore that such benefits and solutions are brought together in a focused manner and awareness of their existence is further raised.

12. The portal serves as an entry point to space-based information for water researchers and practitioners. It can open the work of the Office to a new community of practice, offering data and capacity-building and serving as a hub for the dissemination of information.

13. The Space4Water Portal is intended to serve as a bridge between communities of both the water and space sectors, but also between different types of stakeholders. Stakeholders to the Space4Water Portal can be classified in the following types: *academia, government, inter-governmental organization, private sector, private research institute, non-for profit organization, non-governmental organization.*

14. Capacity-building and training material including Massive Open Online Courses, Specialized Open Online Courses, as well as Manuals and other eLearning possibilities shall be evaluated and promoted with important meta-data on courses or learning material.

II. The Portal

15. There are many data portals on water implemented by the United Nations, its Member States, the private sector or other stakeholders. The Office does not want to replicate existing services, but links to these already existing resources, to demonstrate the vast number of projects and solutions provided by the community and to raise awareness thereof. Moreover, and most importantly, the Space4Water Portal provides users an entry point to space-based solutions, which have a significant potential when they are used for water research and management.

16. The portal was designed following specific criteria and requirements.

A. User Requirements

17. Participation at conferences, including an interactive presentation to evaluate user requirements of professionals in the field have been the initial step of the Office to understand demand in terms of data and functionality. Among the key challenges within space and water research identified by participants of the *United Nations/Pakistan/Prince Sultan Bin Abdulaziz International Prize for Water - 4th International Conference on the Use of Space Technology for Water Management (2018)* were funding allocation as well as collaboration and cooperation. It was agreed then that the portal must foster collaboration and cooperation.

18. Furthermore, continuous surveys are planned to improve the offer of services at the portal according to user's needs.

manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

B. The selection of Drupal and its advantages

19. The Office of Information & Communications Technology (OICT)² adopted Drupal,³ an open source platform, as a standard for the United Nations Secretariat and its various entities, because it meets complex requirements including security, flexibility, accessibility, support for multilingual publishing, and publication workflow.

20. Apart from the above-mentioned points, another benefit of Drupal is that it is continuously developed by a very large open-source community, contributing not only to improvements of the content management system itself, but also to modules implementing specific requirements. Furthermore, the system can be extended by developers based on organization-specific demands.

21. Drupal has also been the choice for the UN-SPIDER Knowledge portal⁴, which allows for interoperability considerations in the future.

III. Structure of the portal

A. Structure from the point of view of end-users

22. *Home* – The landing page follows a modern web design and features most recent news articles, events, along with the most important sections of the website (see *Figure 1: Home page of the*).

23. *About* includes submenu items to pages such as *Vision and Mission, History*, a profile page of the *United Nations Office for Outer Space Affairs*, introducing the Office, the *Prince Sultan bin Abdulaziz International Prize for Water* introducing the donor, as well as *Frequently Asked Questions*.

24. *Thematic focus* features a list of key words / key topics to be featured on a page, which shall allow approaching the resources of the portal with a specific thematic field on mind. The same data that is published under *Stakeholders* and under *Resources* can be accessed from here. However, by looking through the lens of a certain topic.

25. *Regional focus* approaches the data of the portal with a focus on a region. At this point of time borders of countries and continents define the regional limits. In the future a move to e.g. climate regions, or regions defined by other criteria are possible.

26. Under *Stakeholders* users will find a list of all stakeholders, who registered for the publication of their profiles and work on the Space4Water Portal. Profile pages, which can be accessed by clicking on a stakeholder’s logo include (depending on what a stakeholder shared) a short description of the stakeholder, a section in which resources published on the portal are displayed, news and events related to the stakeholder, as well as contact details.

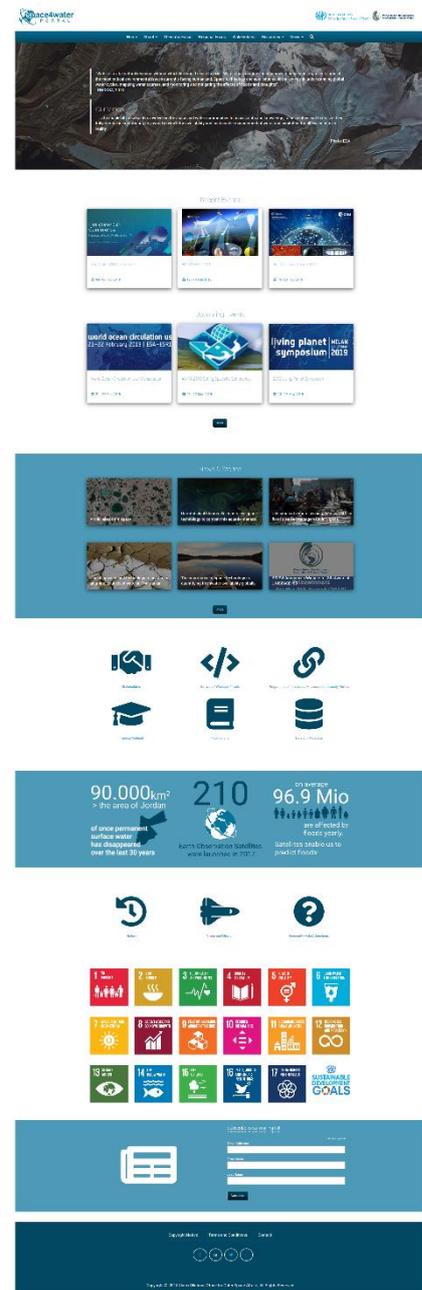


Figure 1: Home page of the Space4Water Portal

² <https://unite.un.org/about>.

³ <http://www.drupal.org>.

⁴ <http://www.un-spider.org>.

27. Among the featured resources are *Programmes / Initiatives / Missions / Community Portals, Software / Web applications / Tools, Publications, Standards* as well as *Training Material*. Training Material shall be promoted with important metadata such as the start and end date of courses, the language, a short description, thematic and regional focus, etc. Datasets make up an integral part of the community of practice's work. In order not to duplicate efforts the Office decided to reuse other organization's work. Therefore, an ongoing collaboration with Group on Earth Observations and its secretariat shall lead to a search within the datasets of the Global Earth Observation System of Systems portal,⁵ which shall be accessible via the Space4Water Portal.

28. *News* in the main navigation has two sub-menu items, *Articles and Stories* as well as *Events*. Both can also be contributed by individuals and organizations, who have not registered as stakeholders. *Stories* have a thematic and regional focus and can be contributed and shall provide an entry point for the general public to topics focusing on the benefits space technologies provide for water research and management.

29. The *Search* function covers all content, but the publications (which can be browsed through under the respective page itself).

B. Presenting information and knowledge generated by stakeholders

30. The portal lives from information and knowledge contributions by the community and seeks to display them in a user-friendly format to allow discovery of the vast majority of contributions and implementations of projects, initiatives, dissemination portals and others. by the communities of practice. Information and knowledge generated by stakeholders is mostly covered under the menu-item *Resources*. The Office is continuously working on an improvement of the filter possibilities and design of the resource pages, to improve the discoverability of content according to various criteria.

31. Furthermore, articles written by individuals are also used to generate interest on thematic and regional aspects of space technologies applications in hydrology and water management, but also the research thereof.

32. Throughout the page resources can be tagged by their thematic focus, their regional focus as well as the SDGs they address. Thus, all information can also be filtered by those categories. By clicking on any SDG on the landing page, a user can read information on the SDG itself, but also see which content on the portal has already been tagged with this SDG and is therefore listed on the bottom of the SDG page under the heading: *Related Content*.

33. The Office has already covered certain topics promoted on the Space4Water Portal under other umbrellas such as the *UN-SPIDER Knowledge Portal*. For example, *UN-SPIDER Recommended Best Practices*, which are related to water can benefit both portals. Furthermore, the sharing of glossary term definitions, is sought by the Office, to increase the benefit while minimizing staff and stakeholder resources.

C. Future Services

34. A dataset search will be implemented by integrating a search and data display widget of the GEOSS portal of portals.

35. Distinguished researchers will be introduced with a profile, including a photo, biography and contact possibility. The Office will interview researchers and publish the results which shall serve as inspiration for younger practitioners and strengthen interpersonal relations within the community of practice.

⁵ The portal is commonly known as GEOSS Portal <http://www.geoportal.org>.

36. The filtering of software by features supported is an integral element to provide users with a service that assists in the selection of appropriate software and tools. It is therefore very important that stakeholders describe their software by identifying the key features and submitting this information to UNOOSA.

IV. Outreach

37. To enhance the use of the Space4Water Portal the Office continues to participate and present at conferences. The Office also (co-)hosts conferences and workshops at which it covers topics relevant for the target audience of the portal. On the one hand the portal is promoted at such events, on the other hand inspiration on the user-requirements can be reported back to improve functionality of the portal.

38. The promotion of the Space4Water Portal on Social Media⁶ increases its general publicity and can keep the general public informed on new content or features.

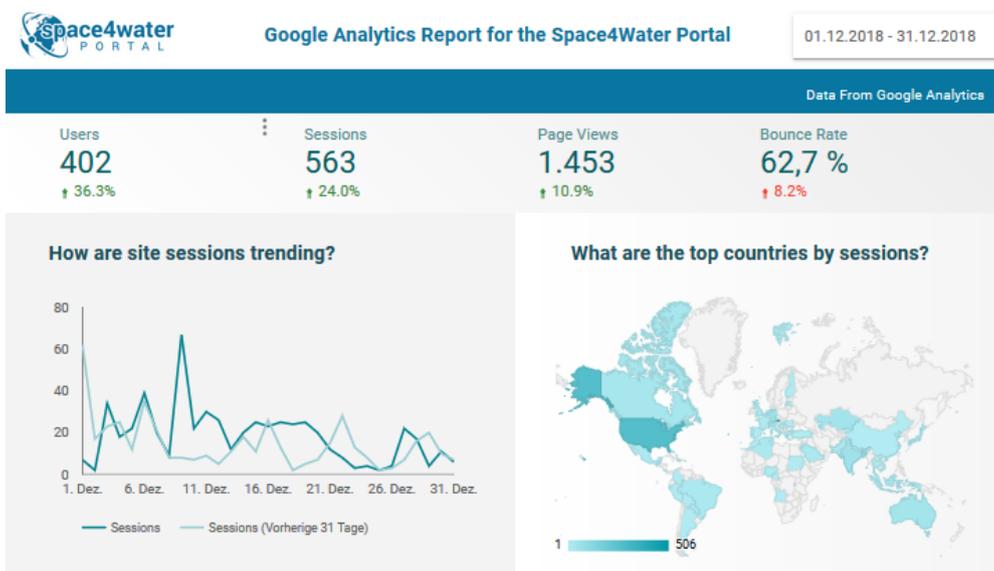
39. Improvements of functionality shall be informed by feedback mechanisms, such as surveys and in-person encounters with experts. Currently planned improvements of functionality include those listed under *V.A C. Future Services*.

V. The portal in figures

40. As of December 2018, 23 stakeholders have registered themselves to be featured on the Space4Water Portal, with quite a few more currently evaluating their participation. Distribution among the stakeholder types is as follows: Academia (3), Government (5), Intergovernmental organization (7), Non-for-profit organization (2), Non-governmental organization (3), Private sector and industry (3).

41. The number of resources published on the Space4Water Portal are as follows: Software, Web apps, Tools (4), Programmes, Initiatives, Missions, Projects (6), Capacity-Building and Training Material (6), Articles (6), Events (34), Publications (10), Glossary Terms (The data collection for glossary terms is in progress, but the glossary has not yet been published).

42. Google Analytics is used to evaluate the most visited pages, topics of high interest from the user community and the sources from which users navigate to this portal. An example analysis of December 2018 can be seen in *Figure 2: Google Data Studio – Space4Water Analytics Report December 2018*.



⁶ <https://www.facebook.com/UNOOSA/>.
<https://twitter.com/UNOOSA/>.

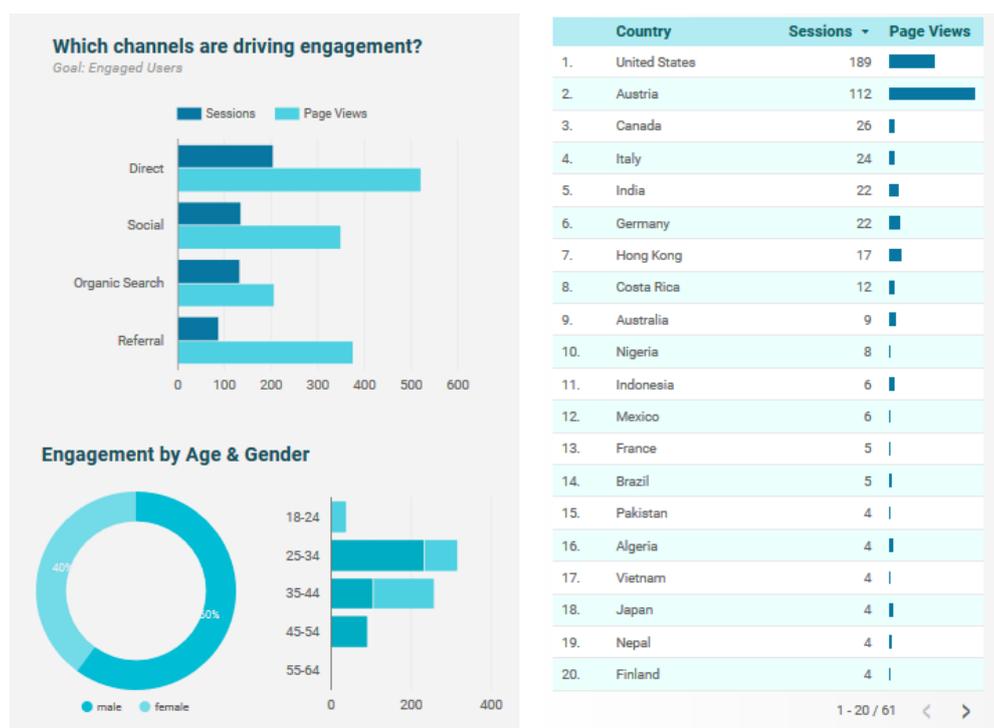


Figure 2: Google Data Studio – Space4Water Analytics Report December 2018

VI. Conclusion

43. Next steps include the extension of functionality, such as the increased use of mapping technology in stories and other published pages of the portal, an evaluation of the added value and feasibility of multilingualism, as well as the implementation of standards and the promotion of them. Furthermore, the taxonomies used on the portal for tagging shall be improved. Interoperability with other portals is an asset in terms of data exchange. The Office counts on its partners to facilitate data exchange. Most of the above activities should be ongoing and permanent actions to improve and further develop the portal, going beyond the current funding agreement with PSIPW. This should be considered in the future collaboration.

44. The Office prioritizes its contribution to knowledge sharing and networking support of stakeholders in the space sector solutions to connect experts and inform practitioners, who are working on an increasingly important topic – hydrology and water management. The Office will continue to develop features and functionality for the Space4Water Portal, through regular evaluation and collecting user requirements and feedback.

45. The Space4Water Portal can be considered as a hub of relevant stakeholders. Therefore, this portal lives from contributions in the form of information and knowledge. The Office encourages the Member States of the Committee on the Peaceful Uses of Outer Space Member States and other affiliated parties of the Office to promote the portal among relevant actors.

46. The Office also encourages individual professionals to engage with the portal and to provide their valuable views and ideas.